

POLITICAL INSTITUTIONS, MULTINATIONAL CORPORATIONS, AND THE  
QUEST FOR SUSTAINABLE CAPITALISM

by

HOLGER MEYER

(Under the Direction of Markus M.L. Crepaz)

ABSTRACT

Concerns for the state of the natural environment and related demands for the establishment of more sustainable forms of production are rising across the world. In view of these developments, this dissertation asks two interrelated questions: What factors explain cross-national differences in multinational corporations' (MNCs) corporate environmental responsibility (CER) efforts? And: Do these efforts in their entirety represent viable long-term alternatives to governmental environmental regulatory regimes? Answering these questions helps determine whether corporations' self-regulatory commitments are generally genuine, whether they are driven primarily by legislative pressure or consumer demand, and – most importantly – how useful they are in preserving the global environmental commons.

Applying the varieties of capitalism approach to the analysis of 54 Fortune Global 500 companies' CER efforts across 21 OECD economies, this dissertation argues that cross-national institutional differences are a central and hitherto neglected factor in explaining the relationship between popular calls for environmental sustainability and

corporate responses to such demands. A novel dataset, containing data on 12 central CER indicators, is constructed by analyzing information publicly available on each company's official national websites. The statistical relationship between the quantity of CER efforts and several alternative specifications of institutional systems suggests that firms disclose more information on their corporate environmental responsibility efforts in more-liberal market economies (LMEs) than in more-coordinated market economies (CMEs).

Subsequently, overall and disaggregate ecological footprints of CMEs, relying more heavily on governmental intervention, are compared to those of LMEs, relying more heavily on private regulatory regimes. The results indicate that – even though the institutional framework of LMEs provide stronger incentives for corporations to invest in individualistic CER efforts – CMEs outperform the former with regard to their environmental performance. The findings not only challenge the common perception of a trend towards more homogeneous global corporate responsibility efforts but also underline the continuing relevance of sound institutional design and governmental environmental management in an age of deregulation and privatization.

**INDEX WORDS:** Corporate environmental responsibility, Varieties of capitalism, Institutionalism, Globalization, Environmental performance, Sustainability, Greenwashing

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## DEDICATION

*To my wife Fernanda Dórea and to my parents Wiltraut and Johann Meyer*

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## TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	v
LIST OF TABLES .....	x
LIST OF FIGURES .....	xii
LIST OF ACRONYMS.....	xvi
CHAPTER	
1 INTRODUCTION.....	1
1.1 ENVIRONMENTAL AWARENESS: CAUSES AND CONSEQUENCES .....	6
1.2 THEORIZING CORPORATE ENVIRONMENTAL RESPONSIBILITY .....	9
1.3 CONTRIBUTIONS OF THIS DISSERTATION.....	12
1.4 OUTLINE OF THE FOLLOWING CHAPTERS .....	22
2 CER: WHY, WHEN, HOW, AND DOES IT MATTER? A REVIEW OF MAJOR APPROACHES.....	24
2.1 DEFINITIONS AND MEASUREMENTS .....	24
2.2 WHY CER? VALUES, ECONOMICS, AND POLITICAL INSITUTIONS .....	35
2.3 THE ECOLOGICAL BOTTOM LINE: ASSESSING THE EFFICACY OF CER.....	68
2.4 CONCLUSION .....	88

3	VARIETIES OF CAPITALISM AND THE ENVIRONMENT: CHARACTERISTICS, CAUSAL MECHANISMS, AND CONSEQUENCES.....	92
3.1	CATEGORIZING INSTITUTIONAL FRAMEWORKS .....	95
3.2	THE SYSTEM LEVEL: STATES, CORPORATIONS, AND ENVIRONMENTAL RESPONSIBILITY .....	98
3.3	THE COMPANY LEVEL: HOME STATES, CORPORATE CULTURE, AND CER .....	105
3.4	LMES, CMES, AND THE ENVIRONEMNTAL BOTTOM LINE .....	113
4	DETERMINANTS OF MULTINATIONAL CORPORATIONS' NATIONAL CORPORATE ENVIRONMENTAL RESPONSIBILITY EFFORTS: A CROSS- NATIONAL LARGE-N EVALUATION .....	121
4.1	RESEARCH DESIGN.....	122
4.2	STATISTICAL RESULTS AND DISCUSSION.....	164
4.3	CONCLUSION .....	176
5	INSITUTIONAL SYSTEMS AND ENVIRONMENTAL PERFORMANCE: COMPARATIVE ASSESSMENTS OF THE ENVIRONMENTAL BOTTOM LINE.....	180
5.1	CO <sub>2</sub> EMISSIONS: TRENDS ACROSS 21 OECD ECONOMIES .....	182
5.2	ALTERNATIVE PERFORMANCE INDICATORS: 2012 EPI AND TREND EPI .....	207
5.3	CONCLUSION .....	227

6 CONCLUSION: THE FUTURE OF ENVIRONMENTAL REGULATION.....	235
6.1 CORPORATIONS, INSTITUTIONS, AND THE ECOLOGICAL BOTTOM LINE .....	236
6.2 CER: SUPPLEMENT TO OR SUBSTITUTE FOR COLLECTIVIST STRATEGIES? .....	240
6.3 POLICY RECOMMENDATIONS .....	246
6.4 LIMITATIONS AND FUTURE DIRECTIONS .....	253
REFERENCES .....	258
APPENDIX.....	313

## LIST OF TABLES

	Page
Table 2.1: Selected corporations' annual sales compared to selected countries' GDP	.53
Table 3.1: Hypothesized impact of the home and host states' institutional frameworks on multinational corporations' reported CER efforts	.....113
Table 4.1: List of OECD countries included in the analysis	.....124
Table 4.2: List of companies included in the analysis, by FG 500 rank and annual revenue	.....125
Table 4.3: List of CER indicators by category and coding scheme	.....137
Table 4.4: Hall and Soskice's and Pryor's institutional classification schemes	.....141
Table 4.5: List of all 54 MNCs under observation by headquarters location (country and institutional system (H&S))	.....154
Table 4.6: Number of MNCs headquartered in each home system (H&S and Pryor 3-5)	.....157
Table 4.7: All 54 firms under observation grouped by industry sector	.....158
Table 4.8: Six models estimating MNCs' nationally reported CER efforts	.....164
Table 4.9: Six regression models evaluating the relationship between the institutional systems of MNCs' host and home countries and their reported national CER efforts	.....165
Table 5.1: Primary climatic traits of all 21 countries under observation	.....189
Table 5.2: Twelve models estimating countries' CO <sub>2</sub> emissions per capita and per GDP	.....194
Table 5.3: Random-effects linear regression models evaluating the relationship between countries' institutional systems and their CO <sub>2</sub> emission per capita, 1980 to 2008	.....196

Table 5.4:	Random-effects linear regression models evaluating the relationship between countries' institutional systems and their CO <sub>2</sub> emission per dollar of GDP, 1980 to 2008.....	197
Table 5.5:	Indicator framework of the 2012 Environmental Performance .....	209
Table 5.6:	2012 EPI and Trend EPI rankings of all 21 OEC countries under observation, by aggregate score and institutional system (H&S) .....	210

## LIST OF FIGURES

	Page
Figure 3.1: Predicted effects of consumer demand and citizen demand on overall demand for CER across different varieties of capitalism .....	104
Figure 4.1: Estimated number of internet users, total and per 100 inhabitants, 2001-11 .....	127
Figure 4.2: Estimated number of internet users per 100 inhabitants in the 21 countries under observation, 2000 and 2010 .....	128
Figure 4.3: Countries' average CER indicator scores (ordinal scale, ranging from 0 to 4) and total CER scores (count variable summing all 12 indicators, ranging from 0 to 48) .....	138
Figure 4.4: Population size of the 21 countries included in the analysis, by institutional system (H&S specification) .....	148
Figure 4.5: GDP per capita in 2011 of the 21 countries included in the analysis, by institutional system (H&S) .....	149
Figure 4.6: Human Development Index scores in 2011 of the 21 countries included in the analysis, by institutional system (H&S).....	150
Figure 4.7: Positive responses to World Values Survey statements V105-107, in percentage of all responses given in the 21 countries included in the analysis, by institutional system (H&S).....	151
Figure 4.8: Headquarters location for the 54 companies included in the analysis, by country and institutional system (H&S) .....	154
Figure 4.9: Number of MNCs maintaining production facilities within the borders of each of the 21 OECD countries included in the analysis, by institutional system (H&S) .....	155
Figure 4.10: Averaged (across all 21 countries) reported CER efforts by company and industry sector (boxplot, top right panel), for the 54 MNCs included in the study .....	159

Figure 4.11: Distribution of CER scores across the 1134 observations evaluated in this study .....	161
Figure 4.12: Predicted CER scores for all 1134 observations, using Pryor’s five cluster categorization, plotted against the observed CER scores for the same observations .....	166
Figure 4.13: IRR model estimations by institutional system of the host country, compared to the reference ‘system 1’ within each cluster specification, according to the regression models shown in Table 4.9 .....	168
Figure 4.14: IRR model estimations by institutional system of MNCs’ home countries, compared to the reference ‘system 1’ within each model specification, according to the regression models shown in Table 4.9. ....	170
Figure 4.15: Average reported national and global CER scores across the 1134 national websites under observation, by institutional system (H&S) .....	179
Figure 5.1: Annual CO <sub>2</sub> equivalent emissions (per capita), by country in 2009.....	183
Figure 5.2: CO <sub>2</sub> emissions per capita for 21 OECD countries, by institutional system (H&S).....	185
Figure 5.3: CO <sub>2</sub> emissions per dollar of GDP for 21 OECD countries, by institutional system (H&S) .....	185
Figure 5.4: World map of the Köppen-Geiger climate classification generated by Kottek et al. (2006) .....	188
Figure 5.5: Population density in 2008 of all 21 countries, by institutional system (H&S).....	192
Figure 5.6: Estimated effect of institutional system (H&S) on CO <sub>2</sub> emissions per capita (top panel) and per dollar of GDP (bottom panel), which is additive to the effect of all other independent variables as well as the linear constant. ....	201
Figure 5.7: Percent changes in CO <sub>2</sub> emissions per capita (2000-2010), by country and institutional system (H&S) according to 2012 Trend EPI. ....	205
Figure 5.8: Percent changes in CO <sub>2</sub> emissions per dollar of GDP (2000-2010) by country and institutional system (H&S) according to 2012 Trend EPI.....	206
Figure 5.9: Twenty-one countries by 2012 EPI (x-axis) and Trend EPI (y-axis) scores.....	211

Figure 5.10: Air quality in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	214
Figure 5.11: SO <sub>2</sub> emissions of 21 countries in 2010, measured in kg per capita and kg per dollar of GDP, by institutional system (H&S).....	214
Figure 5.12: Water conservation in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	216
Figure 5.13: Change in river flow from pre-industrial natural state for 21 countries in 2010, measured in %, by institutional system (H&S).....	216
Figure 5.14: Biodiversity and habitat protection in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	218
Figure 5.15: Biome protection in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	218
Figure 5.16: Environmental performance of the agricultural sector in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	220
Figure 5.17: Agricultural subsidies in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	220
Figure 5.18: Environmental performance of the Forestry sector in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	222
Figure 5.19: Forest loss and cover change in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	222
Figure 5.20: Climate change and energy performance of 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S).....	224
Figure 5.21: CO <sub>2</sub> emissions per capita, per GDP, and per kWh, measured in kg; share of renewable electricity in total electricity production, measured in percent, in 21 countries in 2010, by institutional system (H&S).....	224
Figure 5.22: Greenhouse gas emissions per capita for all 21 countries under observation in the years 1990, 2000, and 2008, by institutional system (H&S).....	226
Figure 5.23: Percentage of 10 countries' populations considering 3 global and 3 local environmental problems to be somewhat or very serious, by institutional system (H&S).....	229



Figure 5.24: 2012 Environmental Performance Index scores of 21 OECD countries plotted against the average nationally reported CER scores of 54 multinational corporations, by institutional system (H&S) .....	231
Figure 5.25: Greenhouse gas emissions in 2008 of 21 OECD countries plotted against the average reported CER score of 54 multinational corporations under observation, by institutional system (H&S).....	231
Figure 5.26: Environmental regulatory regime index scores of 21 OECD countries, by institutional system (H&S) .....	233

## LIST OF ACRONYMS

3BL	Triple Bottom Line
AIC	Akaike Information Criterion
CAP	Common Agricultural Policy (European Union)
CC	Corporate Citizenship
CCTLD	Internet Country Code Top-level Domain
CER	Corporate Environmental Responsibility
CME	Coordinated Market Economy
CO <sub>2</sub>	Carbon Dioxide
CR	Corporate Responsibility
CSR	Corporate Social Responsibility
EDGAR	Emission Database for Global Atmospheric Research
EPA	U.S. Environmental Protection Agency
EPI	Environmental Performance Index
ERRI	Environmental Regulatory Regime Index
ESG	Environmental, Social, and Corporate Governance
FG500	Fortune Global 500
FLO	Fairtrade Labeling Organizations International
G3	Third Generation Reporting Guidelines of the Global Reporting Initiative
GDP	Gross Domestic Product

GHG	Greenhouse Gas
GRI	Global Reporting Initiative
H&S	Hall and Soskice's (2001) Institutional Classification Scheme
IEA	International Energy Agency
IPCC	Intergovernmental Panel on Climate Change
IRR	Incidence Rate Ratio
ISO	International Organization for Standardization
LME	Liberal Market Economy
LULUCF	Land Use, Land-Use Change, and Forestry
MME	Mixed Market Economy
MNC	Multinational Corporation
NGO	Nongovernmental Organization
NO <sub>x</sub>	Mono-Nitrogen Oxides
OECD	Organization for Economic Co-operation and Development
PCA	Principal Component Analysis
PPP	Public Private Partnership
PR	Public Relations
PRYOR 3-5	Pryor's (2005) Three, Four, and Five Institutional Cluster Specifications
SO <sub>2</sub>	Sulfur Dioxide
SO <sub>x</sub>	Sulfur Oxides
SRI	Socially Responsible Investment
TRI	Toxic Release Inventory
UNCTC	United Nations Commission on Transnational Corporations

UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
URL	Uniform Resource Locator
VOC	Varieties of Capitalism
WTO	World Trade Organization
WWF	World Wide Fund for Nature (World Wildlife Fund)

## CHAPTER 1

### INTRODUCTION

Concern about the detrimental consequences of human activity on the environment has become one of the central socio-political issues of the beginning 21<sup>st</sup> century (Esty and Porter 2001). Recently, the global debate on how best to achieve environmental sustainability, defined as economic development that “meet[s] the needs of the present without compromising the ability of future generations to meet their own needs” (United Nations World Commission on Environment and Development 1987), has become dominated by a fundamental dispute about the compatibility of capitalism and environmental protection (cf. Alperovitz 1996; Dalton, Recchia, and Rohrschneider 2003). Among the most salient points of contention are the alleged responsibility of multinational corporations (MNCs) for the deteriorating state of the natural environment, their obligation to help correct the damages they may have caused, and the credibility of their commitments to implement sustainable modes of production (Alperovitz 1995). In this respect, Margolis and Walsh (2003) observe that “the sheer magnitude of problems [...] inspires a turn toward all available sources of aid, most notably corporations. Especially when those problems are juxtaposed to the wealth-creation capabilities of firms – or to the ills that firms may have helped to create – firms become an understandable target of appeals” (270).

MNCs are responding to growing transnational demands to reduce their ecological footprints by implementing increasingly complex corporate environmental responsibility (CER) strategies. These efforts have received mixed evaluations. Some analysts hail them as promising steps in the right direction (e.g. Hart 2005; Savitz and Weber 2006; Willard 2002). Others argue that public regulatory regimes and governmental intervention are more effective and more legitimate tools to combat ecological degradation (e.g. Esty and Porter 2001), frequently construing most current CER efforts as ‘greenwashing’ - the deceptive usage of green marketing to promote the perception that a firm’s operations and products are sustainable (e.g. Clegg 2009).

In view of the fierce debate among adherents of these opposing views, it is surprising how little systemic data exist on which to base analyses of the driving forces behind and the success of corporate environmental responsibility efforts. This state of affairs is, according to Esty and Porter, one of the main reasons why “environmental fields remain mired in deep controversies over the best path forward, with debate often dominated by emotional claims and heated rhetoric” (2001, 78).

What is more, the study of corporate social and environmental responsibility continues to be dominated by neoclassical economic theory, advancing reductionist frameworks that explain corporate responsibility efforts predominantly in terms of economic supply and demand. However, existing empirical evidence reveals remarkable variation both among individual firms’ national CER strategies in similarly developed market economies and among individual corporations’ global efforts. These observations suggest that existing theoretical frameworks fail to adequately capture and explain cross-national and cross-firm variation in CER efforts (cf. Gordon 2007).

Driven by two overarching research questions – *What factors explain cross-national differences in multinational corporations' environmental responsibility efforts?* and *Do these efforts in their entity represent viable long-term alternatives to governmental environmental regulatory regimes?* – this dissertation is intended to address and ameliorate the shortcomings outlined above. It has three primary objectives:

First, to develop a theoretical framework that is capable of explaining cross-national differences in corporations' CER efforts by going beyond reductionist neoclassical rationalist economic approaches. Understanding institutionalist motivators of corporate actors to commit to sustainable behavior is a fundamental prerequisite for designing efficient strategies to counter global environmental deterioration. The suggested framework is based on the varieties of capitalism approach spearheaded by Hall and Soskice (2001). Applying this approach to the study of environmental regulatory regimes, it is informed by the understanding that, even in times of accelerating globalization, states remain central actors on the global stage and that firms' business strategies are informed by the institutional environment they encounter in particular societies. Drawing on Hall and Soskice's categorization of national economies by reference to the way in which firms resolve coordination problems (2001, 8), the framework contends that historically grown institutional structures condition different countries towards the adoption of particular environmental regulatory regimes. Consequently, multinational corporations' motivation for making environmental commitments, and how they do so, is fundamentally a question about differences in capitalist relations.

Second, to compile a comprehensive original dataset that serves as the foundation for a cross-national test of this theoretical framework. For this purpose, a consistent methodology to measure CER is developed, utilizing information publicly accessible on the internet. The dataset was constructed by collecting data for 12 CER indicators from country-specific websites of all Fortune Global 500 companies operating in all 21 developed economies under observation.

Third, to comparatively evaluate the environmental footprints of liberal market economies, relying more heavily on private environmental regulatory regimes, and coordinated market economies, focusing more on governmental environmental regulatory regimes and intervention. The utilization of longitudinal pollution data and cross-national environmental performance indicators allows for a much needed comparative assessment of the efficacy of different institutional systems with regard to their environmental performance.

Strong evidence is produced that multinational corporations engage in more substantial CER efforts in less-coordinated market economies than in more-coordinated ones. Furthermore it is shown that countries that emphasize governmental regulation and involvement in the economy outperform economies that rely more on CER activities in their environmental protection efforts. Consequently, CER should be regarded as a supplement to, not a substitute for governmental environmental intervention and regulation. These findings not only challenge the common perception of a trend towards more homogeneous global corporate responsibility efforts but also the assumption that private regulatory regimes in their current form represent a viable substitute for governmental national and international regulatory regimes.



Providing a comprehensive understanding of the driving forces behind and the consequences of a phenomenon as multifaceted as CER, this project crosses disciplinary boundaries and produces results that are of interest not only to academics in the fields of comparative political economy, global environmental politics, and international business and management, but also to policy makers and business executives involved in the implementation of environmental responsibility strategies.

The remainder of this introduction provides a brief summary of the major issues addressed in the following chapters. First, it demonstrates the growing global demand for substantial environmental protection by highlighting three of its principal driving forces: the rapid surfacing of the ecological consequences of decades of environmental overexploitation, the spread of postmaterialist values orientations, and the related claim that the ongoing liberalization of international economic relations reduces the efficiency of national environmental regulatory regimes. Second, it provides a brief outline of the most important theoretical perspectives on *raison d'être*, motivators, and effectiveness of CER. Third, the contributions of this dissertation to the literature is demonstrated by presenting the theoretical and empirical puzzles and major research questions addressed, the theoretical framework developed to answer these questions, and the principal working hypotheses. The introduction concludes with an overview of the following chapters.

## 1.1 ENVIRONMENTAL AWARENESS: CAUSES AND CONSEQUENCES

The scientific consensus on climate change and the detrimental effects of ecological degradation on human living conditions is increasingly reflected in popular opinion across the world (e.g. WorldPublicOpinion.org 2009). The emergence of this transnational environmental consciousness is related to three interconnected trends:

The first of these developments is progressive technological innovation. It created tremendous opportunities to generate prosperity and increase the quality of life of millions of people. However, the laudable improvements of living standards of large shares of the global population are counter-balanced by alarming statistics about the state of the environment (Brauch et al. 2008). The emergence of capitalism and consumerism as the largely uncontested global economic imperatives and the rapid expansion and urbanization of the world's population have resulted in a severe environmental crisis. For instance, the International Panel on Climate Change (IPCC) has compiled significant evidence that global warming is not only real but that human activity is a major contributor to its development. Analyzing 928 abstracts published in scientific journals between 1993 and 2003, Oreskes (2004) shows that scientists publishing in the peer-reviewed literature unanimously agree that human activities are the principal reason for the increase in greenhouse gas (GHG) concentrations in the atmosphere. Relatedly, McCarthy (2001) shows that most of the observed global warming over the past 50 years is a result of these activities.

Aside from its detrimental effects on natural habitats and biodiversity (cf. Root et al. 2003), climate change has become a major threat to economic value. A conservative World Bank study estimates that annual economic losses caused by environmental

degradation will range from 70 to 100 billion US dollars per year for the time period from 2010 to 2050 (Narain, Margulis, and Essam 2011). In contrast, Muller, Mendelsohn, and Nordhaus (2011) conclude that air pollution damages caused by industries in the United States in 2002 alone were \$184 billion. Even though some observers believe that technological solutions represent more cost-efficient ways to avert climate change (e.g. Govindasamy and Caldeira 2000), a majority of scientists urge for fundamental changes in lifestyles as well as production and distribution systems.

The second broad trend is the emergence of worries about the consequences of environmental degradation as a major issue on the political and social agendas in almost all countries (Esty and Porter 2001). The fact that the debate is no longer limited to academic and journalistic circles is in large part due to the spread of 'postmaterialist' values orientations, incorporating a generalized concern for the environment, within affluent segments of the global society (cf. Inglehart 1990; Charnock and Ellis 2004; Goodland 1995; Rohrschneider 1990). For example, a study by the Roper Organization (1990) found that from 1987 to 1990, public concern about the environment in the US grew faster than concern about any other national problem. During the same time period, Sierra Club membership rose by 13.9 percent per year on average (Sierra Club 1993).

The third important development, closely linked to the growing awareness of global environmental degradation is the realization of international interconnectedness. While there is no scholarly consensus on what exactly constitutes 'globalization,' a working definition is provided by Scholte (2000). Differentiating between five broad categories, he identifies the internationalization of human interaction, economic liberalization, intellectual universalization, socio-cultural westernization, and

geographical deterritorialization as the most important features of globalization. While each of these categories invites criticism on theoretical as well as empirical grounds, together they provide a parsimonious general picture of current global developments. All five groupings are directly related to both the detrimental consequences of economic activity on the environment and the spread of postmaterialist concerns about these developments. Internationalization of human interaction, geographic deterritorialization, and the liberalization of the global economy created new opportunities for many people, but they have also led to globalized environmental externalities and inequities. Globalization of knowledge and socio-cultural westernization allowed for the spread of environmentalism and technologies and processes of environmental care, but also of mass consumerism and technologies of environmental extraction.

Finally - and for the purposes of this dissertation of particular relevance - globalization places great stress on existing patterns of governance: Environmental problems are inherently global, with life-sustaining ecosystems and watersheds frequently crossing national boundaries; air pollution moving across continents and a single shared atmosphere providing climate protection (Najam, Runnalls, and Halle 2007). Consequently, monitoring and responding to environmental issues requires internationally coordinated governance and a worldwide infrastructure of agreements, institutions, and norms (Roch and Perrez 2005).

However, as the sobering results of the 1997 Kyoto Climate Conference and the 2011 Durban Climate Change Conference show, national interests all too frequently supersede global concerns for environmental sustainability (Vorholz 2011). Not surprisingly, many observers perceive the increasingly complex mechanisms and

procedures of interstate interactions as too costly, too inefficient, and too inflexible. Apparently, the nation-state as the principal unit in the international system has indeed become “too small for the big problems of life, and too big for the small problems of life,” as formulated by Bell already in 1987 (14).

Confronted with this complex dilemma, many analysts perceive non-state actors to be better suited to tackle environmental problems of global scale. On the one hand, this paradigm shift is evident in the growing number of, support for, and socio-political power of transnational not-for-profit environmental organizations (Najam, Runnalls, and Halle 2007). On the other hand, it manifests itself in the growing demand on economic actors to voluntarily adjust their behavior. Rising transnational awareness of the concentration of economic, financial, and not lastly political power in the hands of multinational corporations (cf. Bock and Fuccillo 1975; Bracken 2004; Scruggs 1999) renders these actors frequent targets of demands for greater corporate responsibility and accountability (cf. Cutler 2006; Levy and Newell 2005; Utting 2002; Winston 2002).

## 1.2 THEORIZING CORPORATE ENVIRONMENTAL RESPONSIBILITY

While academic conceptualizations of corporate responsibility date back to the middle of the 20th century (Carroll 1999), the systematic study of such efforts – defined as “concepts and strategies by which companies voluntarily integrate social and environmental concerns with their business operations and stakeholder interaction” (Commission of the European Communities 2001, 6) is a relatively recent phenomenon (Buhr and Grafström 2004). A considerable literature on *raison d’être* of and driving forces behind corporate responsibility efforts – spanning disciplines from business and

economics to sociology and political science – has emerged over the past decades. However, the vast majority of these works have approached the issue from descriptive or normative rather than positivist angles (Prahalad and Porter 2003).

The existing works can be separated into two broad categories: studies that focus on economic explanations and studies that emphasize political driving forces. The most frequently advanced arguments for firms' CER engagement are economic in nature (cf. Lyon and Maxwell 1999). From an economic point of view, the detrimental impact of business activities on the natural environment is generally perceived to be a case of market failure caused by externalities (Mikler 2007). Due to the intrinsically public good nature of the environment (caused by ill-defined property rights) it can be jointly consumed by several agents simultaneously. Consequently, prices of goods and services do not reflect the detrimental impact of their production and consumption on the global environmental commons. Under these circumstances, the principal incentives for firms to ameliorate the problem of pervasive, often global, environmental externalities are the threat or implementation of governmental regulation and pervasive consumer demand for such actions (Jones 1980). The increasing relevance of postmaterialist values in socio-political discourses across developed societies (mentioned above) has resulted in the creation of such demand and a general reevaluation of firms' role in society. Driven by the emerging notion that corporations have obligations to societal groups other than stockholders and beyond those prescribed by law, economic actors are increasingly being held accountable for ecological issues they might have caused (Morgera 2009).

Unlike neoclassical economic explanations for why companies invest in CER, institutional perspectives do not define actors' rationality based on a priori assumptions

(Mikler 2007). Instead, they emphasize that actors' notion of rationality is contingent on – frequently institutionalized – behavioral norms. One of the more recent institutionalist theoretical developments is the emergence of the varieties of capitalism approach. Spearheaded by Hall and Soskice (2001), it focuses on how state, market, and civil society relations are organized differently across capitalist systems and how divergent modes of coordination impact business strategy and behavior. Following this approach, cross-national differences in firms' economic as well as environmental performance are caused to a significant degree by differences in institutional design.

Similar to the driving forces behind corporations' responsibility strategies, their effects remain highly disputed. Referencing the rise of postmaterialist values orientations, a number of scholars argue that the growing environmental awareness and calls for substantial protective action generate massive global pressure on multinational corporations to invest in genuine CER. Generally drawing on neoclassical economic models, they argue that this growing demand, further heightened by the experienced inefficiencies of many national and international governmental environmental regulatory regimes, generates sufficient momentum to bring about private regulatory regimes of sufficient scale to substitute for traditional efforts to protect the natural environment (Vorholz 2011). In the emerging “post-national constellation” (Habermas and Pinsky 2001), with states capacities increasingly paralyzed vis-à-vis global problems and non-state actors gaining in popularity, capabilities, and influence, populations around the world are expected to perceive the latter as more flexible and capable actors and consequently more suitable targets for appeals for environmental action (Scherer and Palazzo 2008). In view of these developments, a shift in global business regulation from

state centric modes towards new multi-lateral global or non-territorial modes of regulation with private business firms as core actors is predicted.

However, a large group of scholars challenge the optimistic assumption that growing demand for CER will gain sufficient momentum to turn it into a viable alternative to governmental coordination. Most of these critics postulate that such expectations are incompatible with the internal dynamics and laws of capitalism (e.g. Alperovitz 1995). Under the given circumstances, firms are only likely to change their behavior in respect of the environment in institutional environments that constrain unsustainable behavior and promote sustainable behavior (Finnemore and Sikkink 1998). Only elected governments are seen as being able and authorized to alleviate the shortcomings of market mechanisms with regard to the management of the global environmental commons. Consequently, more – not less – oversight, regulation, and coordination are necessary to avert the environmental crisis (cf. Esty and Porter 2001; Zahrnt and Zahrnt 2011).

### 1.3 CONTRIBUTIONS OF THIS DISSERTATION

The central objective of this dissertation is to develop a framework for understanding the impact of institutional environments on firms' CER activities. It is informed by Hall's suggestion that "historical institutionalism has much to offer rationalist analysts of politics and [...] that models of institutional change which integrate propositions from both research traditions are not only possible but promising" (Hall 2010, 205). Building on insights of neoclassical economic as well as institutional perspectives, empirical analyses are undertaken to investigate why firms invest in CER and if these efforts could



serve as substitutes for public regulations. Following Thelen's interpretation that "[c]ontemporary changes are best understood not as movement along a continuum (deregulation culminating in convergence) but rather in terms of continuing and if anything increasing divergence between the 'coordinated' and 'liberal' market economies" (2001, 71), it seeks to explain the following empirical puzzles:

If strong consumer demands were the predominant driving force behind CER, as neoclassical economic explanations suggest, it would be reasonable to assume that companies that heavily commit to CER would financially outperform those firms that do not. However, more rigorous empirical studies find a weak or insignificant relationship between various measures of corporate responsibility and financial performance. For example, in their comprehensive review of 167 studies on the relationship between corporate responsible behavior and financial performance, conducted over a 35 year period, Margolis and Walsh (2001) concluded that there is only a negligible correlation between responsible corporate behavior and good financial results. What is more, this "minor correlation [...] could well be explained by deep pockets – a history of strong financial performance may simply give a company the wherewithal to contribute to society" (Margolis and Elfenbein 2008, 20). In short, the financial benefits of corporate environmental responsibility efforts, and consequently arguments explaining CER as a purely business-driven phenomenon, remain controversial and have so far hardly been tested in large-n cross-national, cross-company, comparative studies.

If adherents to the 'global convergence hypothesis' were correct, multinational corporations should implement similar CER strategies across all countries with similar levels of development (Djelic 1998). However, even assuming that it is only possible to

realize monetary value derived from ‘supplying’ responsibility to stakeholders that are consumers (Vogel 2005) and controlling for country-specific legal frameworks this is not the case. Maignan and Ralston (2002), comparing companies in the US, the UK, France, and the Netherlands find that firms differ significantly in their assessments of how important it is to be perceived as responsible and which issues need to be emphasize most in their respective strategies.

Relatedly, Tsalikis and Seaton (2007) find that German consumers are among the most pessimistic with regard to the future ethical behavior of businesses, while consumers in the United Kingdom are among the most optimistic. Similarly, Maignan (2001) observes that German and French consumers are more willing to support responsible businesses than US consumers. A number of studies find, however, that actual responsible behavior as part of companies’ business strategy is far more developed in the United Kingdom than it is in Germany (e.g Habisch et al. 2005) and that American firms are more explicit in their responsibility claims while continental European firms are less likely to publicly promote their activities (e.g. Matten and Moon 2008). These observations suggest a mismatch between the extent of corporations’ nation-specific responsibility efforts and strategic necessity.

If CER efforts were mechanisms to ‘re-embed’ the economy in a wider societal context (cf. Midttun, Gautesen, and Gjøølberg 2006) – and as such manifestations of ‘embedded liberalism’ (Ruggie 1982; 2003) – historically more collectivist societies should develop greater demand for CER than more pluralist ones. Relatedly, firms operating in countries with more governmental coordination should be expected to invest more in CER than firms operating in countries with less intervention. However, several

studies find that they have developed more advanced CER strategies in countries like the United States and the United Kingdom, which have comparatively little environmental regulation, than in continental European countries, generally characterized by more interventionist political regimes (e.g. Habisch et al. 2005). What explains these contradictory and counterintuitive findings?

Aside from some notable exceptions (e.g. Matten and Moon 2008), comparative research on the driving forces behind and the efficiency of private and governmental environmental regulatory regimes continues to rely heavily on anecdotal evidence and case studies. Esty and Porter (2001) criticize that “there are precious little systemic data on which to base environmental judgments at both the public policy and corporate levels” (78). Most of the existing studies focus on companies in the United States or the United Kingdom, compare only a handful of countries and companies, or focus on a particular industry. These spatial and sectorial limitations would be less problematic if governmental regulation and consumer demand were the only determinants of CER activities. However, the linkages between governmental regulation, consumer demand, and responsible corporate behavior are much more complex than most observers, economists in particular, assume in their models.

Providing convincing, theoretically informed explanations for these puzzles promises to allow for a better understanding of the key motivators of economic actors for environmental action. Moreover, the large-n cross-national studies that lie at the heart of this work provide empirical evidence on which to base judgments of competing analytical frameworks.

The theoretical framework developed in the third chapter of this dissertation is intended to bridge divides between academic disciplines and to combine the strengths of both the neoclassical economic as well as the political institutionalist literature. Bringing firms, the crucial actors in any capitalist economy, “back into the center of the analysis of comparative capitalism,” as demanded by Hall and Soskice (2001, 4), while simultaneously focusing on boundaries set by nation-specific institutional frameworks and stakeholder demands, it attempts to present a balanced explanation of the driving forces behind and effectiveness of contemporary CER efforts. At its core is the argument that cross-national differences in MNCs’ CER strategies can to a significant part be explained by analyzing dissimilarities in historically grown, durable institutional frameworks that shape national business systems. The proposed framework explains why more substantial corporate environmental responsibility efforts can be expected from firms operating in less-coordinated market economies than in more-coordinated market economies. In doing so, it opposes arguments interpreting contemporary CER efforts as a revival of a socially embedded economy, where one would expect companies operating in traditionally most embedded welfare states with old neo-corporative relations and coordinated market economies to be the strongest performers (Scruggs 2001). At the same time it rejects explanations of CER as purely business-driven efforts that are detached from any political initiative (Matten and Moon 2008) while explicitly recognizing a significant degree of multinational corporations’ agency.

#### *Why do Multinational Corporations invest in CER?*

This work construes capitalist relations across similarly developed countries as informed by nation-specific histories, cultures, and structures that are expected to persist for the

foreseeable future. It subscribes to the notion of ‘different capitalisms’ and adopts the variety of capitalism’s classification framework of different capitalist systems.

In *Varieties of Capitalism: The Institutional Foundations of Comparative Advantage*, Hall and Soskice (2001) argue that the capitalist economy does not assume a single, universal form but varies across states. On the one end of the spectrum, liberal market economies coordinate business activities primarily via hierarchies, price signals, and competition in markets. On the other end of the spectrum, coordinated market economies rely more heavily on non-market based cooperative mechanisms. This differentiation has important implications for national environmental strategies because it can be assumed that “in any national economy, firms will gravitate towards the mode of coordination for which there is institutional support” (Hall and Soskice 2001, 8-9). Deregulation and nonintervention are the dominant paradigms in LMEs, while firms operating in CMEs are accustomed to consensus decision making between multiple stakeholders via long established networks. These configurations suggest important differences in the environmental strategies of different economies: LMEs rely more heavily on firms’ individual CER efforts, while CMEs emphasize negotiated rules and standards. In short: historically entrenched institutional backgrounds influence how environmental issues are addressed in a given state, how influential different stakeholder groups are, what role corporations and other non-state actors play in these efforts, and in what ways they are held accountable for their actions.

In view of the assumed relationship between the level of coordination of an economy and corporate incentives to engage in CER efforts it would be reasonable to assume that a company operating in an ‘ideal’ CME would not invest in individual CER

efforts at all as environmental protection would be facilitated through a complex system of negotiations between peak-associations, governmental representatives, and other relevant stakeholder groups. In contrast, a firm operating in an ‘ideal’ LME would invest substantially in CER, as the return on investment in terms of customer loyalty would be significant. However, this causal mechanism is complicated by important differences between two kinds of demand for corporate environmental protection activities: *consumer demand* and *citizen demand*.

*Consumer demand for individual firms’ CER* encompasses demands that concern the environmental footprint of specific goods and services (Vogel 2005). The focus of neoclassical economic theories on CER, it is directed at firms whom the people in their function as consumers perceive as being responsible for certain aspects of environmental protection. By choosing products and services based on the size of their respective ecological footprints, consumers provide an incentive for companies to invest in CER. The latter address these demands in order to secure or expand their customer base. A function of variables such as economic prosperity, values orientation, and education, consumer demand develops relatively independently from the level of coordination of a particular market economy (Manget, Roche, and Münnich 2009).

*Citizen demand for economy-wide CER*, on the other hand, encompasses demands that reflect the population’s opinion about businesses’ general responsibility in ensuring environmental sustainability vis-à-vis government’s and society’s responsibility. Citizen demand is the primary focus of institutionalist explanations for CER. Comparatively higher public support for coordination among interest groups is expected to correlate with less demand for individual firms’ CER efforts as sustainability is to be achieved through

coordinated action. Consequently, citizens of CMEs leave smaller shares of responsibility issues to the discretion of individual companies. Companies operating in these societies have less incentive to develop, implement, and communicate individual CER efforts as these activities are likely to yield smaller benefits (in terms of reputation and prevention of regulation) than in LMEs. The lack of authority of peak associations exemplifies this distinction. In short, in all economies both rational profit maximizing as well as institutionalized norms motivate corporate action. However, the weighing of these two driving forces depends on the national institutional setup: Confronted with economic as well as political incentives, firms adopt strategies that take into account the requirements and opportunities presented by both, but the former remains conditional on the latter.

#### *CER, Regulatory Regimes, and the Environmental Bottom Line*

Theoretical arguments about the driving forces behind firms' individual CER efforts are intrinsically linked to debates about their efficacy. On the one hand, many proponents of 'free-market environmentalism' propagate the view that CER can and should supplement or even replace governmental environmental intervention in the marketplace. On the other hand, advocates of governmental regulation point to the many unresolved shortcomings of existing firm-specific regulatory self-regulatory efforts. They caution that voluntary organization and implementation of environmental responsibility efforts results in an under-provision of public goods and services because CER efforts remain determined by profit maximization imperatives and not by a genuine interest in improving the firm's environmental bottom line. As the former are the central motivator for firm behavior, environmental protection is likely to remain a second order issue.

In contrast, institutional structures that foster collectivist approaches to the safeguarding of the global commons, frequently incorporating refined mechanisms of public supervision and enforcement, are seen as better capable of providing long-term, coordinated responses to *citizen demands* for comprehensive environmental protection. They are often perceived as being less confined by the imperatives of capitalism. Under these preconditions, the inclusive structure of more-coordinated market economies generates stronger and more effective incentives for firms to internalize environmental externalities. Governments retain the threat to use direct regulation, while monitoring and enforcement, necessary for effective environmental regulation, are more acceptable in business environments where there is a history of industry-government trust. Consequently, due to superior performance with regard to public accountability, implementation, and enforcement of protective measures for the global environmental commons, CMEs, emphasizing government-backed inter-firm coordination and government-business-society bargaining are expected to outperform LMEs that rely more heavily on voluntary, individualistic firm efforts.

Nevertheless, CER is capable of playing important supplementary roles in national environmental strategies. Such voluntary activities are likely to grow significantly in the near future, not lastly due to rising *consumer demand*. These considerations suggest the formulation of the following three hypotheses:



## WORKING HYPOTHESES

### *Hypothesis 1:*

*The level of multinational corporations' reported environmental responsibility efforts is contingent on the level of coordination within a national economy: The less coordinated the economy, the higher the pay-off of individual CER efforts and the higher the investment in such activities. The more coordinated the economy, the lower the pay-off of individualized CER efforts and the lower firms' commitment to such activities.*

### *Hypothesis 2:*

*Companies' CER strategies are influenced by their home countries' system of capitalist relations. Ceteris paribus, companies headquartered in LMEs will outperform companies from CMEs with regard to their reported individualistic CER efforts.*

### *Hypothesis 3:*

*Collectivist regulatory regimes backed by governmental support are more effective tools to address environmental challenges than individual firms' self-regulation. Therefore, coordinated market economies, emphasizing inter-firm and government-firm-society coordination, are expected to outperform liberal market economies, relying more heavily on market mechanisms, with regard to their aggregate environmental performance.*

## 1.4 OUTLINE OF THE FOLLOWING CHAPTERS

Chapter 2 introduces the most frequently used definitions and measurements of corporate environmental responsibility. It conducts a review of the existing literature on the motivators of CER and the academic debate on whether voluntary private regulation represents a viable alternative to governmental intervention in societies' efforts to decrease their environmental footprints.

Chapter 3 elaborates on the theoretical explanatory framework briefly outlined above. The implications of the assumptions of the varieties of capitalism approach and the causal mechanisms interlinking diverging systems of capitalist relations and national environmental strategies are described. The chapter further theorizes why environmental regulatory regimes in more-coordinated market economies are expected to outperform those in more-liberal market economies and demonstrates why CER should be construed as an important supplement, but not as a substitute for governmental environmental regulatory regimes. This chapter provides the theoretical foundation for the empirical analyses conducted in Chapters 4 and 5.

Chapter 4 develops a new, statistically derived, systematic method to measure CER. Utilizing an original dataset, the newly constructed measure is employed to test the effects of different institutional frameworks on MNCs' CER efforts in a comparative study of CER information publicly disclosed by 54 Fortune Global 500 (FG500) companies operating in 21 OECD economies. While the analysis focuses on exogenous institutional factors as well as market forces, it also explores the effect of endogenous firm- and industry-specific factors.

Chapter 5 empirically compares the aggregate results of the environmental strategies of coordinated (CMEs), liberal (LMEs), and mixed market economies (MMEs). The overall environmental performance of the 21 countries under observation is assessed by utilizing a two-pronged approach: First, a longitudinal analysis of their CO<sub>2</sub> emissions per capita and per GDP over three decades is conducted in order to detect trends in environmental pollution and potential effects of anti-pollution efforts. Subsequently, the 21 countries' performance with regard to 12 categories of the 2012 Environmental Performance Index (EPI) and the Pilot Trend Environmental Performance Index (Trend EPI) is compared and analyzed.

Chapter 6 recaps and synthesizes the central findings of the preceding chapters. Assessing the shortcomings and benefits of private environmental regulatory regimes vis-à-vis governmental regulatory regimes, it develops recommendations for how to design effective environmental policies. It concludes with a discussion of the limitations of the study and a proposal of future directions of research.

## CHAPTER 2

### CER: WHY, WHEN, HOW, AND DOES IT MATTER?

#### A REVIEW OF MAJOR APPROACHES

This chapter serves four purposes: First, it discusses the most frequently used definitions of corporate environmental responsibility and reviews previous efforts to operationalize and empirically measure this elusive concept. Second, it reviews the central arguments advanced in different disciplines' literatures for why firms in general and multinational corporations in particular invest in CER. Third, it evaluates the opposing positions in the 'supplement vs. substitute debate' by contrasting both sides' arguments regarding the efficacy, adjustability, and legitimacy of CER efforts vis-à-vis governmental regulatory regimes. The chapter concludes with a discussion of commonalities among the explored claims and gaps in the different strands of theoretical and empirical literature.

#### 2.1 DEFINITIONS AND MEASUREMENTS

Corporate environmental responsibility, like the related umbrella terms corporate responsibility (CR), corporate social responsibility (CSR), or corporate citizenship (CC) is a contested phenomenon (Moon, Crane, and Matten 2005; Moon and Dixon 1985). Despite substantial scholarly criticisms of the underlying notions on theoretical as well as empirical grounds (e.g. Oosterhout and Heugens 2008), they have become the focus of

political debates, popular discourses, corporate strategies, and – not lastly – a substantial academic literature exploring how to achieve a sustainable economy (Campbell 2007).

Aside from some notable early exceptions (e.g. Barnard 1938), scholars started to systematically study voluntary corporate responsibility efforts only in the middle of the last century. From the very beginning, debates about firms' responsibility for the wellbeing of societal groups other than shareholders were decisively influenced by another, simultaneously emerging transnational development: mainstream environmentalism (de Steiguer 2006). As governments of developed countries across the world began to implement command-and-control regulatory regimes to halt environmental degradation, several economists started to criticize such measures for their costliness, inflexibility, and inefficacy (e.g. McGuire 1982; Pethig 1975; Siebert 1977; Yohe 1979). CER was promoted as a more efficient, cost-effective, and flexible market-based alternative regulatory instrument. This section reviews the most important definitions and measurements of CER that have been developed over the past decades.

## DEFINITIONS

What is corporate environmental responsibility? Definitions vary widely, are often complex and multi-faceted, and cover a broad spectrum of topics – from habitat conservation, to energy consumption reduction, and from stakeholder group satisfaction to financial sustainability. The lowest common denominator is the understanding that firms' efforts have to be voluntary and that the commitment to improve their social and environmental performance has to go beyond the level required by law (McWilliams and Siegel 2001).

On the one end of a very broad spectrum of conceptualizations fitting this definition are extensive, overarching, but rather vague definitions. Delineating CER as “environmental friendly production” most of these definitions go far beyond energy and waste reduction, ecological protection, and recycling (Epstein 2008). Schaltegger and Wagner, for instance, argue that “[s]ustainability performance can be defined as the performance of a company in all dimensions and for all drivers of corporate sustainability” (2006, 2).

Several conceptualizations emphasize the extension beyond the boundaries of individual companies and incorporate performance of both upstream suppliers and downstream customers (e.g. Fiksel, McDaniel, and Mendenhall 1999). Others emphasize that environmental responsibility represents but one issue in the comprehensive notional continuum of corporate responsibility (e.g. Bhimani and Soonawalla 2005). A particularly influential example of this approach is Elkington’s (1994) concept of the triple bottom line (3BL). In addition to established measures of return on investment and shareholder value (‘profit’), the 3BL accounting framework explicitly incorporates environmental (‘planet’) as well as social (‘people’) dimensions. A substantial number of firms have publicly announced their active support and adherence to (variations of) this sustainability framework in order to evaluate their performance along dimensions other than profit maximization (Rikhardsson et al. 2002). Companies’ agreement to follow such frameworks is often interpreted as an important step in the move from mandatory conformance and compliance with established standards, laws, and regulations to a business model that evaluates performance according to ethics norms, thereby meeting (or surpassing) growing stakeholder expectations (Epstein 2008).

On the other end of the spectrum are more limited and specific definitions of CER that attempt to remedy the ‘vagueness’ of the concept. For instance, Matten and Moon (2008) differentiate between ‘implicit’ and ‘explicit’ responsibility efforts. The latter encompass voluntary actions that are intended to produce societal value and that address specific issues that are perceived as falling into the remit of the company. Designed as responses to stakeholder pressure, explicit responsibility actions may contain partnerships with governmental (e.g. The United Nations Global Compact) and non-governmental organizations (e.g. International Organization for Standardization (ISO) standards), and may involve alliances with other corporations (e.g. the Equator Principles). They generally rest on individual firms’ discretion rather than reflecting either governmental authority or that of broader formal or informal institutions (Matten and Moon 2008, 409). In contrast, implicit responsibility efforts reflect corporation’s role within the wider formal and informal institutional frameworks of a society. They are based on values, norms, and rules that result in (mandatory as well as customary) requirements for corporations to address stakeholder issues and that define obligations of economic actors in collective rather than individual terms (Matten and Moon 2008, 410).

Other analysts distinguish between firms’ responsibility efforts according to the number of involved actors. For instance, the European Research Network on Market-based Instruments for Sustainable Development differentiates between unilateral commitments by individual firms, public voluntary schemes (with companies agreeing to standards that have been developed by governmental bodies), and negotiated agreements (that resulted from dialogue between governmental bodies and industry). However,

assessment of and distinction between these three forms of corporate commitment to environmental protection can be difficult (Lyon and Maxwell 1999).

McDonald's Corporation's decision to replace its polystyrene clamshell sandwich packaging with a paper-based 'quilt-wrap' in the 1990s exemplifies this problem. The step was intended to reduce the overall packaging volume as well as energy consumption, air emissions, and water pollution associated with packaging production (cf. Svoboda 1995). While most observers interpret this decision as a clear-cut case of unilateral commitment, others argue that it represents a negotiated agreement that was implemented after consultation with government bodies (Lyon and Maxwell 1999). The example demonstrates how assessments of corporate environmental responsibility efforts are frequently influenced by a number of observer-specific factors such as ideological perspective or political agenda. This becomes particularly evident in the evaluation of different manifestations of CER: For instance, corporate donations to environmental NGOs or specific ecological projects are habitually perceived positively and included in definitions of CER. In contrast, involvement in politics through fund-raising, campaign donations, or other party support is often seen as problematic, described in a negative manner, and excluded from most CER definitions.

In summary, in the broadest sense, CER can be defined as the voluntary integration of environmental concerns in firms' business operations and in their interaction with stakeholders. It is differentiated from the environmental responsibilities of the government by the fact that its precise manifestation and direction of responsibility lie at the discretion of the corporation. Moreover, it is not an optional 'add-on' to business core activities, but about the way in which businesses are managed.



## MEASUREMENTS

*“If you can't measure it, you can't manage it.”*

- Peter Drucker

CER efforts are frequently characterized as aspirational and judgment-laden. Together with the observed vagueness of many interpretations of the concept, this poses significant challenges for the development of efficacy measures. Companies, accountants, auditors, and academic researchers continue to struggle with the development of parsimonious methods to evaluate firms' environmental performance.

In contrast to well defined financial performance indicators (e.g. return on investment) there is no consensus with regard to the usage of environmental performance indicators. In fact, evaluations of the same firm's CER efforts - utilizing alternative definitions of the concept - often generate remarkably different results (O'Rourke 2003). Due to this dissatisfying state of affairs, “few, if any, companies can respond definitively to the questions, ‘Which of your products, processes, services, and facilities are really sustainable? Is it a sustainable organization?’ Answering these questions is requiring the ability to measure sustainability of economic and non-economic factors in a quantitative or at least qualitative approach” (Petros Sebhatu 2008, 2). In view of these unresolved issues some researchers have attempted to measure corporate responsibility by proxy. Aperia, Brønn, and Schultz (2004), for instance, use consumer surveys and reputation analysis to evaluate firms' public image. However, the results of such studies remains

disputed, as they are not replicable and depend on respondent-specific traits, such as level of information, and firm-specific characteristics, such as size.

Notwithstanding these challenges, voluntary empirical environmental performance measurement has a long history. Having emerged in the context of the business ethics discourse of the 1970 (cf. Schaltegger and Wagner 2006; Neely 1998), stakeholder theory, allowing for a widespread embracing of the concept of the triple bottom line (see above), provided an important theoretical foundation for the study and measurement of CER. Unlike shareholder theory, which construes the firm as exclusively belonging to the shareholders (and the latter's return on investment is the standard for all performance measuring and reporting (Porter 1980)), stakeholder theory perceives the firm as having responsibilities to a much wider set of societal actors (cf. Steurer 2006). The emphasis on additional stakeholder groups finds its expression in the development of measures of non-financial performance, most evident in firms' sustainability reports (cf. O'Dwyer and Owen 2005; Rikhardsson et al. 2002). Hubbard (2009) categorizes the four most widely used sustainable performance frameworks in the following way:

#### *The Macroeconomic System Model*

The hierarchical, five-level system model is based on the argument that firms should systematically choose appropriate sustainability performance measures that link macroeconomic as well as firm and industry specific measurement requirements (Robert 2000). In contrast to traditional performance measures (e.g. return on equity, market share, etc.), for which all corporations generally use similar indicators, firms following this approach determine their individual circumstances and measure different responsibility activities based on this assessment.

This procedure is intuitively appealing: For instance, firms operating in the oil industry certainly face different environmental challenges and related stakeholder concerns than financial institutes or retailers. There is strong empirical evidence that firms CER efforts are driven by idiosyncratic contexts and issues (Jones et al. 2005). However, the model's complexity, context-dependence, process (as opposed to outcome) focus, and impracticability with regard to inter-firm comparison and benchmarking render it particularly susceptible to criticism and largely unsuitable for quantitative comparative research (Hubbard 2009).

### *The Quality Approach*

This approach integrates internal processes and systems that ensure alignment and consistency across the company and with respect to its strategy and aims. "It is structured around four perspectives [...] to achieve a holistic assessment of the organization. The constitutional perspective sets the strategies and values that the organization seeks to achieve. The conceptual perspective covers the structures and processes that the organization aims to use to achieve its constitution. The behavioral perspective covers the procedures of the organization – what it actually does. The evaluative perspective covers the control and reporting systems for monitoring its progress" (Hubbard 2009). Similar to the macroeconomic system model, this approach is process rather than outcomes based, hindering benchmarking and comparative evaluation.

### *The Triple Bottom Line*

As described above, the 3BL approach attempts to encompass the largest possible pool of stakeholders. Many firms following this approach have adopted environmental

management systems that help in the development, implementation, monitoring, and communication of environmental strategies (Hubbard 2009). Performance management systems, such as the ISO standards have become globally recognized (Gonzalez-Benito Javier, Gonzalez-Benito Oscar 2005) and a number of firms are standardizing their environmental measurement systems accordingly (Tyleca et al. 2002). However, while such standards attest to the implementation of certain management systems, they do not reveal any information about relative performance (Litten 2005).

### *Sustainable Scorecard*

Finally, some firms include social and environmental issues in the existing balanced scorecard to produce a sustainable balanced scorecard that integrates the 3BL framework by including environmental reporting. The ‘traditional’ balanced scorecard is a planning and management tool that allows firms worldwide to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organization performance against strategic goals. Adding a limited number of environmental measures to this established performance measurement system facilitates a relatively easy implementation of sustainability monitoring (Hubbard 2009). Relatedly, responsible investment research companies, such as KLD Research & Analytics, Inc. or the Sustainable Asset Management Group, have developed screening methodologies to include companies in responsibility indexes. On this foundation, performance indices, such as the family of The Dow Jones Sustainability Indexes (DJSI), that rely on a limited number of performance indicators, have been developed.

However, as mentioned above, neither has a commonly accepted reporting standard been developed, nor has a consensus on frameworks to evaluate the measured and reported information emerged. Robins (2005) points out that in 2005 more than 60 different codes of practice existed worldwide that an organization could try to adhere to. The most commonly used of these codes are the Sustainability framework, the Environment Sustainability Index, and the Sustainability Reporting Guidelines of the Global Reporting Initiative (GRI), the latter being the most frequently applied such framework today. Focusing on a limited number of indicators, and following the sustainable scorecard approach, these measurements of environmental performance are generally divided into three main categories: environmental impact (e.g. emissions), compliance with existing regulations (e.g. non-compliance fees), and organizational processes (e.g. environmental reporting) (Ilinitich, Soderstrom, and Thomas 1998).

Environmental impact is measured by using quantitative (or at least quantifiable) indicators of absolute and relative resource use, operational by-products, and the environmental impact of the firm's products (Hubbard 2009, 180). KLD Research & Analytics, Inc., for instance, rates firms according to the environmental impact of their products and services (e.g. use of ozone-depleting chemicals); operations and management (e.g. pollution prevention, recycling efforts, addressing of regulatory problems) and climate change (e.g. usage of clean energy).

Even these broadly applied measuring frameworks face severe challenges: First and foremost, data availability frequently remains limited (Emerson et al. 2012; Ilinitich, Soderstrom, and Thomas 1998), often necessitating indicator selection processes that are predominantly based on data availability not empirical relevance (Levine and Chatterji

2006). An additional matter of concern is the fact that many reports and indices do not clearly distinguish between required environmental accounting and voluntary corporate environmental responsibility. Some focus on ‘intentions’, like annual investment in new environmental management practices, disregarding the current level of pollution. Others focus on ‘facts’, like current levels of emissions.

Given this state of affairs, Hubbard remarks that “[m]easuring performance against these measures is not a straightforward task. Shareholder value, market share, customer satisfaction, even employee well-being, are relatively easy to quantify and measures developed by one organization are readily transferable to others, but social and environment performance are almost certainly unique to each organization, or at least each industry, and they are often very difficult to quantify” (Hubbard 2009, 180). In this respect, Delmas and Blass (2010) show that environmental performance rankings of companies vary significantly depending on whether the rankings are based on toxic releases and regulatory compliance or on the quality of policies and disclosures.

For these reasons, environmental performance reporting is far from fully penetrating organizational performance systems: It is still frequently seen as “too complex and too confronting for managers accustomed to economically dominated ways of thinking. Moreover, in many firms’ annual reports, environmental indicators are not identifiable as such. For instance, not all firms differentiate between environmental and economic sustainability (Bansal 2002). Some firms perceive sustainability predominantly as a compliance issue, or a cost factor, while others construe it as an opportunity for competitive advantage – and report accordingly (Hart 1995). This lack of consensus and standardization together with the fact that many firms and screening companies keep their

assessment methodologies confidential poses significant challenges to comparative studies on environmental performance. What is more, lacking comparability of different measurements can even lead to outcomes that harm corporate social and environmental performance (Levine and Chatterji 2006). For instance, managers might find it hard to prioritize investments in environmental improvements if the utilization of different metrics, providing different benchmarks, suggests different actions. In view of these developments it appears that the best way to get a comprehensive understanding of a firms' environmental impact is to analyze and integrate several types of indicators. Moreover, given the impact of measurement-choice, researchers need to be very transparent about these choices.

## 2.2 WHY CER? VALUES, ECONOMICS, AND POLITICAL INSITUTIONS

*“Don't be evil”*

– Google Code of Conduct

Notwithstanding the prevalent disagreements about definitions and measurements, there is a broad scholarly consensus that corporations around the world are increasingly embracing activities that are at least in part intended to protect or restore the natural environment (Makower 2007). Why do economic actors, operating under the imperatives of capitalism, engage in undertakings that – at least in the short term – potentially diminish productivity, increase operating costs, and complicate accounting procedures?

A significant body of literature addressing this question, spanning academic disciplines from business, accounting, marketing, and economics to sociology and political science has emerged over the past decades. This section presents a systematic overview of the most frequently advanced arguments for why firms invest in CER. After establishing the transnational spread of postmaterialist values as a root cause of the emergence of the concept, it presents the major economic as well as political institutional explanations. While the distinction between the two categories is not as clear-cut in reality as it is in theory, this structure allows for a more nuanced comparison of determinants and causal mechanisms emphasized by different approaches.

## THE RISE OF ENVIRONMENTALISM

After World War II, economic development across the developed world was geared largely at increasing overall productivity. Firms fundamentally focused on satisfying the material needs of consumers. Consequently, until only a few decades ago, concern about environmental degradation was largely limited to academic and journalistic circles as well as populations directly affected by its consequences (Inglehart 1995). However, rapid economic expansion was accompanied by a significant deterioration of the natural environment. In his analysis of the economic development of postwar Japan, Broadbent (1998), for example, portrays a society facing a major growth-environment dilemma. Since the early 1970s, the world is experiencing a gradual shift of values that has turned environmental sustainability into a major issue on the political and social agendas in virtually all developed countries (Esty and Porter 2001).



What explains this development and how does it manifest itself? Inglehart construes the link between environmental awareness and values orientation as follows: “Concern for pollution of the environment and the despoiling of its natural beauty-issues which played a minor political role until quite recently – have suddenly become prominent, with the emergence into political relevance of the current youth cohorts. These concerns may be justified in terms of self-preservation (“We are about to suffocate beneath an avalanche of garbage”) but this argument may be somewhat hyperbolic: I suspect that behind this new wave of protest, there may be a heightened sensitivity to the esthetic defects of industrial society” (1971, 1012). At the core of the postmaterialist-values thesis lies the understanding that people experiencing long-term socio-economic security tend to place a higher value on “softer” issues that are not so much related to short-term personal survival but much more to a long-term concern for the well-being of humanity and the planet in general (Carlisle and Smith 2005). The thesis is fundamentally based on the notion that people's core values are largely fixed when they reach adulthood, and experience only minor changes afterwards (cf. Rokeach 1968).

While generations that grew up under economic scarcity place a high value on economic safety and physical security, cohorts that experienced material affluence during childhood and adolescence prioritize ‘softer’, non-materialist values (e.g. personal freedom, political participation, and environmental protection). The longer a given society experience prosperity and peace, the more likely it is that its members embrace post-materialist value orientations (Inglehart 1995). In short, concern for the environment in general, and sustainable production and consumption in particular, have become an integral part of the outlook of large segments of developed societies (Inglehart 1990;

Charnock and Ellis 2004; Goodland 1995). A large number of studies and surveys have produced empirical evidence for this shift in values orientation (e.g. Florini 2003; Korten 1999). Demonstrating the existence of the 'environmental Kuznets curve' Grossman and Kruger (1995), for instance, show the connection between income growth and environmental concerns. As postmaterialist values spread throughout developed countries, public, media, and community groups begin to pay more attention to the environmental impact of production processes (Hubbard 2009) and firms increasingly act on these new popular pressures. For instance, Maxwell and Decker (1998) demonstrate that rises in median income, the percentage of population holding college degrees, and the percentage of population with membership in an environmental group in a given society are positively correlated to firms' reductions in toxic chemical emissions.

Despite the popularity of postmaterialist arguments, a number of scholars dispute the existence of a fundamental values change (e.g. Brechin 1999; Hassler 2006; Pakulski and Crook 1998). They argue that materialist motivations can be sufficient explanations for calls for environmental protection as well: Whenever adverse environmental effects directly affect the well-being of individuals, survival values are likely to trigger self-interested calls for environmental protection (Rohrschneider 1990; Göksen, Adaman, and Zengnobuz 2002).

Without a doubt, materialist motives play an important role in the emergence of environmentalist movements. This is particularly the case in societies that continue to face severe immediate environmental problems such as point-source pollution or inadequate sewage treatment. Far from denying that materialist concerns contribute to the rising global demands for sustainable economies, adherents of the post-materialist values

approach construe both concerns not as mutually exclusive, but interwoven supplements to one-another (Inglehart 1990). However, it is important to note that post-materialist concerns dominate not only the CER literature but also the public discourse in the highly developed economies that are the objects of investigation of this dissertation. These countries have largely succeeded in eliminating point-source pollution and immediate threats to their populations' wellbeing stemming from pollution.

#### RATIONALIST ECONOMIC EXPLANATIONS FOR CER

*“Reputation is a squishy variable and one that is hard to factor into the investment case, but if a bad reputation leads to extra oversight and nervous business partners, it can have a real long-term effect.”*

- Jeremy Glaser

From an economics point of view, the harmful impact of business activities on the environment is generally perceived to be the consequence of ‘market failure’ caused by environmental externalities (Mikler 2007). Ill-defined property rights render most aspects of the environment public goods that can be consumed by several actors simultaneously (Ekins, Folke, and Costanza 1994). Because detrimental factors that should be part of the market mechanisms remain external to them, producers are not fully held responsible for the consequences of their actions. Consequently, environmental costs of producing and consuming goods and services are incorrectly priced by markets, environmental externalities are pervasive, and national, regional, and global societies collectively have

to bear the costs of environmental degradation. The following sub-sections outline five principal economic explanations for why firms invest in corporate environmental responsibility under these circumstances.

The most frequently advanced explanation for firms' commitment to substantial CER efforts is couched in a straight-forward supply and demand argument: The preceding section demonstrated how long periods of rising prosperity provide the conditions that allow not only elites but also the general public in developed economies to adopt post-materialist values. Complicating utility-maximizing calculations, these values materialize in consumer choices (Maignan 2001): For example a study on US consumer behavior in 1990 revealed that nearly a third of consumers had purchased a product specifically for its green labeling or advertising, and a quarter routinely read labels to gain an understanding of the environmental impacts of products (Roper Organization 1990). Relatedly, a more recent global survey of consumer behavior conducted by the National Geographic Society in collaboration with GlobeScan found an increase in environmentally friendly consumer behavior in 13 of the 14 countries, surveyed in both 2008 and 2009 (Clark, Moffet, and Davidson 2009).

These new demands are influenced by ethical considerations (Carrigan, Szmigin, and Wright 2004) which represent important criteria for consumers when evaluating firms and their products (e.g. Biehal and Sheinin 2007; Brown and Dacin 1997; Marin and Ruiz 2007; Sen and Bhattacharya 2001; Uusitalo and Oksanen 2004). Reductions in a firm's ecological footprints, evident in decreasing levels of greenhouse gas emission or the production of toxic and hazardous substances, has become a particularly important purchase criterion (Santillo and Johnston 1999). The ongoing shift in consumer demand

across developed economies is frequently credited as the most important, if not only, cause for firms' current investment in CER.

Given these developments, conventional wisdom suggests that corporations satisfy the growing environmental demands of consumers and relevant societal norm entrepreneurs in order to increase their market share and to maintain their social license to operate. As the number of 'green' consumers grows relative to that of 'traditional' consumers, the production and distribution of environmentally friendly products and services becomes more lucrative. In particular, the rise of 'political consumption,' where customers choose producers and products with the aim of changing environmentally objectionable market practices (Micheletti and Stolle 2005) is seen as creating a 'moral economy' in which consumers are willing to pay a premium for environmentally-friendly products (Rössel 2008).

Over the last decades, multinational corporations in particular have become the targets of consumers' environmental concern and scrutiny (Welford 1995). These concerns are not lastly informed by critical assessments of MNCs' environmental performance by governmental and non-governmental organizations. For instance, the UN Commission on Transnational Corporations (UNCTC) cautioned already in 1993 that multinational corporations generate more than 50 percent of global greenhouse gas emissions (UNTC 1993). Moreover, they were found to be disproportionately involved in the exploitation of renewable and non-renewable resources and responsible for most of the production of toxic chemicals and hazardous waste. Major accidents and harmful corporate actions that obtained regional and global news coverage have further intensified consumer demand for better environmental performance. For example, the

1984 Bhopal disaster, caused by a leak of lethal gas from a chemical storage facility owned by United Carbide in Bhopal, India, resulting in the death of 7,000 to 10,000 people within three days, chronic illness of over 12,000 residents, and large-scale pollution of groundwater and soil with toxins (Amnesty International 2004) was followed by global calls for more corporate responsibility as well as governmental regulations (Greenpeace 1999).

Consumers are increasingly willing to boycott perpetrators or switch suppliers (Snider, Hill, and Martin 2003). For instance, Shell's decision to dispose of Brent Spar, an obsolete North Sea oil storage and tanker loading buoy, in deep Atlantic waters resulted in large scale consumer boycotts that led to a 20 percent drop in sales in Germany alone and the firebombing of one of Shell's service stations near Hamburg (EC Newsdesk 2010). Shell eventually dropped the deep-sea disposal plans and agreed to dismantle the buoy on-shore. In order to appeal to these new consumer preferences and to avoid negative reactions, companies have realized that they need to credibly convey their willingness to go beyond minimum regulatory standards. Walley and Whitehead (1994) show this by demonstrating that firms invest in pollution reduction efforts even after the opportunities for painless pollution prevention are exhausted. Other examples include the introduction of organic produce, tuna caught with dolphin-safe nets, biodegradable plastic bags, or reformulated gasoline (Lyon and Maxwell 1999). As a result of such commitments, the number of green product introductions reached nearly 10 percent of all new products already in 1990 (Thayer 1990).

The potential business benefits of credibly communicating environmental responsibility efforts are manifold and extensively discussed in the literature: For

instance, CER can strengthen brand (Luo and Bhattacharya 2006; Menon and Menon 1997) and firm equity (Simmons and Becker-Olsen 2006), reduce the costs of negative stakeholder reactions (Blacconiere and Patten 1994) and enhance consumer loyalty (Berman et al. 1999). Ambec and Lanoie (2008) find that CER activities can provide better access to certain markets, help in differentiating products, increase opportunities of selling pollution-control technology, and improve relations with external stakeholders. Porter and Kramer (2006) conclude that responsible behavior is likely to become a central factor determining a firm's competitive advantage, while McWilliams and Siegel interpret CER as a vital strategic investment in future business environments (2001).

Not surprisingly, management texts habitually assert that responsiveness to consumers' environmental demands is in a firm's best long-term financial interest (Post, Lawrence, and Weber 2002). As a case in point, in a Harvard Business School case study, Reinhardt, Casadesus-Masanell, and Kim (2010) analyzed the business of Patagonia, a company producing high-quality environmentally friendly garments that command significant price premiums. While pursuing an explicit environmental vision, Patagonia maintains a larger gross profit margin than competing firms and pursues a target of 10% rate of annual growth in sales. In spring 2010, Patagonia implemented a new, radical environmental initiative called 'Product Lifecycle Initiative', anticipating that the associated price rise of about 10% had no negative impact on consumer demand.

A second reason for firms' investments in CER activities that is habitually addressed in the literature is their positive impact on productivity. For instance, CER is frequently construed as being conducive to enhancing firm efficiency and decreasing operating costs (cf. Bragdon and Marlin 1972; Smart 1992; Spicer 1978), creating a

competitive advantage (Shrivastava 1995), improving management, and reducing the costs of material, energy, and services (Ambec and Lanoie 2008). Responsible firms have repeatedly been found to enjoy an advantage when it comes to internalizing costs, reducing potential liabilities, and adopting newer technologies that either decrease the damage from pollution or improve conservation rates. For instance, Lyon and Maxwell (1999) cite 3M Corporation's extensively studied 'Pollution Prevention Pays' program as a case in point: Since the mid-1970s, 3M involved its assembly line workers in identifying opportunities for waste reduction. This policy contributed to a total reduction of emissions between 1975 and 1990 by 50%. Simultaneously, savings with regard to raw materials, compliance, disposal, and liability costs amounted to an estimated \$500 million. To the authors, the success of the program exemplifies that genuine CER efforts can lead to 'win-win' situations in which "environmental performance and corporate profits walk hand in hand" (Lyon and Maxwell 1999, 5). In short, there is plenty of anecdotal evidence that sustainability strategies positively affect the cost of external financing, return on investment, sales growth, and other indicators of financial success (Business in the Community 2008).

Changing investor preferences represent a third important motivator for firms to invest in CER. A niche market only a decade ago, socially responsible investment (SRI) – an investment strategy that considers a corporation's environmental, social and corporate governance (ESG) to be as material as its financial performance – is currently experiencing substantial growth rates. According to Wine (2009), "SRI investments in the U.S. alone account for \$2.7 trillion (about the size of the United Kingdom's entire economy and an increase of 324% from \$639 billion in 1995)".



An example of a corporate strategy to actively seek green investor support is the introduction of reformulated gasolines by Atlantic Richfield Company (ARCO) in the early 1990s (Lyon and Maxwell 1999). The introduction of these new fuels led to very favorable media attention, with Fortune magazine naming them “Product of the Year”, and a return on stockholder equity of 29.3% in 1991, making ARCO the best performer in the oil industry. Explaining the rationale behind the new strategy, Lodwick Cook, ARCO’s CEO stated that firms’ “greatest opportunity for competitive advantage will be in leveraging environmentally improved products and services to differentiate themselves from competitors” (Piasecki 1992).

While the relative importance of green investors as drivers of corporate environmentalism remains disputed, several recent studies have produced empirical evidence that news about firms’ higher than expected negative environmental impacts have a detrimental effect on stock prices. Hamilton (1995) shows, for example, how firms’ release of high pollution figures in 1989 resulted in negative investor responses that translated into an average loss of \$4.1 million in stock value on the day the pollution figures were first released. The recent BP oil spill in the Gulf of Mexico represents a more extreme example: In the wake of the disaster, BP’s share price dropped by 37% resulting in a temporary loss of \$30-40bn dollars. Obviously, capital markets were under the impression that the external costs of the accident would be internalized rapidly. In contrast, when the Exxon Valdez’ running aground in Prince William Sound, Alaska, caused a major oil spill only two decades ago, there was no significant drop in Exxon’s stock prices.

Konar and Cohen (1997) demonstrate that corporations are becoming more sensitive to negative ‘green’ investor reactions. After being penalized by the stock market for subpar environmental performance, companies tend to improve their performance more than industry-weighted counterparts (Konar and Cohen 1997). Moreover, firms that improved their environmental performance beyond what is required by law have been shown to have positive long-term returns (e.g. Khanna, Quimio, and Bojilova 1998; Hart and Ahuja 1996).

Fourth, a large number of studies analyze the extensive use of CER as a tool to influence regulatory regimes. While most CER activities are linked to specific economic benefits in relatively direct ways (cf. above), ‘political CER’ represents a set of somewhat indirect responses to interest group pressure, translated through the political process. When preemption of regulations is impossible, CER is often used to weaken the stringency of forthcoming legislation (cf. Arora and Cason 1996; Bagnoli and Watts 1995). In this respect, Lutz, Lyon and Maxwell (1998) demonstrate how companies that produce environmentally friendly products profit from the recognition of first-mover status by the regulator and commitment to quality levels prior to the implementation of the regulation. Moreover, firms implement CER strategies to demonstrate over-compliance with existing regulations which in turn might result in less future monitoring and lower compliance costs (Maxwell and Decker 1998).

Experiencing growing legislative pressure, corporations have developed strong capacities to predict the outcomes of debates on future regulations and “[s]ophisticated corporate strategists can look ahead to the next wave of likely regulations, and attempt to take proactive steps to shape future laws, rather than passively waiting for regulations to

be imposed upon them. If they are sharp enough, firms may be able to preempt future regulations altogether by ‘self-regulating’ with just enough stringency to placate environmentalists and head off the demand for government regulation” ( Lyon and Maxwell 1999, 10). In this respect, Barnard (1990, 35) argues for instance that the Chemical Manufacturers Association’s ‘Responsible Care’ initiative created a rationale for refusing to adopt more stringent environmental practices.

In reality, it is often extremely difficult to uncover the principal motivations for specific CER activities. Segerson and Miceli (1998) show that the use of public voluntary programs as a policy tool has recently become more common across developed economies and that background threats or cost-sharing subsidies are being used by regulators to induce firms to participate in such programs. Firms accept such propositions when they are likely to be more cost efficient than compliance with implemented regulations. Hansen (1996) argues that an increasing number of voluntary agreements involve direct negotiation between industry and a regulatory body, thereby bypassing the legislative process. These accounts explain CER activities as measures to avoid stricter traditional regulations and to save compliance, transaction, and bureaucratic costs.

Moreover, CER strategies might be implemented to induce regulations that disadvantage competitors. According to Lyon and Maxwell “regulators are typically uncertain of the costs of a particular new regulation at the time it is imposed. If those costs turn out to be high, small firms may be forced to exit the industry. Conversely, large firms may benefit from the exit of rivals, and may try to convince regulators that industry-wide compliance costs are low, so stronger regulations might provide substantial benefits at fairly low cost. One way to help convince regulators of this point is for a large

firm to make an investment in voluntary abatement, in an attempt to signal to regulators that the cost of abatement is low” (1999, 17). Such anticompetitive strategies are especially likely in the international arena. Cairncross (1992) cites several such cases where one state’s regulatory intervention erected trade barriers to firms headquartered in other countries.

Finally, all of the economic rationales behind corporations’ CER investments discussed so far are amplified by the forces of economic globalization (Mofid 2003) and their impact on regulatory regimes and national institutions (cf. Rodrik 1997). Identifying the 1970s’ inflationary crisis as a turning point in global economic history, Crouch observes that “[w]ithin a decade or so such ideas as the absolute priority of near-zero inflation at whatever cost in terms of unemployment, the withdrawal of state assistance to firms and industries in difficulties, the priority of competition, the predominance of a shareholder maximization as opposed to a multiple stakeholder model of the corporation, the deregulation of markets and the liberalization of global capital flows had become orthodoxy. Where governments in countries with weak economies were unwilling to accept them, they were imposed as conditions for assistance from or membership of such international bodies as the International Monetary Fund, the World Bank, the Organization for Economic Co-operation and Development (OECD) or the European Union” (2009, 388).

National regulations are today frequently being perceived as costly and inflexible (Lyon and Maxwell 1999; Etscheid 2012). Moreover, disappointing results of international negotiations (e.g. the United Nations Conferences on Environment and Development (1992) and Climate Change (2011)) are increasingly interpreted as

evidence that national interests all too frequently supersede global concerns for the environment and that state-actors are ill-suited to develop and implement an effective global grand strategy to combat environmental degradation (Morgera 2009). Relatedly, intergovernmental institutions remain constrained by institutional design principles of a state-centric world while they struggle to respond to an ever-increasing set of transnational and global environmental challenges.

The perceived paralysis and lethargy of governmental regulatory regimes and instruments are contrasted to the rapid globalization of trade, financial transactions, travel, and migration. Economic forces appear to have outpaced the capacity of governments to implement efficient frameworks to regulate economic and social interaction and to protect the environment (Rosen et al. 2003, 164). In view of the alleged decline of national governments' independent regulatory capacities, many observers predict a gradual process of institutional convergence. For instance, Sachs and Warner argue that "[t]he years between 1970 and 1995, and especially the last decade, have witnessed the most remarkable institutional harmonization and economic integration among nations in world history. While economic integration was increasing throughout the 1970s and 1980s, the extent of integration has come sharply into focus only since the collapse of communism in 1989. In 1995, one dominant global economic system is emerging. The common set of institutions is exemplified by the new World Trade Organization (WTO), which was established by agreement of more than 120 economies, with almost all the rest eager to join as rapidly as possible" (1995, 1).

Proponents of institutional convergence frequently rest their argument on the notion that some institutional structures are more economically efficient than others.

Under the conditions of global international competition, countries with less efficient institutional structures find themselves at the competitive disadvantage. This gives them an incentive to copy institutional best practices from one another (Berger and Dore 1996). As it becomes easier for firms to exit from a national economy for more beneficial production and operational conditions elsewhere, governments come under pressure to deregulate their economies. As a result, a global convergence of national institutional frameworks is anticipated, posing significant challenges to existing patterns of governance in general and environmental regulation in particular.

Business' prominent position in this development stems from the fact that "[w]ith the exception of the state itself, the business community is probably the only constituency with an acute interest in the shape of the entire institutional structure governing the economy and business. Other powerful constituencies, such as labor unions, tend to focus on more narrow domains, such as the institutions of human capital" (Witt and Redding 2007, 8). This is particularly relevant because the business community in many countries is capable of assembling significant political leverage to initiate favorable institutional changes. By the logic of collective action (cf. Olson 1965) business tends to find it easier to arrange for pooling of resources among a number of firms. The resulting interest group can exert substantial pressure by shifting production to other countries, or threaten to do so (Witt and Lewin 2007).

With regard to governmental environmental regulation, this means that governments' desire to attract investment dramatically retards national and international efforts to develop and enforce environmental frameworks (Zarsky 1997). For instance, economists advocating the 'pollution havens hypothesis' (e.g. McGuire 1982; Pethig

1975; Siebert 1977; Yohe 1979) argue that due to the fact that ambitious environmental regulations are generally perceived as harmful to a firm's competitive advantage, politicians are very reluctant to implement measures that could keep firms from investing in their countries. In other words, attempts to "roll back the frontiers of the state" (Thatcher 1988) in order to increase economic competitiveness severely limit the power and effectiveness of traditional regulatory regimes. Ongoing privatization of services that were traditionally in the realm of governmental institutions raise further questions about the capability of governments to control, regulate, and direct environmental protection efforts (Rosen and et al. 2003). Confronted with the complex dilemma of growing environmental problems on the one hand and declining state capacity to address these issues on the other hand, many analysts perceive non-state actors as better suited to tackle environmental problems of global dimensions.

On the one hand, this paradigm shift is evident in the growing number of, support for, and socio-political power of transnational not-for-profit environmental organizations (Najam, Runnalls, and Halle 2007). On the other hand, it manifests itself in the growth of consumer and investor pressure on economic actors to improve their ecological footprint. The majority of analyses of the motivations for corporations' CER activity in an increasingly interconnected world assert that the continuing globalization (or even 'Americanization' (Djelic 1998)) of management concepts, ideologies, and technologies results in a gradual harmonization of corporate response strategies throughout the world (Guler, Guillen, and Macpherson 2002). Doh and Guay (2006), for example, argue that companies responding to the demands of the increasingly conscience-focused transnational marketplaces of the 21<sup>st</sup> century deemphasize national contexts. In short,

these accounts predict that in the future, environmental strategies will be increasingly shaped by corporate actors at the expense of traditional state actors (Friedman 1999).

While the internationalization of business provides growth and consolidation opportunities to corporations, it simultaneously poses several challenges: The increasing concentration of economic, financial and, not lastly, political power in the hands of multinational corporations (cf. Bock and Fuccillo 1975; Bracken 2004; Scruggs 1999) makes these actors particularly frequent targets of demands for greater responsibility and accountability (Cutler 2006; Levy and Newell 2005; Utting 2002; Winston 2002).

In order to understand the magnitude of leverage multinational corporations enjoy today, it is helpful to look at some key quantitative indicators of influence: At the beginning of the 21<sup>st</sup> century, about 70,000 multinational corporations with over 700,000 subsidiaries and a diverse group of supplier companies dominate the global economic system (United Nations Commission on Human Rights 2006). Their share of worldwide exports grew from ¼ in the late 1980s to 1/3 in 1995 (United Nations Conference on Trade and Development 2002). Some analysts caution that these developments are leading to a concentration of “industrial power in megacorporations - at the risk of eroding competition. By 1998 the top 10 companies in pesticides controlled 85% of a \$31 billion global market – and the top 10 in telecommunications, 86% of a \$262 billion market” (Riley 2000, 1). As sales of the hundred biggest multinational corporations increased from \$3.2 trillion to about \$4.8 trillion from 1990 to 2000, 60% of total global trade was conducted by multinational corporations (United Nations Conference on Trade and Development 2002, 31). In short, “[w]hat once was external trade between national economies increasingly has become internalized within firms as global supply chain



management, functioning in real time and directly shaping the daily lives of people around the world” (United Nations Commission on Human Rights 2006, 5).

Comparing the economic power of these firms to the economic power of states further demonstrates their rapid gain in relative socio-economic importance (Wells and Elias 2005). For instance, the GDP of most states is much smaller than the annual revenues of the world’s largest firms. In fact, the revenue of Wal-Mart Stores, Inc. – the largest public corporation in the world<sup>1</sup> – in 2011 was larger than the GDP of 157 out of 183 countries for which data is available. Table 2.1 provides a comparison of selected multinational corporations’ annual revenue and selected countries’ GDP.

Table 2.1: Selected corporations’ annual sales compared to selected countries’ GDP

Rank*	Corporation	Revenue**	GDP**	Country	Rank***
1	Wal-Mart Stores	421.8	420.9	Iran	27
2	Royal Dutch Shell	378.1	363.8	United Arab Emirates	30
3	Exxon Mobil	354.7	337.8	Denmark	31
4	British Petroleum	308.9	307.8	Colombia	34
5	Sinopec Group	273.4	267.9	Nigeria	36
100	Royal Bank of Scotland	68.1	66.5	Belarus	67
200	Sumitomo Life Insurance	42.8	42.5	Lebanon	82
300	Alliance Boots	32.0	30.0	Jordan	88
400	Ultrapar Holdings	24.1	23.3	Tanzania	95
500	Wistron	19.5	19.4	Equatorial Guinea	102

\*Fortune Global 500 (2011) ranking, accessible online at: [http://money.cnn.com/magazines/fortune/fortune500/2010/full\\_list/](http://money.cnn.com/magazines/fortune/fortune500/2010/full_list/)

\*\* In billions of US dollars

\*\*\* International Monetary Fund World Economic Outlook database, accessible online at: <http://www.imf.org/external/pubs/ft/weo/2011/02/weodata/index.aspx>

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<sup>1</sup> Fortune Global 500 (2011) ranking by annual revenue, accessible online at: [http://money.cnn.com/magazines/fortune/fortune500/2010/full\\_list/](http://money.cnn.com/magazines/fortune/fortune500/2010/full_list/).

In view of the global economic, cultural, and political power and reach of these actors, many analysts consider them key players in any large-scale effort to protect the environment. In contrast to states, whose actions are limited by territorial, fiscal, and political constraints, the MNC is in a unique position to have “global reach and capacity, and that it is capable of making and implementing decisions at a pace that neither governments nor international organizations can match” (Kyle and Ruggie 2005, 7).

While some accounts emphasize the benefits and contributions these powerful non-state actors could make through new approaches to sustainability, others caution that “[...] so much economic power and so much legal ingenuity should sometimes be tempted to take advantage of the complexity of political and legal systems to create a world of their own which must accommodate itself in the conduct of its operations to many legal systems but is not in any real sense subject to any of them” (Jenks 1972, 70). In times of fiscal austerity and outsourcing, corporations are taking over many functions of the state, including the provision of items formerly considered to be public goods – such as infrastructure, health services, and military protection (Barley 2007; Matten and Crane 2005) and thus blur the borders between political and economic activities (Scherer and Palazzo 2008). In this regard, Ruggie observes a direct link between the emergence of corporate responsibility efforts and globalization, with the former performing the vital function of securing the latter’s human and environmental dimensions (Ruggie 2003).

In short, in an environment where declining, comparatively weak states court powerful, rising corporate actors, the opportunities of the former to influence the actions of the latter are diminishing. Crouch, for instance predicts the emergence of a system that “brings firms to prominence, not just as lobbies of governments, but as makers of public

policy, either alongside or instead of governments. It will be firms that decide the terms of their codes of behavior and responsible practices. Firms therefore become political subjects and objects in their own right, ending the sharp separation between governments and private firms that is the hallmark of both neo-liberal and social democratic politics. At the same time, as governments of all parties have to make similar deals with firms, and equally fear for their country's ability to attract liquid capital if they are too demanding of them, differences among parties on core economic policies will shrink even further than they have already (2009, pp. 307-8).

Streeck and Thelen describe this process as “a major recasting of the system of democratic capitalism as we know it [...]. The current transformation of modern capitalism is making it more market-driven and market-accommodating as it releases ever more economic transactions from public control and turns them over to private contracts” (2005, 4). Under these circumstances ‘green’ consumer and investor demands, together with other forms of societal pressures to improve operational efficiency, appear to provide the most important incentives for firms to act responsibly (Franklin 2008).

The preceding section illustrated that the environmentally conscious segments of the global population that are aware of the fact that “internationalization of production of goods and services by MNCs increases the likelihood of any related environmental damage to a greater number of countries and to a larger part of the world's environment” (Welford 1995, 39) is steadily growing. At the same time, dissatisfaction with traditional governmental command-and-control regulatory regimes (Lyon and Maxwell 1999) is rising in light of the mismatch between governmental claims and capabilities. For instance, in the wake of the BP Deepwater Horizon Oil Spill of 2010, employees of the

US Government's Minerals Management Service conceded according to the New York Times that "BP, and the industry as a whole, had 10 times the expertise that government officials could bring to bear on undersea containment" (Broder 2010). The article goes on citing two officials saying that in lieu of governmental control efforts they would "hire a major oil company to take over the job".

In the emerging new global power constellation, multinational corporations are in many respects the prime movers behind the phenomenon of corporate responsibility, giving it a distinctly transnational and global dynamic (Gjølborg 2009). Their power and leverage is further strengthened by a general trend in government-firm relations: "Sharing neo-liberal prejudices against government as such, frightened at the impact of regulation on growth and believing in the superiority of corporate directors over themselves at nearly everything, politicians increasingly rely on corporate social responsibility for the achievement of several policy goals" (2009, 397).

MNCs make commitments to improve their environmental performance not lastly in order to (re)gain and maintain global legitimacy and the social license to operate. In summary, adherents to the global convergence thesis conceive a world dominated by the imperatives of free trade and neoliberal capitalism. As power is transferred from national governments to international markets and privatization and deregulation become the norm, states become "merely the handmaidens of firms" functioning as "a kind of landlord for the enterprises inhabiting the national territory" (Strange 1997, 184).

## INSTITUTIONAL EXPLANATIONS

While accounts focusing on the economic payoffs of corporate responsibility efforts deliver straight-forward and intuitively appealing explanations for the recent surge in such activities, critics argue that they do not capture the whole range of underlying causal mechanisms. Kinderman, for instance, claims that while corporate responsibility efforts do serve as “fillers, rising as the post-war compromise decays and social market institutions erode, [they] cannot be understood in cynical rational-strategic terms” (2009, 7). Most importantly, rationalist economic explanations on their own fall short in accounting for cross-national differences in MNCs environmental responsibility activities in similarly developed economies (Henriques and Sadosky 1995). While such interpretations treat CER strategies generally as rational processes of matching corporate capabilities to market demands, they tend to ignore or underestimate the impact of diverging institutional frameworks on their development. Consequently they do not account well for the heterogeneity observed in corporate strategies with regard to complex environmental issues across these economies (Levy and Rothenberg 1999).

In contrast, studies focusing on institutional differences among economies build on the premise that the pervasiveness of different institutional frameworks, comprising “the rules of the game in a society or, more formally, [...] the humanly devised constraints that shape human interaction” (North 1990, 3), result in diverging motivations for and restraint on firm behavior. Making a historical institutionalist argument, Doh and Guay (2006), for instance, claim that the history of Europe has brought about stronger involvement of governments in the theater of corporate responsibility activities while U.S. history has led to a more individualistic approach. Supporting this assessment, Lyon

and Maxwell (1999) find that negotiated agreements – like the French agreement on the treatment of end-of-life vehicles or the Swedish agreement on producer responsibility for packaging – are more common in Europe, with its tradition of relatively cooperative business-government relations, than in the United States, where adversarial relations between business and government are the norm. Campbell (2007) supports the view that different institutional systems emerge in different societies and that their presence or absence affects the character of corporate responsibility efforts. Comparing corporate actors in the United States, the United Kingdom, France and the Netherlands, Maignan and Ralston (2002) similarly find that companies' perspectives on the importance of being perceived as 'responsible' and on issue prioritization are dependent on their respective country of origin.

In short, political consumption is embedded in institutional contexts, which in turn shape the economic opportunity structure and incentives for firms to invest in CER. Therefore corporate responsibility efforts cannot be simply interpreted as a solely market-driven phenomenon but one that is strongly influenced by political pressure and institutional environments. The following two subsections survey the arguments advanced by scholars researching the linkages between institutional environments and corporations' responsibility strategies.

*“If you put globalization up for a popular vote in the United States, I think it would lose 60/40.”*

- Jeffrey R. Immelt, Chairman and CEO General Electric

The economic convergence thesis (cf. preceding subsection) is based on the idea that a considerable portion of institutional change is driven by intentionality on part of the actors involved in the process. These actors tend to be guided by the objective of attaining outcomes in line with their own preferences (North 1990) which grow out of more fundamental beliefs about desirable ends and acceptable means (North 2005). If preferences, beliefs, ends, and means converged – as argued by most ‘globalists’ – these changes should be reflected in international institutional adjustment processes.

However, scholars of institutional change caution that societies’ interest groups are rarely monolithically in favor of a given institutional adjustment. Institutional changes that the business community may propose generally affect a multitude of other constituencies, which frequently have divergent preferences. In the latter case, the most likely outcomes are deadlock without solution or a compromise reflecting relative bargaining powers of the interest groups involved (North 2005). Even if it was assumed that the business community represents the most important or even only interest group, not all of its members would always be in favor of a given adjustment. For instance, sectors sheltered from international competition may oppose changes proposed by exposed sectors. Relatedly, Hall and Soskice (2001) argue that the same company might

locate different activities in nations with divergent institutional structures in order to secure access to their specific institutional capacities and advantages. Such action does not lead to convergence but instead reinforces differences in national institutional frameworks, as “firms that have shifted their operations to benefit from particular institutions seek to retain them” (2001, 57). Consequently global competition could foster institutional diversity rather than convergence (Berger and Dore 1996).

Moreover, historical developments and experience continue to influence the beliefs of individuals about what a country's institutional structure should look like (North 2005) and create a certain level of path dependency. This perception concurs in important points with Polanyi's claim that “the genesis of national markets was not the consequence of the slow and spontaneous emancipation of the economic realm from state controls. Rather the market was the result of a conscious and often violent intervention by the government in society for non-economic reasons” (Polanyi 1944, 331). Applying this argument to contemporary developments, Vogel (1998) contends that the ‘deregulation revolution’ of the 1980s and 1990s never happened. Instead, market liberalization was made possible by the implementation of additional national legislation that – far from converging – advanced liberalization in substantially different ways. Construing governments, not private interest groups, as the principal driving forces of market liberalization, he argues that market liberalization reinforced national differences and transformed – not diminished – state power.

Relatedly, institutions' endurance in the face of mounting convergence pressures can be partly explained by the fact that they have become ‘taken-for-granted’ through repeated use and interaction and legitimized through the endorsement of authoritative and



powerful individuals and organizations. Witt and Redding (2007), for instance, find that even in the business community, where the drive for convergence should be particularly pronounced, different national preferences and rationales with regard to institutional design continue to dominate the discourse. Relatedly, Hall and Soskice (2001) argue that firms do not automatically move their activities off-shore when offered less regulatory restrictions. Deriving competitive advantages from the institutions in their home countries, economic actors are in reality often much less mobile than globalization theorists assume. Of equal importance is the fact that national governments are not as defenseless in the face of the pressures of economic globalization as they might appear. There is substantial evidence that governments have simply used international convergence pressure as excuses to pursue reforms they wanted in any case (Wade 1996).

Not surprisingly, a number of scholars argue that the ‘institutional convergence’ predicted by neoclassical economists is unlikely to materialize in the foreseeable future (Witt and Redding 2007). In this respect, Hall and Soskice question the existence of a “monolithic movement toward deregulation” and instead argue that national institutional frameworks critically impact scope and scale of such policies (Hall and Soskice 2001, 58). Thelen (2001), analyzing institutional change within advanced economies, supports this assessment by providing substantial evidence that economies that traditionally relied more heavily on non-market coordination mechanisms continue to adjust their existing institutions instead of implementing new ones. Relatedly, King (1999) demonstrates that the far reaching deregulation of the economies of the United Kingdom, the United States, New Zealand, Canada, and Australia did not materialize to a similar extent in northern Europe and East Asia. In other words, institutional variation across nations continues to

reflect nationally contingent ends for firms and other economic actors, which influence the choice of the institutional means (Redding 1990).

It goes without saying that institutions are not static. However, their evolution generally processes in an incremental manner. Therefore, national systems continue to be distinguishable from one another according to the characteristics of their respective institutional frameworks (Clemens and Cook 1999, 445). Aguilar (1993) agrees that, even though national institutional designs are subject to dynamics of change, they have proven to be remarkably resilient. There is strong empirical evidence for the continuing institutional diversity of different national economic and business systems and their direct impact on MNCs' strategic choices. The international business literature, for instance, demonstrates that institutional distance is a factor in the liability of foreignness and that it affects strategic parameters of the business of MNCs in host countries (Eden and Miller 2004; Kostova 1999). Providing strong arguments for the path dependent development of institutional frameworks, Doh and Guay (2006), Campbell (2007), and Maignan and Ralston (2002) show that divergent historical developments have resulted in distinctive approaches to (and perceptions of) corporate responsibility efforts in different economies.

Obviously, limited institutional convergence to date, as exemplified in continued institutional variety, does not warrant the conclusion that convergence will fail to materialize in the future. However, there are a number of studies of global trends that caution about an overly deterministic outlook on the future prospects of globalization. Ghemawat (2007), for example, challenges the idea that globalization will eventually lead towards institutional isomorphism: "Despite talk of a new, wired world where information, ideas, money, and people can move around the planet faster than ever

before, just a fraction of what we consider globalization actually exists. The portrait that emerges from a hard look at the way companies, people, and states interact is a world that's only beginning to realize the potential of true global integration. And what these trend's backers won't tell you is that globalization's future is more fragile than you know" (Ghemawat 2007, 56). The author argues that the contemporary literature on globalization is wrongly dominated by 'globalization triumphalists' who vastly exaggerate the magnitude of internationalization while erroneously ignoring the existing barriers between countries that continue to define the 'semi-globalized world'.

Marquis and Battilana (2009) similarly challenge the idea that globalization is a homogeneity-producing process and the view that humanity is moving from particularism to universalism. They argue that in many ways local particularities have become more visible and salient. Weiss agrees that it is wrong to assume that economic globalization "forced [states] to adopt similar fiscal, economic and social policy regimes" (1998, 188). Weiss and Hobson (1995) and Vogel (1998) show that states continue to hold significant power; however, due to institutional differences, they differ in their capabilities of exercising it. Relatedly, the collections of works edited by Kitschelt, Lange, Marks, and Stephens (1999a) and Hall and Soskice (2001) show that the location of actors in a given system allows them to develop core competencies that are advantageous in the international marketplace. This differentiation, in turn, works against systemic convergence. Empirically comparing the development of different institutional indicators over several decades, Pryor (2005) finds that economic systems generally maintained their distinct characteristics in the long term. While the institutional clusters that define different economic systems underwent noticeable changes over time, these institutional

changes developed predominantly parallel to each other rather than converging. Moreover, the groupings of nations with comparable institutional environment remained remarkably stable.

Finally, it is important to remember that determinist predictions with regard to any socio-political development should generally be treated with caution. ‘End of history’ claims, like Fukuyama’s observation that liberal democracy and technologically driven capitalism have won a ‘final victory’ over all other ideologies and systems (Fukuyama 1989) are a common phenomenon in the social sciences. However, history has shown that their predictions at best oversimplify developments and at worst are outright wrong.

In summary, there are powerful theoretical reasons – backed by strong empirical evidence – to believe that differences among developed economies and their respective institutional frameworks continue to constrain and define corporate strategies. Consequently, it is problematic to interpret current trends of globalization in some areas as indicators of an inevitable and irreversible global trend (Sachs and Warner 1995). In fact, the recent wave of cross-border mergers and acquisitions encountered more protectionism in a broader range of countries than did the previous wave in the late 1990s. Attempts of deeper international institutional integration continue to collide with traditional and persistent notions of national sovereignty, evident in the tendency of voters in many countries to support more protectionism, rather than less (Ghemawat 2007, 60). The weakening of the Washington Consensus since the Asian economic crisis of 1997 has become evident in the emergence of powerful counter developments such as the resurgence of left-leaning policies across Latin America or the rise of the ‘Occupy Movement’ in the developed world. In the words of Hall and Soskice, “[u]ltimately, it is

not surprising that increasing flows of trade have not erased the institutional differences across nations. After all, world trade has been increasing for more than fifty years without enforcing such a convergence. In its presence, nations often prosper most, not by becoming more similar, but by building on their differences to consolidate comparative advantage” (2001, 60). Relatedly, Gjølborg (2009) concludes that, “even in the age of globalization, national structures still constitute a crucial context which affects corporate strategy” (19). Consequently, it is reasonable to expect national institutions to impact firms’ strategic choices with regard to their environmental responsibility efforts.

### *Theoretical Foundations*

The use of institutional approaches to explain economic behavior has a long history. North’s (1990) argument that variation in longstanding, historically entrenched institutions must be incorporated into neo-classical theory because it facilitates the creation of different organizations and strategies by the actors in each system has been extensively tested over the past decades.

Most importantly, many institutionalist scholars question the rational choice foundation of the neoclassical economic perspective. The latter propagates the view that rationality applies at all times and in all cases. Consequently, path dependency or timing and sequencing of events are not considered to be important determinants of corporate behavior (Mikler 2006, 22). The range of possible explanations for why firms are taking more ecologically friendly courses of action is necessarily constrained to certain utility maximizing functions. Actors’ interests, identities, and preferences are construed as given a priori, thus assuming a universal source of behavioral change. Limiting the number of potential explanatory variables such frameworks are relatively static. To Katzenstein

(1996) these characteristics carry the danger of ‘vulgar rationalism’, inferring the motives of actors from behaviorally revealed preferences and amounting to a tautological oversimplification.

While not categorically rejecting the usefulness of simplifying abstractions, institutional perspectives do not constrain explanations to the same extent. They generally do not define actors’ rationality in terms of a priori assumptions ascribing actors’ motivations. Instead, they emphasize that notions of rationality are contingent on institutionalized behavioral norms (Campbell 2007). Adherents to the neoclassical economic perspective understand the world in terms of predefined material interests, based on a logic of consequentialism, whereas institutionalist frameworks emphasize the role of ideas, norms, knowledge, culture and argument in politics, emphasizing the observations that “(a) human interaction is shaped primarily by ideational factors, not simply material ones; (b) the most important ideational factors are widely shared or ‘intersubjective’ beliefs, which are not reducible to individuals; and (c) these shared beliefs construct the interests and identities of purposive actors” (Finnemore and Sikkink 2001, 393). Behavior is perceived as being contingent on institutionalized norms that change over time and form the basis of what is seen as ‘rational’ behavior (Finnemore and Sikkink 1998).

From this perspective, corporate environmental strategies are to a significant degree products of institutions that constrain certain types of behavior and promote others. It goes without saying that corporate management responds to market signals, “but the character of that response is not equally obvious as corporate preferences are driven in part by norms about the appropriate approaches to business” (Haufler 1999,

201). Thus, different national institutional systems create different incentive structures, motivating corporations to adjust their CER strategies to specific national requirements. Apart from the consensus that ‘institutions matter’, scholars in this tradition frequently disagree on what constitutes the characteristics of distinctive institutional systems.

One of the more recent institutionalist developments is the emergence of the ‘varieties of capitalism’ literature. Spearheaded by Hall and Soskice (e.g. 2001), it focuses on how state, market, and civil society relations are organized differently across capitalist systems and how divergent models impact business strategy and behavior. The approach puts firms into the center of the analysis and, without neglecting trade unions, highlights the role that business associations and other relationships among firms play in the political economy. The importance of such strategic interaction is increasingly appreciated by economists but – with some notable exceptions (e.g. Przeworski and Wallerstein 1982) – neglected in studies of comparative political economy.

In the business literature, a number of studies on corporate responsibility efforts have emerged that incorporate key elements of the varieties of capitalism approach. Challenging neoclassical economic explanatory frameworks, Pauly and Reich, for instance, find that “durable national institutions and distinctive ideological traditions still seem to shape and channel crucial corporate decisions” (Pauly and Reich 1997, 1). Aguilera and Jackson (2003) add that stakeholder identities and interests significantly vary cross-nationally and that therefore some of the assumptions of strictly agency-oriented analysis are too simplistic. Investigating cross-national variation in corporate responsibility strategies, Gjølborg cautions that “the global features of corporate responsibility efforts might lead to the assumption that national dynamics are secondary

or even irrelevant. However, while CSR might be of a global nature, recent research suggests that it is applied differently across different social, economic, cultural, legal and political contexts” (2009, 10). Lending support to this assessment, Matten and Moon (2008) conclude that differences in national business-politics-society relations create different approaches to responsibility efforts. Despite these insights, very few scholars explicitly root their analysis of corporate responsibility patterns in the established literature on political institutions. Even those works that do so (e.g. Habisch et al. 2005; Matten and Moon 2008; Midttun, Gautesen, and Gjølborg 2006) do not provide large-n statistical analysis of the assumed causal mechanisms at work. As a case in point, Matten and Moon (2008) make a powerful theoretical argument that companies from liberal, laissez-faire economies choose more explicit activities than those operating in coordinated market economies. However, their study remains limited to a small number of countries, does not address CER, and provides little empirical evidence.

In short: There is substantial reason to believe that institutional frameworks impact the formation of firms’ national corporate responsibility strategies. However, while scholars subscribing to institutionalist approaches agree that economic motivators for CER need to be interpreted in their respective institutional contexts, there is no consensus on the extent of the impact – or even categorization – of these frameworks.

### 2.3 THE ECOLOGICAL BOTTOM LINE: ASSESSING THE EFFICACY OF CER

The economic landscape of the early 21<sup>st</sup> century is shaped by three important global developments: Profound changes to environmental norms and customs, the rise of multinational corporations, and the erosion – or complication – of national regulatory



power (cf. Palazzo and Scherer 2006). The categorical distinction between political and corporate responsibilities, taken for granted until very recently, is being challenged and opened up for debate. Firms are being perceived as political players, not lastly due to the significant social and environmental consequences of their actions and their rapidly growing leverage over traditional political actors (Scherer and Palazzo 2007)).

Similar to the debate on the driving forces behind CER, the discussion about its efficacy develops along one important fault line: On the one side are observers that see CER as a viable alternative to governmental regulatory regimes in times of fiscal austerity, declining state control, and growing financial potency of multinational corporations. They advocate a more substantial involvement of corporations in issue areas formerly reserved for political actors. On the other side are skeptics who caution that CER exists largely outside democratic control mechanisms and that it thus cannot adequately satisfy the diverse and changing societal needs for environmental protection.

#### SELF-REGULATED CER AS SUBSTITUTE FOR COORDINATED EFFORTS

A growing group of scholars, many of them in the neoclassical economic tradition, argue that rising consumer and citizen demand, combined with frustration with national and international governmental environmental regulatory regimes, and the realization of corporations' capabilities of 'doing good' will generate sufficient momentum to bring about self-regulatory efforts that are not only vehicles to satisfy firms' business objectives but that will eventually become powerful and extensive enough to present viable alternatives to traditional efforts to protect the natural environment.

Already in 1994 an article in *The Economist* proclaimed that the world is entering the ‘era of corporate image’ in which citizens evaluate firms and consumers make purchases on the basis of corporations’ overall contribution to society – how they treat employees, shareholders, stakeholders, and the natural environment (*The Economist* 1994, 71). As shown in the first section of this chapter, this perceptual change is deemed to be accelerated by the internationalization of media (Russo and Fouts 1997) and environmental NGOs (McCormick 1991).

The emergence of powerful private environmental management systems, reporting standards, corporate codes, and green indexes, are frequently cited as evidence for corporate actors’ acceptance of their new role in the global society (Oren Forthcoming). Further analyzing this development, advocates of ‘free-market environmentalism’ (Anderson and Leal 2001) argue that existing collectivist governmental regulations delay and discourage the development of CER as an alternative to traditional regulatory regimes. Bagnoli and Watts (1995), investigating whether unregulated market forces lead to the socially optimal level of environmental friendliness, find that under certain circumstance unregulated competition for ‘green’ consumers can provide the socially optimal level of providing environmental public goods.

Criticizing political measures to reduce the risk of global warming on the grounds that they retard market-driven enhancements in efficiency and environmental performance, Adler argues that “precautionary measures, such as the Kyoto Protocol, call for government interventions to control greenhouse-gas emissions and suppress the use of carbon-based fuels. Such policies would impose substantial costs and yet do little, if anything, to reduce the risks of climate change. Such policies cannot be characterized as

cost-effective greenhouse ‘insurance’” (2000, 1). Instead, he advocates the large-scale elimination of government interventions in the marketplace as these measures effectively obstruct emission reduction procedures and discourage the adoption of lower emission technologies. In particular, subsidies for specific technologies are perceived as distorting energy markets and energy-related investment decisions without producing off-setting returns (Etscheid 2012). Deregulation would create market opportunities for alternative energy sources and create further pressure for greater efficiency and innovation. In the transportation market, airlines could fly more cost-effective and energy-efficient routes. Adler estimates that “allowing ‘free flight’ could reduce per-flight energy use by as much as 17 percent” (2000, 2). Similar reductions could be achieved by reducing regulatory barriers to improvements in other transportation sectors, such as road construction and management.

Moreover, ‘free-market environmentalists’ argue that those resources that are most incorporated into the market are those about which there is least concern (Mikler 2006). For instance, temperate forests in the developed world are expanding and resource use per unit of output is on a downward curve throughout the market-oriented economies of the world. However, those resources that are predominantly outside the market system, such as tropical rainforests or coastal fisheries are rapidly deteriorating. An extension of property rights over these resources, effectively incorporating them into the global market, would dramatically improve their current state. Adler demonstrates this argument as follows: “A company that opts to dispose of chemical wastes as effluent into a nearby river over seeking to recycle such wastes or send them to a disposal facility clearly does so because it is the least cost option; acting in that manner is a rational action motivated

by a desire to maximize profits. The question that needs to be asked is why is pollution the least-cost action? The answer: because so long as the river is an unowned resource, the company will bear no cost by using it. The problem is not the company's profit-driven incentive. The problem is the failure to incorporate the river into market institutions” (2001). In short, market-driven solutions should replace regulations that constrain economic choices and thereby hamper growth and innovation (Zimmerman 2000).

Supporters of ‘free-market environmentalism’ counter the claim that MNCs are not capable of implementing substantial environmental incentives because they are driven by the competitive pressures of the market with the argument that states underlie comparable dilemmas. In the anarchic international system, nation-states are traditionally geared towards maximizing their individual prosperity and ensuring their survival. Trapped in a classical ‘prisoner’s dilemma’ and constantly fearing free-riders and a relative loss of power, they have substantial incentives not to implement any legislation that could harm their economic competitiveness vis-à-vis states with less stringent regulations (Vorholz 2011). Paterson observes in this regard that the configuration of the traditional international system demotivates states to make the required interventions and “existing political, social and economic structures are part of the problem” (2000, 254). Zarsky (1997) argues that – in the absence of effective multilateralism – innovation in national environmental policy remains ‘stuck in the mud’, while Keane predicts that governmental efforts are increasingly supplemented (and hence complicated) by a variety of democratic procedures that are applied to organizations underneath and beyond states (Keane 2009).

In the emerging ‘post-national constellation’ (Habermas and Pensky 2001), in which states’ capacities seem increasingly paralyzed by government debt and solvent non-state actors gain in popularity, capabilities, and influence, people begin to perceive the latter as more attractive targets for social and environmental appeals (Scherer and Palazzo 2008; Cohen 2009). In this regard, Cutler Haufler, and Porter point out that “[i]n an era when the authority of the state appears to be challenged in so many ways, the existence of alternative sources of authority takes on great significance, especially when that authority is wielded internationally by profit-seeking entities” (1999, 4). Given the complexities and constraints of public environmental policy making (cf. Ostrom 1991) it appears prudent to “bring corporations back in” as central actors in the fight against environmental deterioration (Mikler 2006, 149). This is considered to be particularly important because without real attitudinal change on the part of the corporate world any collective actions are unlikely to prove sustainable. In short, at some stage the emerging norm of environmental sustainability must be endogenized for it to be truly internalized.

In view of these developments, a shift in global regulatory practices – away from state centric modes towards new multi-lateral or non-territorial modes of regulation with private business firms as core actors – is predicted. Livio DeSimone – Chairman and CEO of the 3M Company – summarizes this new role of the corporation in global efforts to avert the environmental crisis in the following way: “Business [...] used to be depicted as a primary source of the world’s environmental problems. Today, it is increasingly viewed as a vital contributor to solving those problems” (1996, 3). Examples of corporations taking sophisticated approaches to CSR and CER abound. Barley shows the importance of private corporations in providing public goods, infrastructure, or public

rules (Barley 2007). Segerson and Miceli (1998) conclude that under a number of circumstances, voluntary environmental agreements protect the environment at least as well as, and in some cases more than legislative mandates, while at the same time realizing cost savings for both regulators and firms. In other words: A growing number of observers see the world converging on a globalized system that is substantially shaped by environmentalist norms. At the core of this system, multinational corporations deploy unified strategies to minimize environmental risks and to set and comply with global standards (Ali 2000).

#### CER AS SUPPLEMENT TO GOVERNMENTAL INTERVENTION

*“I would define globalization as the freedom for my group of companies to invest where it wants when it wants, to produce what it wants, to buy and sell where it wants, and support the fewest restrictions possible coming from labor laws and social conventions.”*

Percy Barnevik, President, ABB Industrial Group

While there are few works that fundamentally question legitimacy and benefit of CER efforts in general (e.g. Friedman 1970), a substantial number of studies challenge the optimistic accounts that construe CER as a viable alternative to governmental environmental regulation. Referencing discrepancies between the theoretical and the actual workings of the market they caution that many studies overestimate consumer demand for CER, altruistic intentions of investors, and the capacities of firms, while simultaneously underestimating the dangers of ‘greenwashing’. Moreover, skeptics

believe that proponents of CER centered approaches to environmental sustainability not only misrepresent and underestimate the capacities of state-actors but – most importantly – fundamentally misunderstand the internal dynamics and laws of capitalist economic systems. In their opinion, only elected governments can alleviate the shortcomings of market mechanisms with regard to the management of the global commons (Hardin 1968). Consequently, CER should be regarded as a supplement to, not a substitute for, governmental regulatory regimes and more, not less, governmental oversight, regulation, and coordination is necessary to avert the environmental crisis.

First, skeptics caution that, while on the rise, ‘green’ investors and consumers still represent a very small fraction of the general population. In their view, it is questionable if these subgroups will ever acquire enough financial leverage to initiate a fundamental shift of the economic system towards sustainable operations. Relatedly, Mohr, Webb, and Harris (2001) find that despite consumers’ interest in firms’ responsible behavior and its ostensive impact on purchase intention, in reality, corporate responsibility efforts only play a minor role in consumption decisions. In fact, many studies on the effectiveness of voluntary corporate responsibility efforts tend to suffer from a social desirability bias: For instance, in surveys consumers habitually declare their determination to consider firm behavior in their purchase decisions, but studies on actual consumption show that only a minority acts on these considerations (e.g. Devinney, Auger, and Eckhardt 2010). Detecting an “unresolved paradox” Öberseder, Schlegelmilch, and Gruber (2011, 449) demonstrate the existence of a considerable gap between consumers’ alleged interest in corporate responsibility and the limited role it plays in their purchasing behavior.

A case in point, Samsung Electronics, the world's 22<sup>nd</sup> largest corporation<sup>2</sup> is frequently criticized by academic observers, trade unions, and NGOs for its business practices (Rohwetter 2012). The firm was recently ranked the 3<sup>rd</sup> most socially and environmentally irresponsible global company by the Public Eye Awards 2012.<sup>3</sup> The description reads: "South Korea's richest conglomerate uses banned and highly-toxic substances in its factories, without informing and/or protecting its workers. As a result at least 140 workers were diagnosed with cancer, of which at least 50 young workers have died. Despite clear evidence, Samsung denies its responsibility and publicly discredits the sick and deceased, as well as their relatives. Samsung has a history of over 50 years of environmental pollution, trade union repression, corruption, and tax flight. Samsung's power in South Korea is so great that many citizens speak of the 'Samsung Republic'"(Baumgartner et al. 2012). Despite these observations, Samsung's products are more in demand than ever before (Rohwetter 2012).

The case of Samsung is far from being exceptional: Reinhardt (2005) finds that until today, relatively few major corporations engage in genuine, substantial corporate responsibility efforts, and those that do can do so only under unusual market conditions. Similarly, Hay, Stawins, and Vietor (2005) caution that the evidence is very mixed as to how often responsible behavior actually pays off financially, or serves the company strategically. Consequently, many companies are reluctant to invest resources in such

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<sup>2</sup> Based on annual revenue in 2011.

<sup>3</sup> The Public Eye Awards is organized since 2000 by Berne Declaration and Friends of the Earth (in 2009 replaced by Greenpeace). It is intended to uncover exploitative working conditions, environmental sins, intentional disinformation, or other disregards of corporate social responsibility. Its mission statement reads: "At the forefront of the World Economic Forum (WEF) in late January, the most evil offenses appear on the shortlist of the Public Eye Awards 2012. And those firms placed in the pillory will feel the heat: Our renowned naming&shaming awards shine an international spotlight on corporate scandals and thereby help focused NGO campaigns succeed."



endeavors. Fisman, Heal, and Nair (2011) and Endres (2011) provide evidence that corporate philanthropy and profits are positively related only in industries with high advertising intensity, competition, and brand affinity. Others (e.g. Arora and Cason 1996; Bagnoli and Watts 1995; Lutz, Lyon, and Maxwell 1998) find that firms' reluctance to invest in such efforts might be due to the fact that willingness to pay a premium for high-quality, environmentally-friendly products is largely limited to high-income consumers.

Moreover, unlike firms that manufacture consumer products, many producers of raw materials have limited interactions with the final consumer. The environmental impact of their operations remains a relatively abstract concept to the latter. Boycotts and other forms of consumer retaliation are therefore frequently ineffective and limited. For instance, analyzing the sustainability reports of the 150 largest German companies, the Institut für ökologische Wirtschaftsforschung found that about one out of four firms do not publish separate information regarding their sustainability efforts and many reports lack specific strategies and goals. Most of these laggards are corporations with little exposure to public scrutiny. Companies that are frequently in the limelight due to the heightened socioeconomic impact of their operations – such as automobile manufacturers or chemical and pharmaceutical companies – publish the most extensive reports. The reporting behavior was found to have remained remarkably stable over the last years (Gebauer and Westermann 2011). Overall, it appears that CER does not dominate consumers' lists of selection criteria and that purchase decisions continue to be driven by price, quality, or brand familiarity (Beckmann, Christensen, and Christensen 2001).

Similar to 'green' consumer demand, the actual and potential effectiveness of 'green' investor demand remains disputed. At the core of responsible investing is a

fundamental question: can responsible performance be associated with good financial performance? While an important literature exist that analyzes the link between environmental and financial performance, there is still uncertainty about the significance of the relationship (e.g. Margolis and Walsh 2003; Waddock and Graves 1997; Konar and Cohen 1997; Russo and Fouts 1997; King and Lenox 2000).

Some observers have argued that these mixed results might be partly due to the difficulty of measuring environmental performance and to important differences among screening methodologies (cf. section 2.1). Assessing the main assumptions which underpin investor environmentalism Harmes (2011), for instance, argues that the potential of using institutional investors to create real financial incentives for climate change mitigation, in the form of share price performance, has been considerably overestimated. Instead, ‘traditional’ investors are likely to represent the vast majority of investors for the foreseeable future. They will pressure corporations to invest in acts of corporate environmentalism only when those acts yield tangible, short-term positive financial returns, or help to minimize unavoidable negative returns (Lyon and Maxwell 1999). In short, the discrepancy between reported intentions and actual consumer behavior, together with the lack of leverage of environmentally conscious investors, severely diminishes the actual pressure felt by firms to invest substantially in corporate responsibility efforts

Second, most skeptical accounts on the effectiveness of CER claim that in a capitalist system, performance can only truly be maximized along one single dimension: profit. Attempting to enhance performance along more than one dimension would be logically incoherent and psychologically impossible. According to Jensen (2002), 200

years' worth of work in economics and finance indicate that social welfare is maximized when all firms in an economy maximize total firm value. The systemic setup generates strong pressures on business executives to externalize costs to both society and the natural environment. As a case in point, Megalli and Friedman (1991) reveal that Exxon, Dow Chemical, and others companies each donated over one million dollars to US congressional candidates in the early 1990s to stall the Clean Air Act.

It follows that the range of possible explanations for firms taking more environmentally friendly courses of action is constrained: it must – by definition – be because it is profitable for them to do so. In the absence of strong enough consumer, investor, and governmental demands, CER incentives are unlikely to ever reach critical mass. Firms that do act responsibly are in fact seen to be at a distinct competitive disadvantage because the concept of an externality implies that firms in competitive industries have no incentive to internalize the costs from their transactions. Those studies that found the opposite – a positive correlation between firms' CER efforts, productivity, and profitability – are criticized on methodological grounds: The vast majority of them rely on small, single-industry samples and on self-reported data, do not control for other (and arguably more important) predictors of profitability, and use problematic measures of corporate responsibility (Wood and Jones 1995). For instance, the field of organizational strategy is dominated by case studies of 'high-performing' firms. While their business strategies are dissected so that others can try to emulate their success, no real measures of 'high' performance are provided (Hubbard 2009). Moreover, research is heavily dominated by studies of US and UK firms largely ignoring corporations from other countries (Callan and Thomas 2009).

What is more, despite the existence of plenty of anecdotal successes stories, more rigorous empirical studies have only found weak or insignificant links between various measures of corporate environmental responsibility, environmental performance, and profitability (cf. Griffen and Mahon 1997; Guerard 1997; Waddock and Graves 2000; Rockness, Schlachter, and Rockness 1986). Vogel (2005) argues that it is difficult to realize monetary value derived from ‘supplying’ responsibility to stakeholders other than consumers. Examining discrepancies between the public’s perception of selected companies and their actual behavior, another recent work finds no correlation between consumer perception of corporate environmental performance and verifiable data (Aldhous and McKenna 2010). Succinctly summarizing the ambiguities of the relationship between corporate responsibility and financial performance, a former executive of a large oil company remarked at a U.N.-sponsored corporate responsibility workshop that “[if] the ‘win-win’ argument were so compelling, then we wouldn’t be sitting around this table” (Utting 2000, 21). In short: While CER can provide opportunities to create new markets, improve public perception, or strengthen brands it does not and cannot provide a comprehensive global or national strategy. ‘Green capitalism’, where the production of surplus value occurs through the production of renewable energy technologies, waste reclamation, trading pollution credits or even ecotourism, may address certain facets of environmental destruction. However, it still replicates the relations of capitalism globally, which must function on the basis of profit maximization. While ‘going green’ might make sense under certain circumstances within the logic of capitalism it does not remedy the broader destructive impact of capitalism on the planet (Kovel 2002). Consequently, only a strong background threat of regulatory

intervention or low-cost subsidies can generate circumstances under which voluntary environmental action can substantially contribute to the protection of the natural environment.

Third, supported by the observation that in many companies corporate responsibility is part of the marketing or Public Relations (PR) budgets, there is substantial concern about corporate ‘greenwashing’. In order to capitalize on public anxiety with regard to environmental deterioration “corporations were able to take advantage of PR techniques and information technologies available for raising money, building coalitions, manipulating public opinion and lobbying politicians” (Beder 1999/2000, 8). Deliberately assessing the issue of sustainability from a PR perspective, Cecil J. Silas, then CEO of Phillips Petroleum, stated in 1990 that “[t]here’s no reason we can’t make the environmental issue our issue. If we wait to be told what to do – if we offer no initiatives of our own and react defensively – we’re playing not to lose, and that’s not good enough” (1990, 34).

Accusations of ‘greenwashing’ are further substantiated by the fact that CER expenditures are negligible compared to what companies spend on lobbying and advertising in order to prevent regulation and to stall environmental legislation. Studies show a consumer tendency to appreciate appropriate motivation regardless of the actual performance of a firm (e.g. Gilbert and Malone 1995; Vlachos et al. 2009) thus rewarding companies for the credible portrayal of intentions, rather than results. Consequently, concerned about avoiding stakeholder retributions firms are more likely to focus on their image and intentions, rather than the empirical results of their actions (Franklin 2008).

The “Krombacher Regenwald-Projekt” (Krombacher Rain Forest Project) is a representative example. The German Krombacher brewery launched this CER initiative in cooperation with the World Wide Fund for Nature (WWF). From 2002 to 2008 parts of the revenue from the sale of each crate of beer were set aside to protect one square meter of rainforest for 100 years. According to analysts the campaign resulted in a growth in sales by 3.7% and an increase in turnover by 8.1% already in 2002. Clearly, a major marketing and reputation success, the ecological results seem rather sobering in comparative perspective: While the project helped protect 44 square kilometers, 44.000 square kilometers are destroyed every year. The campaign generated € 3.5 million in donations, translating into € 0,067 for each beer case.

However, the advertising budget exclusively for the campaign is estimated to have been € 10 million (Backhaus-Maul et al. 2010). This example suggests that customer loyalty and satisfaction, brand awareness and equity, trust, and firm equity can be achieved through a credible demonstration of environmental intentions, rather than corresponding results. Relatedly, in an attempt to test the validity of environmental claims made with regard to products sold in North American consumer markets, TerraChoice Environmental Marketing Inc. conducted a survey of six category-leading big box stores. Out of 1,018 consumer products bearing 1,753 environmental claims “all but one made claims that are demonstrably false or that risk misleading intended audiences” (2007, 1).

Another case study that demonstrates problems associated with intentions and outcome is the case of Fair Trade certified coffee. The Fair trade Labeling Organizations International umbrella group’s (FLO) aim is to empower growers and drive the

sustainable development of coffee, one of the world's largest commodities. Like many economic and political movements, the fair trade movement arose to address the perceived failure of the market and remedy important social issues. The certification process requires producing organizations to comply with a set of minimum standards "designed to support the sustainable development of small-scale producers and agricultural workers in the poorest countries in the world." (Fairtrade International 2012). The movement has played a significant role in getting consumers to pay more attention to the economic plight of poor coffee growers and the environmental impact of coffee production. However, Fair Trade coffee has evolved from an economic and social justice movement to being largely a marketing model for ethical consumerism. Strict certification requirements are resulting in uneven economic advantages for coffee growers and lower quality coffee for consumers (Haight 2011). In short, even though most researchers explicitly laude corporate voluntarism, many doubt that CER without external pressure would ever gain sufficient momentum to turn into a viable alternative to governmental intervention (Hubbard 2009).

Fourth, the issue of environmental sustainability is far too complex to be addressed by simply applying one specific ideological lens and utilizing its limited analytical and policy tools. Karliner, for instance, cautions that "preventing situations such as global warming requires more than just market mechanisms that simply assign economic value to intangibles" (1997, 47). Even under the assumption that markets could provide the most effective mechanisms to halt environmental degradation; analysts would still lack a basic, clear, and consistent approach – in theory as well as in practice – for measuring an organization's sustainability performance (Hubbard 2009). Equally

important, Ostrom (1999) shows that economic actors hardly ever take genuinely ‘rational’ decisions in the sense of operating purely with a priori defined instrumental profit maximizing goals. Thus, even under the assumption of welfare-maximizing motives, in highly complex settings no actor is capable of a complete analysis before action is taken. Only the collective creation of rules and restrictions can provide ways to manage such situations (Ostrom 1999, 496).

This becomes particularly evident in the study of voluntary agreements for environmental regulation. A substantial amount of CER activity is the direct result of – or to a significant degree influenced by – political pressure and not simply a response to consumer demand. Maxwell, Lyon and Hackett (1998), for instance, explore the conditions under which firms implement self-regulation. The authors postulate that popular pressure for environmental responsibility is costly for consumers to build. They need to educate themselves about the implications of environmental issues and about the overall efficacy of alternative remedies. Subsequently, they need to coordinate on a mutual strategy for gaining influence, further increasing the ‘organizing costs’. Next, these interest groups incur ‘influence costs’ through lobbying activities, election campaign contributions, or other activities designed to wield political influence. These costs faced by consumers drive a wedge between the consumer benefits of firms’ voluntary abatement and the benefits of mandatory abatement.

Firms can take advantage of this wedge to preempt regulation: If consumers’ costs of political action are too high then consumers are effectively ‘blockaded’ from the political process. Under these circumstances, CER and other forms of self-regulation represents an unnecessary expenditure. Only when consumer costs of gaining political



influence fall firms have a growing incentive to self-regulate (Lyon and Maxwell 1999). In other words, CER activities increase in conducive political environments, characterized by low barriers for consumer engagement and high regulatory pressure or the threat thereof. At the same time, this means that when consumer organizing costs are high, firms are able to preempt regulation with a modest amount of voluntary abatement (Maxwell, Lyon, and Hackett 1998).

Supporting this assessment, Segerson and Miceli (1998) find that government actions which significantly lower the information costs faced by consumer and environmental groups increases the threat of regulation faced by firms and increase the incentives for self-regulation: Under these circumstances, a firm's compliance costs as well as the regulator's transaction costs are lower under private, self-regulatory regimes. Consequently, given the substantial savings associated with voluntary agreements the equilibrium of this game is for the regulator to offer a voluntary agreement and for the firm to accept. The best level of abatement is achieved when the probability of legislation is high and voluntary compliance is much cheaper than mandatory compliance. In order to prevent free-riding, regulators need to signal that the regulatory threat will only be removed if all firms commit to voluntary schemes. However, when firms have differing costs of abatement, matters are more complex. Requiring all firms to participate may mean that voluntary agreement is never reached because high-cost firms are unwilling to participate. Therefore, it is important for the regulator to balance the benefits of getting more firms to commit against the risk that high-cost firms will not participate. While a voluntary agreement to which only a single firm is party may be less valuable than mandatory requirements imposed on all firms, obtaining a voluntary agreement from all

firms – even those with high compliance costs – may require such a weak abatement requirement that again legislation is preferred. In short, the extent to which firms commit to CER activities is to a significant degree determined by the level of governmental regulatory threat.

Consequently, strong arguments can be made that states' intervention is required to increase the price of natural resources so that "trade can take place on the basis of prices reflecting true social costs" (Røpke 1994, 17). Purely voluntary individual abatement of ecological impacts can even result in welfare-reducing, instead of enhancing situations: For instance, firms' lobbying expenditures can reduce the marginal effectiveness of lobbying by consumer and environmental groups (Maxwell, Lyon, and Hackett 1998). Moreover, regulators might have opposing political objectives and thus accept weak and/or poorly-designed voluntary programs (Segerson and Miceli 1998).

Finally, the most important argument against establishing individualistic CER as an alternative to collectivist regulatory regimes is the claim that the only legitimate actors to address societal and environmental problems are elected governments (Friedman 1970). The dominant theoretical approach characterizes the firm as a private actor with a limited liability and a focus on shareholder value (Jensen 2002). It draws a clear line between public and private, business and politics, corporate governance and corporate responsibility. According to Friedman, firms responding to calls for CER practices, take money and resources that would otherwise go to owners, employees, and customers – practically imposing a tax – and dedicate those resources to objectives that have been selected in a manner that is beyond the reach of accepted democratic processes: "What it amounts to is an assertion that those who favor the taxes and expenditures in question

have failed to persuade a majority of their fellow citizens to be of like mind and that they are seeking to attain by undemocratic procedures what they cannot attain by democratic procedures” (Friedman 1970). In line with this sentiment, Peter Brabeck-Letmathe, Chairman of Nestlé S.A., asked: “Should the company get into a nonprofit situation and do it as a business purpose? I don't think my shareholders have given me money to do this” (Reuters 2011). In fact, opinion polls repeatedly show that populations across the world continue to perceive governments as the only legitimate actors to devise and enforce large-scale environmental efforts (WorldPublicOpinion.org 2009).

While multiple links between different global private abatement regimes are creating novel regulatory frameworks with positive enforcement and transnational private ordering structures, their legitimacy remains limited and susceptible to radical critique (Oren Forthcoming). The idea that government intervention is a necessity whenever the size or diversity of a community or the complexities of the decisions it faces present obstacles to direct decision making remains deeply ingrained in many societies. The protection of the environmental commons falls into this category and therefore governmental regulation, supervision, and enforcement are needed in the absence of changes in market forces. Barley (2007), for instance, highlights the dangers of public goods provision by non-democratically elected entities and, like Palazzo and Scherer (2006), cautions against the blurring of borders between political and economic activities on the grounds of incompatible interests and priorities.

These arguments go back to Polanyi's (1944) previously cited claim that “the genesis of national markets was not the consequence of the slow and spontaneous emancipation of the economic realm from state controls. Rather the market was the result

of a conscious and often violent intervention by the government in society for non-economic reasons” (331). Adherents to this primacy-of-politics approach perceive institutional actors as the only actors legitimized to organize a concerted effort to confront the environmental crisis (Esty and Porter 2001). They particularly emphasize the problems associated with the emergence of a privatized system of governance that displaces the traditional regulatory authority of the state, undermines democratic accountability mechanisms, and appears to be more geared toward public relations than substantive change (Levy and Kaplan 2008, 590).

## 2.4 CONCLUSION

The outcomes of the debates on the driving forces behind and efficacy of CER activities have important policy implications. Firms’ voluntary environmental actions potentially represent a low cost alternative to societies to achieve environmental goals. However, in order to determine the range of potential contributions of CER to efforts to avert environmental deterioration, it is crucial to fully understand the causal mechanisms and conditions conducive to effective CER as well as essential shortcomings of voluntary actions. The evidence provided on the preceding pages demonstrates that any such endeavor needs to be grounded in an interdisciplinary, empirical foundation. Even though the usage of different terminologies, typologies, and measurements complicates the consolidation of insights from international business, political science, international relations, accounting, sociology, legal studies, political philosophy, or history literatures, failing to do so would result in an incomplete and consequently erroneous assessment of the potential and limitations of CER.

The survey of the existing literature on the motivations behind and efficacy of existing CER efforts reveals several broadly accepted consensus positions as well as a number of important points of contestation. First and foremost, there is almost universal agreement that, driven by the emergence of postmaterialist values orientations, the phenomenon of corporate environmental responsibility has become an important feature of modern business environments. CER efforts are on the rise around the world and have become noticeable aspects of many multinational corporations' business activities. With regard to the principal driving forces behind the phenomenon, there is broad consensus that, in the current era of economic globalization, multinational corporations are filling a vacuum left by non-existent or incomplete global political institutions and are taking over functions that traditionally fell into the realm of governmental actors.

However, it is apparent that unresolved debates between different approaches far outweigh their commonalities. While disagreements are in part driven by the multidisciplinary appeal of the subject matter, the most heated debates with regard to definitions, measurement, efficacy, and societal implications play out within individual disciplines. The predominant fault line pervading these arguments emerges between neoclassical economic and institutional positions, broadly defined. The former emphasize economic considerations as the main driving forces behind CER, rationality of all actors involved, and opportunities and potential of efficient CER efforts. The latter highlight the influence of societal and systemic constraints on CER efforts, assume bounded rationality, and focus on limitations and shortcomings of business-driven CER.

While both camps acknowledge the impact of governmental regulatory regimes on firms' country-specific CER efforts, they differ significantly in their assessment of the

relationship between private and public regulatory regimes. Adherents of the former school of thought are generally more optimistic about the capacity of market forces, predicting that ‘green’ consumer, investor, and employee choices will eventually create enough momentum to pressure firms to produce and distribute goods and services in environmentally sustainable ways. Skeptical of governmental intervention, they perceive public regulatory regimes as deviations from ‘best practice’ that distort market incentives and worsen environmental dilemmas. In contrast, institutionalist scholars conceive regulatory regimes as the distillation of more durable historical choices for a specific kind of society, the allocation of resources, and the protection of common goods.

Unlike adherents of the neoclassical economic approaches who frequently emphasize global tendencies of institutional convergence, many institutionalist scholars argue that systemic differences between different political systems will continue to fundamentally shape how societies respond to environmental challenges and what role multinational corporations play in these strategies. As governments remain the central arbitrator with regard to resource allocation, corporate action remains subordinate to political imperatives. Most institutionalist scholars subscribe to the view that without institutionalized regulatory regimes environmental externalities will never be internalized as firms responsible for them can rationally ignore their costs. In the face of economic globalization, national and international regulations and enforcement mechanisms are needed to coordinate regulatory regimes, overcome current collective action problems and set incentives for effective CER activities.

Despite its continuous development the existing literature still contains a number of important gaps and shortcomings. Most importantly, the vast majority of works have approached the issue from descriptive or normative rather than positivist angles (Prahalad and Porter 2003) complicating an objective assessment of the phenomenon. Moreover, few accounts on why or why not corporations act in socially and environmentally responsible ways are based on elaborate theoretical frameworks (Rowley and Berman 2000) and even fewer scholars explicitly root their analysis of corporate responsibility patterns in the established literature on political institutions. The paucity of empirical work across disciplines highlights the urgent need for more quantitative testing of the competing claims.

## CHAPTER 3

### VARIETIES OF CAPITALISM AND THE ENVIRONMENT: CHARACTERISTICS, CAUSAL MECHANISMS, AND CONSEQUENCES

The rise of postmaterialist values orientations across developed economies generates public demand for the development of sustainable economies (cf. Chapter 2). Around the globe, societies experiencing such values changes are developing strategies to halt and reverse environmental degradation. However, the observed cross-national variation in sustainability strategies suggests that additional factors play an important role in determining their ultimate manifestation. While some societies appear to be more receptive to the promises of private regulation, others focus on collectivist strategies, governmental intervention, and the development of stricter and more encompassing public regulatory regimes. These observations raise important questions with regard to multinational corporations' environmental responsibility efforts: How and to what degree are these activities shaped by different institutional environments? Are there qualitative and quantitative differences among CER efforts of corporations headquartered in countries with different institutional frameworks? And perhaps most importantly: Do CER efforts in their entirety represent viable long-term alternatives to governmental regulatory regimes? To answer these questions, it is crucial to understand the impact of consumer, investor, and citizen demand on firms' CER strategies as well as the transformatory effect of institutional environments on market forces.



Unlike the uniform movement toward deregulation that many globalization theorists envision, the model developed in this chapter predicts a bifurcated response to environmental challenges, characterized by extensive deregulation and growing corporate voluntarism in some economies and more collectivist government-backed strategies and less individualistic corporate voluntarism in others. On the one hand, it builds on the underlying assumption of political institutional explanations that – despite the ongoing processes of economic globalization – capitalist relations across developed countries continue to be conditioned by durable, historically grown institutional frameworks that are likely to persist in the foreseeable future.

While there has been a revival of research on the effects of institutions on firms' responsibility efforts (Lehrer 2001), so far this relationship has not been systematically explored with regard to their environmental behavior. On the other hand, this work is grounded in the understanding that firms have substantial incentives to standardize their global production and distribution processes in order to profit from economies of scale. As seen above, adherents to the neoclassical economic approach deliver substantial evidence that multinational corporations in particular have become influential drivers of globalization, leveraging their substantial economic, political, and cultural power in their attempts to influence national legislation and regulations.

As a result, national political strategies are shaped by the antagonistic forces of established institutional constraints and the imperatives of global markets and their most important protagonists. Confronted with economic as well as political realities, firms adopt strategies that take into account the requirements and opportunities presented by both. Therefore, any holistic theoretical framework that attempts to explain differences in

multinational corporations' national and global CER efforts needs to incorporate insights from both neoclassical economic as well as political institutional approaches.

An influential – and for the purposes of this dissertation particularly useful – approach to the study of how institutional environments encourage firm engagement in certain activities while discouraging engagement in others is the varieties of capitalism (VOC) approach. It postulates that government-business and inter-firm relations are conditioned by national institutions, defined as “a set of rules, formal or informal, that actors generally follow, whether for normative, cognitive, or material reasons” (Hall and Soskice 2001, 9). These rules determine a state’s “capacities for the exchange of information, monitoring, and the sanctioning of defections relevant to cooperative behavior among firms and other actors” (Hall and Soskice 2001, 11). Locating the firm at the center of the analysis it integrates insights from different disciplines and contributes to the ‘global convergence’ debate: The focus on firm motivation (rather than institutional evolution or policy making) allows for a (partial) rebuttal of the frequently voiced criticism that comparative studies of political economy “overlook the common problems while concentrating on the individual differences” (Strange 1997, 184). The approach’s explicit focus on companies predestines it for an analysis of multinational corporations’ national and global environmental responsibility strategies, allowing for the integration of predictors exogenous as well as endogenous to the firm.

Building on these insights, the theory developed here argues that national institutional environments play a crucial role in determining in what ways firms produce goods and services. As corporations gravitate toward strategies that are sanctioned by national institutional frameworks, their aggregate activities can be expected to contribute

to nation-specific differences in environmental strategies and performance. The theory rejects explanations of corporate responsibility efforts as being purely business-driven and detached from political initiative (Matten and Moon 2008) while at the same time moving away from models that focus exclusively on regulatory pressure. Instead it builds on the understanding that institutionalized networked interaction between the state and sub-national actors is essential. Emphasizing corporate discretion, voluntarism, and the importance of individual actors, corporate responsibility is expected to be inversely related to the prevalence of collectivist response strategies and governmental regulation and intervention (Kinderman 2009; Shamir 2008).

### 3.1 CATEGORIZING INSTITUTIONAL FRAMEWORKS

Subscribing to the notion of ‘different capitalisms’ advanced in the VOC literature, this work adopts the classification of capitalist states according to how governments and firms resolve coordination problems. There are, of course, a significant number of other influential environmental stakeholder groups (e.g. environmentalists, political parties, citizens’ associations, etc.). However government and business actors generally play the pivotal role in designing a country’s environmental strategy (Aguilar 1993). Construing two ideal types of institutional frameworks at the poles of a spectrum along which developed nations can be arrayed, the varieties of capitalism literature primarily distinguishes between liberal market economies (LMEs) and coordinated market economies (CMEs). In liberal market economies firms coordinate their activities largely via competitive market arrangements (cf. Williamson 1985). Their supply of and demand for goods or services is conditioned by price signals generated by markets and their

decisions are driven by marginal calculations as stressed in the neoclassical economic literature. 'Free markets' are the prevailing coordinating mechanism and state-industry-society relations can be characterized as rather adversarial. Firms in LMEs generally prefer deregulation over state guidance and intervention. As "a market mentality tends to become pervasive [...] the dominant institutional arrangements for coordinating a society's economy tend to be markets, corporate hierarchies, and a weakly structured regulatory state" (Hollingsworth 1997, 271). Vogel attests the United States, the prototypical LME, that "the most characteristic, distinctive and persistent belief of American corporate executives is an underlying suspicion and mistrust of government" (Vogel 1978, 45). Wilks describes the prevailing business mentality as "an emphatically and sincerely articulated support for the 'free enterprise system' and associated with that is the practical norm of rejecting any action that inhibits management autonomy. More specific to government is a parallel value that wholeheartedly rejects the legitimacy of state intervention in the economy and a norm that is suspicious of the competence and the motives of public officials" (Wilks 1990, 143). State-business relations are hallmarked more by industry lobbying and attempts to capture government agencies than collaborating with or following the agenda set by those agencies.

In coordinated market economies firms depend more heavily on non-market relationships to coordinate their endeavors with other actors. These non-market modes of coordination generally entail relational or incomplete contracting and more reliance on collaborative, as opposed to competitive, relationships. The institutional structures require responsiveness to a wider range of stakeholders and "it is not primarily the market and its price signals that determine firms' behavior, but rather relationships based on

cooperative networks between them and the state” (Mikler 2006, 32). With the state playing a “passive, facilitative role” (Wilks 1990, 138), state-business relations tend to be more cordial and constructive. While stringent, state regulations are flexibly implemented and industry groups are involved in policy development. As a result, the distinction between corporate and state interests is more blurred than in LMEs. Besides markets, firms can rely on a range of additional organizations and institutions for support in constructing their core relationships. These include powerful business or employer associations, extensive networks of cross-shareholding, and regulatory systems designed to facilitate collaborative endeavors. In contrast to LMEs, where equilibrium outcomes of firm behavior are usually given by demand and supply conditions in competitive markets, the equilibria on which firms coordinate in CMEs often result from strategic interaction.

Even though most developed economies can be classified as (more) liberal or (more) coordinated market economies, there is great variation among members within these meta-categories and few economies completely conform to these two ‘ideal’ types. For instance, variation in institutional frameworks among CMEs can result in differences in firm strategy and economic outcome: East Asian CMEs are generally different from European CMEs in that they rely more on group based coordination instead of industry-association based coordination. Relatedly, the Southern European nations share characteristics that suggest including them in a separate group – mixed market economies – along the axis between CMEs from LMEs.<sup>4</sup>

Far from suggesting that all economies conform perfectly to the two ‘ideal’ types, the varieties of capitalism approach, by focusing on how companies resolve coordination

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<sup>4</sup> For a more detailed discussion and critique of Hall and Soskice’s categorizations, see Chapter 4, pp.139.

problems and what kinds of institutions condition their strategies, establishes the existence of statistically and substantially significant differences among institutional frameworks and contends that scope and scale of different types of firm relationships vary systematically across nations. The following sections develop an explanatory framework for how the LME/CME divide impacts national environmental strategies and corporations' CER efforts.

### 3.2 THE SYSTEM LEVEL: STATES, CORPORATIONS, AND ENVIRONMENTAL RESPONSIBILITY

The VOC approach is first and foremost a tool to analyze comparative economic advantage and cross-national variation in corporate economic behavior. However, recent studies have shown that differences in capitalist relations have important societal consequences beyond the economic realm (e.g. Mikler 2007; Kinderman 2009). Building on their insights, this section explores in what ways institutional frameworks condition CER activities.

The study of institutional complementarities represents a promising starting point for this endeavor. This notion suggests that the establishment of certain forms of coordination in one issue area tends to encourage the development of complementary practices in others. Governments as well as firms foster the creation of institutions complementary to those already present in the economy in order to secure the efficiency gains such complementarities provide. Consequently, it is reasonable to expect the clustering of countries along the dimensions that distinguish liberal and coordinated market economies perpetuated with regard to environmental activities: As “institutional

practices of various types should not be distributed randomly across nations” (Hall and Soskice 2001, 18) patterns of coordination in the environmental realm should mirror those in the economic realm. In this respect, Soskice (1990) shows that the network monitoring supplied by business associations to support vocational training in many CMEs can also be utilized to foster other collective goods.

## REGULATORY INCENTIVES

What kinds of environmental actions do policy-makers want corporations to take and how do they incentivize them to do so? Fundamental differences in how these questions are answered in different economies have crucial implications on the degree to which engagement in CER activities provides firms with competitive advantages. In general, political leaders in LMEs prefer non-intervention in the economic realm and are only likely to take action in the event of perceived large-scale market failure. Correspondingly, corporate actors perceive most kinds of government intervention as a negative, distorting, exogenous influence. The systemic emphasis on self-reliance and market competition is reflected in the existence of strict anti-trust laws, limited inter-firm collaboration, and comparatively weak industry associations that lack the encompassing character and bargaining power enjoyed by their counterparts in CMEs.

The fact that the growing demand for environmental protection and many other social needs is much less satisfied by established governmental institutions in LMEs than in CMEs increases the pressure on the private sector to contribute towards their provision. Given the systemic limitations mentioned previously, firms rely more heavily on individually designed and executed CSR and CER strategies to satisfy these demands.

They compensate for the lack of governmental involvement and perceived failures of the market in order to gain individual moral legitimacy, legitimize the liberal market system in general, and avoid governmental intervention. Keenly aware of the need for legitimacy, managers understand the important resource-allocation role CER has come to play (Post, Lawrence, and Weber 2002; Heal 2004). Consequently, in the absence of strong instruments of political bargaining, the political pay-off of CER efforts in terms of reduced governmental regulations is substantial.

In contrast, policy makers and corporate actors in CMEs rely more on coordination, cooperation, and long-term relationships based on trust to develop sustainability strategies. The presence of institutions that entrench the power of economic actors incentivizes the latter to cooperate. Corporations are likely to be members of powerful business associations that are independent of the government yet encompassing enough to monitor and sanction their members. Developing unified positions on environmental issues, these associations provide business with leverage in negotiations with governmental actors and significantly reduce transaction costs. Scruggs notes that they “have the authority and inclination to ensure that there is close monitoring and general compliance with environmental laws, lest some firms cheat to the detriment of others under their authority. In addition, those actors comprising the associations have a greater ability and incentive to pursue common solutions to industry pollution problems, thus diffusing ‘best practices’ more readily throughout the economy” (Scruggs 2001, 687). This extensive system of network reputational monitoring motivates members to share private information, deters them from providing false information lest their



reputation and access to the network suffer, and provides arrangements to compensate individual firms' losses with economic adjustments (cf. Scruggs 2001; Vitols et al. 1997).

Within CMEs' collaborative and consensus model, corporations perceive governmental intervention not necessarily as a meddling in their affairs. Quite to the contrary: cooperation with the 'enabling state' is frequently perceived as beneficial to their own objectives as it provides opportunities to influence the regulatory process, agree on targets to be met, and establish priorities and goals.<sup>5</sup> Industry associations enter into implicit contracts with the government to administer environmental policies, benefiting from enhanced resources and authority. Nielsen and Petersen (1991) describes such systems as 'negotiated economies' where encompassing producer groups have strong strategic capacity and incentives to agree with others on solutions to common problems.

While it goes without saying that coordinated market economies are not immune against calls for deregulation, these demands are less pronounced because many firms draw competitive advantages from the presence of accommodating regulatory regimes. Consequently, tighter embedding in and regulation by institutional and legal frameworks leave smaller shares of responsibility issues to the discretion of individual companies. There is less incentive to develop, implement, and communicate individual CER efforts as these activities are likely to yield reduced reputational and political pay-offs. It appears that CMEs' focus on institutionalized cooperation to satisfy society's environmental needs is functionally equivalent to LMEs' focus on individualized voluntary CER efforts.

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<sup>5</sup> As mentioned in Chapter 1, a few studies include these industry wide endeavors in their definition of Corporate Responsibility. Matten and Moon (2008), for instance, would arguably include them in their category of 'implicit' Corporate Responsibility. However, as these industry-wide endeavors are elements of bargaining strategies used by interest groups in their dealings with governmental actors they do not qualify as 'voluntary actions' as defined previously.

In the former case, compensation is built into the systemic structure; in the latter, it is built into the structure of the system's units. As CER is intended to satisfy needs left unsatisfied by existing institutional arrangements, and there is more to compensate for in LMEs than in CMEs, there is a greater need for CER efforts in the former than the latter.

Having established that institutional differences impact corporations' incentives to invest in individual CER efforts, it is worthwhile to trace in what ways these differences affect the impact of growing citizen demand for environmental regulation on CER strategies: First and foremost, as demonstrated in the previous chapter, political action is costly for citizens to undertake in any system (cf. Maxwell 1998). However, organizing and influencing costs are significantly higher in CMEs than in LMEs. This is because the coordination process in CMEs relies on established, powerful interest groups and peak associations that don't easily accommodate newcomers. LMEs' lobbying and conflict model, however, provides emerging social movements, NGOs, and other stakeholder groups easier access to the decision making process. As citizens' costs of political action are higher in CMEs than in LMEs they are more 'blockaded' from grass-roots participation in the political process. Consequently organized citizen demand for environmental protection materializes earlier in LMEs than in CMEs and proactive CER to respond to their demands is a more urgent necessity for corporations.

## PRODUCT MARKET INCENTIVES

As theorized above, the more coordinated a market economy is the more it relies on coordination and intervention by the 'enabling state' when it comes to environmental regulation. In contrast, more-liberal market economies tend to locate responsibility

predominantly within each individual actor. Consequently, political or citizen demand for individualized CER is higher in LMEs than in CMEs. If individual CER efforts were motivated by political calculations alone, it would be reasonable to expect the same company operating in an ‘ideal’ CME not to invest in individual CER activities while investing substantially in such activities in an ‘ideal’ LME. This is because citizen demand for individualized CER is contingent on a population’s aggregate opinion on business’ responsibility for ensuring sustainability vis-à-vis government’s responsibility.

However, empirical evidence shows that local firms as well as multinational corporations engage in substantial CER efforts in CMEs as well. In order to explain these investments it is important to introduce a second form of demand for individualized CER: consumer demand. The latter encompasses demands that concern the environmental sustainability of specific goods and services (Vogel 2005) and is generally the focus of neoclassical economic theories on corporate responsibility. It is primarily directed at firms which citizens in their function as consumers perceive as being responsible for certain aspects of environmental protection. By choosing products and services based on the size of their ecological footprint consumers provide an incentive for companies to invest in CER efforts.

A function of variables such as economic prosperity, values orientation, education, and individual preferences, these demands are addressed by firms in order to secure or expand their customer base (Manget, Roche, and Münnich 2009). *Ceteris paribus*, populations are expected to support different policies with regard to achieving a more sustainable economy in CMEs and LMEs while their consumer choices are expected to be similar. Figure 3.1 shows how the expected similar levels of *consumer*

*demand* for CER and diverging levels of *citizen demand* for CER affect *overall demand* levels across more-liberal and more-coordinated market economies.

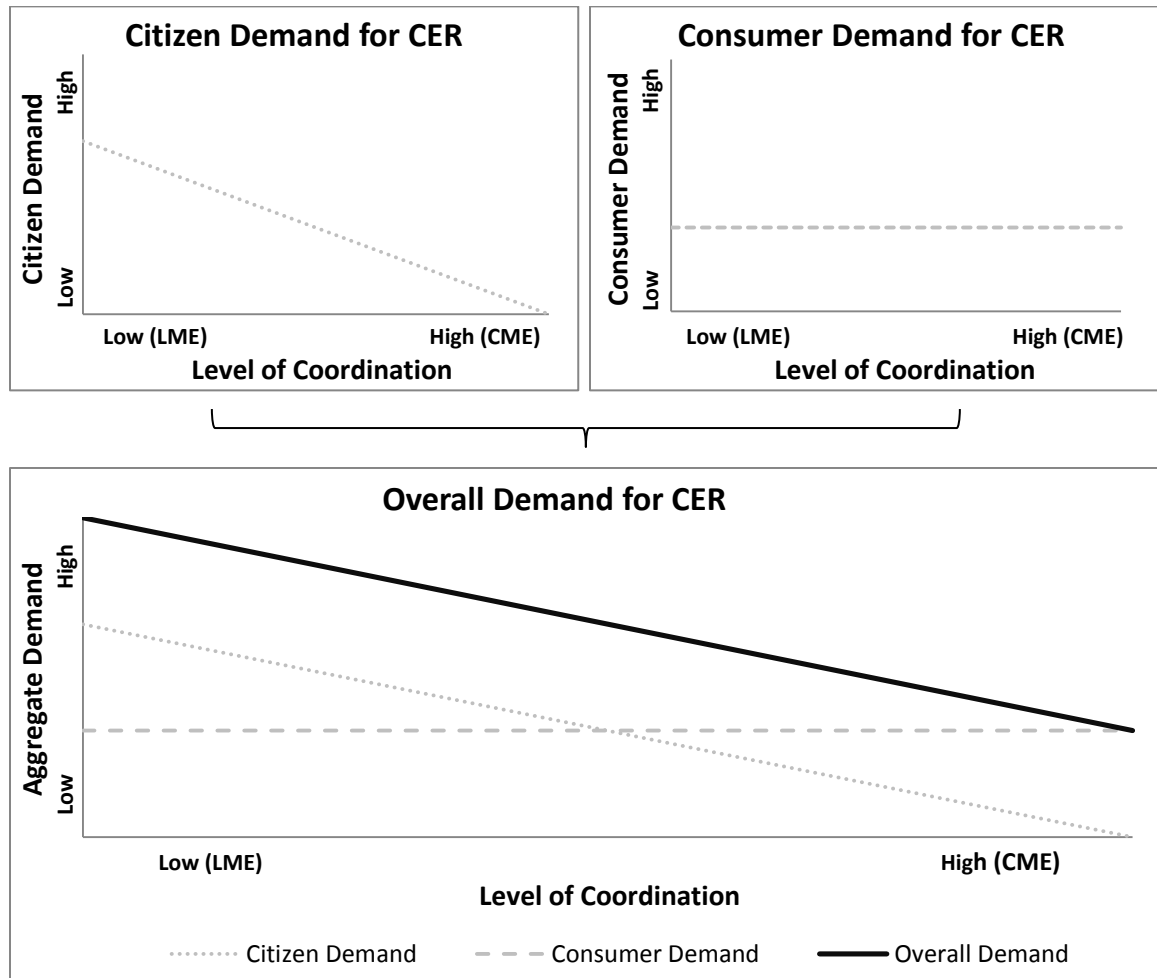


Figure 3.1: Predicted effects of *consumer demand* and *citizen demand* on *overall demand* for CER across different varieties of capitalism

MNCs adapt their CER strategies to these different levels of demand and develop distinctive nation-specific strategies to capitalize on the institutions available. Similar to

other businesses, in liberal market economies they are likely to pressure governments for deregulation, demonstrating their capabilities of independently ensuring environmental security through substantial CER efforts. In contrast, the institutional framework in CMEs, characterized by a history of greater institutionalized solidarity, more extensive state-firm as well as inter-firm cooperation, and stricter environmental legislation, provides less incentive for business-driven CER, developed and implemented at the discretion of the firm. As governments are less sympathetic to deregulation, MNCs are expected to pursue membership in industry associations and the formulation of unified environmental positions. These considerations warrant the following hypothesis:

*Hypothesis 1:*

*The level of multinational corporations' reported individual environmental responsibility efforts is contingent on the level of coordination within a national economy: The less coordinated the economy, the higher the pay-off of individual CER efforts and the higher the investment in such activities. The more coordinated the economy, the lower the pay-off of these efforts and the lower firms' commitment to such activities.*

### 3.3 THE COMPANY LEVEL: HOME STATES, CORPORATE CULTURE, AND CER

The previous section explained how system-specific exogenous factors incentivize particular corporate environmental behavior. This section focuses on how they influence the organizational structure of firms, which in turn impact the latter's environmental strategies. In particular, it explores how corporate culture and management mentality of MNCs are contingent on the institutional environment present in their home states. Arguing that construing MNCs as inherently global and virtually stateless actors is

misleading, this work contends that the former are better characterized as companies with national bases that operate internationally. This section builds on Dicken's argument that MNCs are "produced through an intricate process of embedding in which the cognitive, cultural, social, political and economic characteristics of the national home base play a dominant part" (Dicken 1998, 196). Wade's (1996) work on the limits of globalization supports this assessment by showing that MNCs remain deeply rooted in the national regulatory regimes of their home bases. Boyer adds that "Firms and sectors [...] display very different institutional forms to cope with the same challenge of structural competitiveness. Even if the economic performances are quite similar, there is no one best way" (Boyer 1996, 51). The following pages contribute to the meta-debate about the extent of the shift in power from states to markets and the forces of transnational capital in international capitalist relations.

The presented theoretical argument challenges the 'globalist' perspective. Instead of construing MNCs as stateless actors, it explores their institutional embeddedness in their home states. Understanding the continuing influence of home states' institutions on corporate action is particularly relevant as corporations frequently try to 'export' their business model (and their approach to CER) when expanding internationally. However, any analyst of institutional driving forces behind corporate action is well advised to bear Hall and Soskice important caveat in mind "that (institutional) structure conditions (corporate) strategy, not that it fully determines it" (Hall and Soskice 2001, 15). MNCs are autonomous actors with access to resources beyond the institutional ones this dissertation focuses on. This is evident in the variation among corporate strategies within individual economies (cf. Herrigel 1995). Nevertheless, there is substantial evidence that

“organizational forms tend to become remarkably uniform within societies dominated by particular institutional conventions” (Whitley 1999, 13), suggesting that diverging institutionalized norms about the appropriate approaches to business, and the corresponding variation in the level of citizen demand for particular corporate actions, not only lead to cross-national differences in firms’ actions, but also in the internal structures they develop to address such demands (cf. Haugler 1999). Societal embeddedness is expected to influence corporate behavior, going down to the local level. Previous research found, for instance, that local institutional configurations impact firms’ approach to philanthropy (Galaskiewicz 1997), board of director structure (Kono et al. 1998), and corporate governance (Davis and Greve 1997).

Institutionally embedded in their home states – for economic, political, social, and cultural reasons – firms that extend their operations across borders have strong incentives to transform their national strategy into a unified global one. The most important ones are to reap economies of scale from their global investment, production, and distribution networks. These motivations frequently conflict with the institutional incentives to adapt national operations to host states’ demands and requirements. The simultaneous existence of ‘accommodating’ and ‘transplanting’ incentives has important implications for structural setup and *modi operandi* of MNCs. While trying to establish a competitive advantage in the host state by tailoring operations to nation-specific needs, MNCs’ management cultures and strategies are likely to remain informed by incentive structures in their home countries (cf. Mikler 2007; Dicken 1998). The following subsections explore the latter relationship by demonstrating how MNCs’ global financing and innovating strategies remain shaped by their home states’ institutional setup.

## CER AS FINANCING STRATEGY

As shown in Chapter 1, environmental considerations play an increasingly important role in investor decisions. For a variety of reasons, a growing number of ‘green’ as well as traditional investors take firms’ environmental footprint into account. However, different institutional arrangements in CMEs and LMEs result in a different impact of these considerations on actual investment decisions and firms’ respective financing strategies.

In liberal market economies, corporations generally secure finance by providing dispersed investors with publicly available information regarding their financial as well as social and environmental performance. They essentially “focus on the publicly assessable dimensions of their performance that affect share price” (Hall and Soskice 2001, 42). Dependent on “whims and strategies of stockholders and bond owners” (Hollingsworth 1997, 293), corporations need to credibly demonstrate their efforts to reduce environmental risk. In this respect, CER provides tangible short-term financial benefits by averting stricter regulation, increasing customer loyalty, or other manifestations. The heavy reliance on direct self-reporting and distributing of such information in order to secure equity finance and shareholder support is not lastly due to the previously discussed lack of close-knit corporate networks and industry associations that could provide potential investors with this information.

In contrast, MNCs headquartered in coordinated market economies are generally members of such organizations. Instead of primarily focusing on short-term profitability and individualized promotion of their CER efforts, they establish a reputation for environmental responsibility (and consequently increase their attractiveness for potential investors) within these networks and with governmental actors. The networks and



associations serve as sources of environmental information for potential funders. Moreover, and equally important, MNCs headquartered in CMEs are much less dependent on dispersed, individual financiers. Indeed, stock market capitalization is of a magnitude two to three times greater in LMEs by comparison to CMEs, reflecting the formers' reliance on "market modes of coordination in the financial sphere" (Hall and Soskice 2001, 18-19). In contrast, CMEs rely to a larger degree on large scale institutional investors, frequently including national governments. Due to the fact that these investors are generally less focused on short term returns than individual investors, firms from CMEs focus on solid performance in the longer term and have more flexibility in focusing on goals besides shareholder value.

These differences in the primary modes of securing investment directly impact corporations' perception of the firm's principal objectives and identification of relevant stakeholders: Hampden-Turner and Trompenaars (1993), for instance, show that in a survey of 15,000 managers from European, American and Asian companies, 40 percent of US (LME) managers saw the prime goal of a company as making profits, while only 8 percent of Japanese (CME) managers saw their companies this way. At the same time, managers of corporations headquartered in CMEs had a more holistic view in which a company, besides making profits, is focused on the well-being of a wide range of stakeholders and endures on the basis of attending to their needs. This focus on stakeholders beyond shareholders provides more constituencies input opportunities with regard to firms' business strategies and thus requires the inclusion of a broader spectrum of preferences. Therefore, firms headquartered in CMEs tend to integrate long-term environmental strategies into their business plans that were negotiated and agreed upon

by a variety of stakeholders. In contrast, firms from LMEs focus on the development of highly visible individual CER strategies that respond to changing consumer and investor demands and are aimed at delivering publicity and immediate results.

## CER AS RADICAL INNOVATION

The varieties of capitalism literature emphasizes the crucial impact of institutional frameworks on innovation, distinguishing between radical innovation, which entails the development of entirely new goods or substantial shifts in product lines and ways of producing them, and incremental innovation, which entails continuous but small-scale improvements to existing product lines and production processes (Hall and Soskice 2001, 39). Firms headquartered in coordinated market economies historically tend to focus on product differentiation rather than intense product competition because their inter-corporate networks facilitate a more gradual, less market-focused, diffusion of new technologies and promote long-term incremental, rather than radical, innovation.

By contrast, corporations based in liberal market economies generally adjust their operations to institutional features that tend to limit firms' capacities for incremental innovation. Financial market arrangements that put an emphasis on current profitability, corporate structures that concentrate unilateral control at the top, and anti-trust and contract laws discourage inter-firm collaboration in incremental product development. For instance, it is estimated that as little as one percent of research and development funds spent in the United States' private sector is devoted to collaborative research (Hall and Soskice 2001, 31). However, the institutional framework of liberal market economies is highly supportive of radical innovation. Few restrictions on lay-offs and high labor

mobility enable firms that intend to develop an entirely new approach to sustainability to hire specialists easily and to fire them if the project proves impracticable. Large equity markets populated by dispersed shareholders and few restrictions on mergers or acquisitions allow firms seeking access to environmental technologies to do so by acquiring other companies. Moreover, the concentration of power at the top typical of corporate organization in LMEs makes it easier for senior management to implement radically new business strategies.

Most (not all) CER efforts today arguably qualify as radical innovation. The employment of new modes of production, the usage of alternative sources of energy, the implementation of alternative distribution systems, or the development of innovative products comes to mind. Moreover, CER, as the literature suggests, is a comparatively young phenomenon. It represents a novel response to an equally young demand. As corporations from LMEs are less weighed down by long term networks based on mutual cooperation, they can act more opportunistically and move faster to exploit the opportunities presented by fulfilling these demands. By contrast, strong worker representation, consensus decision-making, and governmental intervention complicate the implementation of CER for firms from CMEs. All affected stakeholders consider its consequences for their relationship to the company. For instance, long-term employment increases the financial risk associated with hiring a large number of experts to gain access to novel environmental technologies.

In summary, as CER is frequently highly technology driven and many of its elements are the results of rapid innovation, it resonates better with corporate cultures developed in LMEs than those developed in CMEs. Again, the expected overall utility of

implementing individual CER strategies is higher in less-coordinated than in more-coordinated economies. The examples of financing and innovation demonstrate how corporations' strategies are likely to differ according to their home countries' institutional system. While global markets do influence MNCs' CER behavior, their actions are simultaneously shaped by the institutional systems of their national home bases. In short: Both, 'globalism' and 'internationalism' jointly drive MNCs' global operations. These observations suggest the following hypothesis:

*Hypothesis 2:*

*Companies' CER strategies are influenced by their home countries' system of capitalist relations. Ceteris paribus, companies headquartered in LMEs will outperform companies from CMEs with regard to their reported individualistic CER efforts.*

A combination of the predictions of the first two hypotheses suggests the following expectations with regard to MNCs' CER efforts: A multinational corporation headquartered in and operating in a coordinated market economy has the lowest incentive to invest in substantial individual CER efforts. A MNC headquartered in and operating in a liberal market economy has the greatest incentive to invest substantially in individual CER efforts. The corporate responsibility efforts of corporations based in CMEs and operating in LMEs and of firms based in LMEs and operating in CMEs can be expected to fall in-between. Table 3.1 visualizes this relationship:

Table 3.1: Hypothesized impact of the home and host states' institutional frameworks on multinational corporations' reported CER efforts

Home Country: Host Country:	CME	LME
CME	CER low	CER medium
LME	CER medium	CER high

### 3.4 LMES, CMES, AND THE ENVIRONMENTAL BOTTOM LINE

The first section of this chapter advances the argument that national institutional frameworks have important implications with regard to multinational corporations' CER strategies. The second section adds that their organizational setup and approach to environmental sustainability tend to reflect aspects of the institutional incentives prevalent in their home states, while at the same time being influenced by adjustment pressures in the host states. It develops a framework for assessing the ecological impact of the environmental strategies pursued by countries with different institutional systems.

The literature review in the first chapter suggested that growing popular demand for and supply of CER are habitually interpreted as a paradigm shift in how humanity approaches environmental issues: Corporations are deemed capable and held responsible for contributing to the provision of a public good that has traditionally been provided by governments. On a moral level, it is hard to criticize the idea that the economic realm should be made up of responsible actors that voluntarily contribute resources to prevent the environmental crisis. However, in order to evaluate the potential of CER to

effectively replace governmental agenda setting, intervention, and regulation as the primary means of environmental protection it is important to critically evaluate driving forces, operating mechanisms, costs and benefits, as well as limitations of current implementations of the concept.

It is essential to understand that CER is in essence a business strategy. Intended to protect firms against stricter regulations and to foster business-friendly reforms of institutions it constitutes an integral part of firms' profit maximization efforts. Financial success generally remains the principal objective of the firm as "[t]he main function of an enterprise is to create value through producing goods and services that society demands, thereby generating profit for its owners and shareholders as well as welfare for society" (European Commission 2002). Consequently, CER's primary *raison d'être* is not the protection of the environment for its own sake but for strategic reasons. Its primary goal is to satisfy citizen, investor, and consumer demands that are critical to the financial success of the firm, not to facilitate a complete internalization of environmental externalities. In line with Jensen's (2002) previously cited assertion that the maximization of performance along more than one dimension is logically incoherent and psychologically impossible, management generally treats non-economic actions as strategically chosen 'add-ons' to the core purpose of profit maximization. Therefore, a genuine commitment to the concept of the triple bottom line is hard to realize.

However, the primacy of economic incentives by itself does not render the concept of CER incapable of revolutionizing environmental protection. Even if corporations are not driven by altruistic motivations, could not the rise of consumer, investor, and citizen demand generate enough momentum to pressure corporations into

internalizing environmental externalities, as suggested by the neoclassical economic literature? After all, an impressive amount of well documented case studies find that a growing number of companies display particularly rigorous and innovative environmental responsibility efforts in order to distinguish themselves from the competition. Despite these promising developments, a more substantial problem persists at a deeper level: Citizen, investor, and consumer demands are often inconsistent, built on incomplete (or miss-) information (Beder 1999/2000), reward expressed intentions rather than verifiable results (Gilbert and Malone 1995; Vlachos et al. 2009), and focus disproportionately on some sectors, products, and companies, while largely ignoring others. Moreover, they are susceptible to ‘greenwashing’ and often guided by emotions rather than reasoning (Clegg 2009). As a case in point, in 2005, General Electric launched its multimillion-dollar “Ecomagination” campaign, highlighting activities in areas such as clean technology or renewable energy. A 2008 Earthsense survey revealed that GE seemed to be reaping the benefits of the campaign, being perceived by consumers as the most environmentally friendly major American company within its sector, and seventh overall. At the same time, however, the company’s emissions remained largely unchanged (Aldhous and McKenna 2010). In short: rather than providing a long-term perspective, CER is a market-based instrument that adapts to short-term impulse-driven demands.

Moreover, even though environmental concern is growing across the developed world, traditional criteria such as price, quality, and brand familiarity continue to dominate consumer choice and political discourse (Beckmann, Christensen, and Christensen 2001). Aware of such criticisms, business associations and other

nongovernmental organizations have begun to develop private regulatory regimes and to standardize performance measures and benchmarking systems with the intention to allow for a comparative long-term evaluation of firms' environmental performance. However, these measures of 'self-regulation' remain controversial. Most importantly, many codes of conduct lack efficient enforcement mechanisms and basically rely on the willingness of members to control and report their own activities (Nitsch, Baetz, and Hughes 2005). According to Neal "[t]hey are set with an eye only to what it is already known will be achieved, thereby ensuring that the proclaimed corporate ambitions take on the quality of self-fulfilling prophecies" (Neal 2008). Relatedly, many of the activities labeled as CER in such systems are ultimately driven by different considerations. For instance, the airplane industry frequently cites advancements in weight reduction and fuel efficiency as evidence of environmental responsibility. In fact, over the last four decades, fuel consumption of airliners was reduced by 2/3 (Boeing 2012). However, the primary reason for these efforts is arguably economic in nature as fuel costs are one of the central expense factors for any airline.

Despite their increasing refinement and sophistication and the production of 'audit trails', it remains hard to establish private benchmarking and accreditation processes' objectivity. Most importantly, it remains unclear what makes a privately-developed 'benchmark' valid as a measure against which the acceptability of particular corporate behavior can or should be judged. In this respect, Neal observes that 'accreditation', often without independent and internationally agreed bases for the judgmental approval it grants, is frequently used by firms to demand attenuation or revocation of environmental regulatory impositions (Neal 2008). Safeguards where potential conflicts of interest arise



between business efficacy and environmental protection as well as public influence and control of such frameworks remain problematically absent.

In contrast, coordinated environmental regulatory regimes in advanced democracies are generally designed to satisfy citizen demand for environmental protection. They are developed, implemented, and monitored through democratically sanctioned processes. Of course, this does not mean that business interests are absent from these regulatory frameworks and business' lobbying efforts in LMEs and industry associations' bargaining power in CMEs are generally reflected in the nature of the respective regimes. However, unlike CER – a business strategy predominantly designed to satisfy the demands of stakeholders relevant for a particular firm's business-success – government-backed regulatory regimes are capable and designed to accommodate a much broader range of stakeholder interests. The consensual nature of such regimes is further enhanced by an important spill-over effect, which enhances CMEs environmental performance in particular: The further facilitation of firm-state and inter-firm cooperation. There is substantial evidence for the utility of institutions that provide capacities for the exchange of information, the monitoring of behavior, and the sanctioning of defection from cooperative endeavor. The availability of such institutions makes it easier for firms and other actors engaged in strategic interaction to coordinate on strategies that offer higher returns to all concerned (cf. Ostrom 1991).

As discussed above, CMEs regulatory environments allow actors to develop a cooperative rather than adversarial spirit, to make credible commitments to each other, and to reduce uncertainty about the behavior of others. Accustomed to consensual modes of interaction through historic experience and inclusion in strong industry associations,

firms develop higher levels of trust and a more cooperative mentality. Perceiving governmental actors as partners rather than adversaries and being subjected to peer-pressure within their respective industry associations, they become more willing to accept communitarian obligations. Thus, the existence of norms and institutions that support cooperation improves policy-makers' ability to implement complementary regulations.

Even though a number of private regulatory regimes and accountability frameworks try to incorporate the interests of a broader variety of stakeholder groups and some protective measures can be comparatively easily integrated in the market system, government involvement facilitates better the respect and reflection of competing stakeholder interests and the maintenance of a balance between the economic and environmental dimensions of the production society. While political developments might lead to adjustments and even reversals of specific policies, the significant costs of changing a regime once it is in place renders such endeavors comparatively rare. The provision of a long time horizon endows all involved actors with substantial planning reliability, an essential prerequisite for any effective multi-actor collaborative strategy.

Even though CER is generally easier to implement, due to the smaller number of involved actors, it lacks the time horizon, complexity, and stability to generate superior long-term environmental outcomes. Size and diversity of the natural environment, most of which is located outside the market system, and the magnitude of problems any attempt of sustainable, long-term protection faces, pose huge challenges to direct, uncoordinated decision making. Olson already argued in 1976 that "the environment is not a series of independent outdoor "rooms" for each individual, but rather a highly interdependent ecological system. Streams flow into rivers and rivers into interconnected

oceans; currents of air travel the world around; migratory fowl traverse continents; a loss of vegetation on any one large part of the earth can have implications for all of the others” (Olson 1976, 382).

Putting stronger emphasis on government intervention and regulation, the institutional frameworks of coordinated market economies consequently generate stronger incentives for firms to internalize environmental externalities. The government retains the threat to use direct regulation, while monitoring and enforcement, necessary to effective environmental regulation, are more acceptable due to a history of firm-government trust. In LMEs, where environmental protection is generally part of firms’ competitive business strategy, there is hardly room to devise a holistic strategy. This means, in more provocative terms, that institutions in CMEs incentivize firms to contribute to a comprehensive environmental protection strategy for society’s sake while institutions in LMEs motivate firms to develop individual strategies to protect certain aspects of the environment for their own sake. Even though higher quantity and quality in CER efforts can be expected in LMEs, their intensity does not compensate for the absence of strong environmental governmental regulation. The individualistic nature of market-driven corporate environmental responsibility – representing a strategic choice of individual companies to satisfy immediate, short-term consumers’ and citizens’ demand for specific behaviors and actions – prevents it from addressing the long-term, collective action problem which lies at the core of the environmental crisis.

In summary, CER lacks the basic prerequisites to evolve into a holistic, coordinated, long-term, multi-actor strategy capable of overcoming a problem of the magnitude and complexity of the environmental crisis. It is largely exempt from

democratic oversight, underlies the logic of the market whose very failures it is supposed to remedy, and overestimates the strength and impact of consumer demand. In capitalist systems, where profit maximization is the core motivator for firm behavior and environmental protection is a second order issue, governmental regulation therefore remains the most effective way to resolve collective action problems, reduce uncertainty and market pressure, and ensure protection of aspects of the environment that cannot easily be integrated into the market system (cf. Crepaz 1995) These considerations suggest the following proposition:

*Hypothesis 3:*

*Collectivist regulatory regimes backed by governmental support are more effective tools to address environmental challenges than individual firms' self-regulation. Therefore, coordinated market economies, emphasizing inter-firm and government-firm-society coordination, are expected to outperform liberal market economies, relying more heavily on market mechanisms, with regard to their aggregate environmental performance.*

## CHAPTER 4

### DETERMINANTS OF MULTINATIONAL CORPORATIONS' NATIONAL CORPORATE ENVIRONMENTAL RESPONSIBILITY EFFORTS: A CROSS-NATIONAL LARGE-N EVALUATION

A diverse interdisciplinary body of literature has put forward an impressive amount of theories and case studies intended to uncover the driving forces behind multinational corporations' environmental engagement. However, to date systematic cross-national, statistical investigations of the subject matter have been scarce. This chapter is intended to address this shortcoming in the literature. In order to empirically assess the validity of the first two hypotheses developed in the preceding chapter, it conducts a quantitative analysis of the relationship between corporations' nationally reported CER efforts and the institutional frameworks of their home and host states.

The chapter is divided into three parts: The first section explains how the insights of the varieties of capitalism approach are utilized in operationalizing the research. Moreover, a novel quantitative measure of nationally reported CER efforts is developed, facilitating the identification and cross-national comparison of firms' environmental sustainability efforts. The section further explains sample selection, variable specification, and data collection procedures and introduces methodology and statistical models used to test the first two hypotheses. The second section presents and discusses the empirical results. The findings provide strong support for the assumption that MNCs'

reported CER efforts are conditioned by the institutional environment of both their host and home economies: firms headquartered and/or operating in liberal market economies outperform firms headquartered and/or operating in coordinated market economies with regard to their CER efforts. These observations suggest that CER efforts are not merely a function of socio-economic development but also a consequence of institutional design. The results hold under different model specifications and consideration of alternative explanations advanced in the existing literature. Concluding the chapter, the third section discusses theoretical relevance and limitations of the study and leads over to Chapter 5.

#### 4.1 RESEARCH DESIGN

Explaining the operationalization of the empirical tests for the first two hypotheses, this section gives substantial attention to the specification of the dependent variable – MNCs' nationally reported CER efforts – as well as the two central explanatory variables – the institutional systems of MNCs' host and home countries.

##### UNIT OF ANALYSIS: MNCs' COUNTRY-SPECIFIC WEBSITES

This subsection explains the composition of the country and company samples used in this study. It puts particular emphasis on the critical evaluation of advantages and disadvantages associated with using corporations' self-reported information in comparative research.

### *Country Selection*

The country sample was chosen based on similarity with respect to most characteristics except for their institutional systems, which could then be isolated and analyzed (Smelser 1973). Preliminary analyses of the socio-economic development of all 34 member states of the Organization for Economic Co-operation and Development (OECD) were conducted in order to obtain a balanced sample of countries, characterized by a strong commitment to both democracy and capitalism, high levels of human and economic development, and importance as a market for the products and services of MNCs.

These examinations revealed that a substantial majority of the world's largest MNCs<sup>6</sup> either do not operate or do not maintain country-specific websites in OECD economies with less than 2 million inhabitants. In order to ensure the highest degree of comparability, Iceland, Slovenia, and Luxemburg were consequently dropped from the analysis. Furthermore, countries that are not categorized as having reached a "very high human development" in the United Nations Human Development Report 2011, did not maintain a GDP per capita above \$23,000 in 2011, did not achieve top ranks in the *2011 Ernst and Young Globalization Index* and the *KOF Indices of Economic, Social, and Political Globalization*<sup>7</sup>, or for which data availability was limited, were dropped from the analysis. These countries include: Chile, the Czech Republic, Estonia, Hungary, Israel, Mexico, Poland, Slovakia, South Korea, and Turkey. Resulting from a substantial

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<sup>6</sup> The definition is based on Fortune Magazine's annual Global 500 ranking (2011), accessible online at: <http://money.cnn.com/magazines/fortune/global500/2011/>.

<sup>7</sup> The UN HDR 2010 can be accessed online at: <http://hdr.undp.org/en/reports/global/hdr2011/>, the KOF Indices of Globalization can be accessed online at: <http://globalization.kof.ethz.ch/>, and the Ernst & Young Globalization Index 2011 can be accessed online at: [http://www.ey.com/Publication/vwLUAssets/The\\_world\\_is\\_bumpy/\\$FILE/Growing\\_Beyond-The\\_world\\_is\\_bumpy-new\\_strategies\\_for\\_growth.pdf](http://www.ey.com/Publication/vwLUAssets/The_world_is_bumpy/$FILE/Growing_Beyond-The_world_is_bumpy-new_strategies_for_growth.pdf).

effort to create a group of countries with as little variation in potential confounding variables as possible the final list of OECD countries included in the analysis mirrors the group of ‘large OECD nations’ underlying Hall and Soskice’s (2001) original study (with the exception of Turkey). It is depicted in Table 4.1. Due to the existence of socio-economic differences among the remaining states under observation – a problem intrinsic to the study of comparative political economy – caution needs to be exercised when interpreting and generalizing the results of this study.

Table 4.1: List of OECD countries included in the analysis

1. Australia	8. Germany	15. Norway
2. Austria	9. Greece	16. Portugal
3. Belgium	10. Ireland	17. Spain
4. Canada	11. Italy	18. Sweden
5. Denmark	12. Japan	19. Switzerland
6. Finland	13. Netherlands	20. United Kingdom
7. France	14. New Zealand	21. United States

*Company Selection:*

Preliminary analyses of the global business activities of all corporations listed in Fortune Magazine’s Global 500 (FG500) index revealed that only 54 of these firms maintain country-specific websites in all 21 countries under investigation. It is important to keep in mind that the absence of a country-specific web-presence does not necessarily mean that a company does not operate in a specific country. ArcelorMittal S.A., for instance, provides one global website on which information on all its international operations is presented. Others, like Siemens AG, maintain region or continent-specific websites



instead of country-specific platforms. However, as data availability on the country-level is essential for the purpose of this study, companies that do not maintain nation-specific websites were dropped from the analysis. None of the 54 companies under investigation is a state-owned enterprise. While governmental actors hold significant amounts of shares in some firms (e.g. The German state of Lower Saxony holds 20.1% of the stock of Volkswagen), no governmental actor holds a controlling interest in any of them. Table 4.2 lists all 54 companies under investigation by FG 500 rank and annual revenue.

Table 4.2: List of companies included in the analysis, by FG500 rank and annual revenue

Company*	Rank	Revenue**	Company*	Rank	Revenue**
Toyota	8	221,760	UPS	166	49,545
Volkswagen	13	168,041	LG	171	48,236
General Electric	16	151,628	Roche	174	47,171
General Motors	20	135,592	Bayer	178	46,473
Samsung	22	133,781	GlaxoSmithKline	194	43,857
Daimler	24	129,481	Volvo	237	36,749
Ford	25	128,954	Lufthansa	245	36,190
Allianz	27	127,379	Coca-Cola	256	35,119
Hewlett-Packard	28	126,033	FedEx	261	34,734
Hitachi	40	108,766	Philips	277	33,667
Nestlé	42	105,267	ABB	304	31,589
AIG	44	104,417	Suzuki	316	30,452
Honda	45	104,342	American Express	319	30,242
Nissan	48	102,430	Google	325	29,321
IBM	52	99,870	L.M. Ericsson	339	28,226
Hyundai	55	97,408	Mazda	357	27,154
BASF	71	84,597	Oracle	364	26,820
Sony	73	83,845	3M	365	26,662
Toshiba	89	74,706	Schneider Electric	374	25,933
Deutsche Post	93	71,121	Fujifilm	377	25,886
Pfizer	103	67,809	Adecco	391	24,709
Apple	111	65,225	McDonald's	403	24,075
Robert Bosch	119	62,593	Eli Lilly	423	23,076
Microsoft	120	62,484	Ricoh	429	22,674
Dell	124	61,494	Danone	433	22,529
Nokia	143	56,218	Xerox	449	21,633
Fujitsu	158	52,871	Mitsubishi	457	21,349

\*Listed by colloquially used abbreviated identifier (e.g. Toyota), not by full name (e.g. Toyota Motor Corporation)

\*\* In millions of US dollars

The chosen company selection method necessitates an investigation of potential selection bias as well as the direction of such bias in the chosen measures of association. First, industry sectors differ with regard to their degrees of internationalization. For instance, while the automobile industry manufactures and distributes its products on a global scale (Mikler 2007), the level of globalization of the food industry is significantly lower. This imbalance results in an overrepresentation of some sectors in the company sample, and an underrepresentation of others. Overrepresentation of more internationalized sectors is expected to bias the results towards the null hypotheses, as country-specific effects would have a smaller impact. MNCs also differ with regard to their needs of communicating environmental information, with the differences being again mainly related to their respective industry sectors. Firms in the automobile industry, for instance, compete for consumers on a global scale, have a great need to publicly address country-specific regulations, and can expect a high payoff from communicating CER information to individual customers. In contrast, firms supplying other firms with chemical products are likely to have less incentive to communicate such information to individual citizens. While potential confounding effect of industry sector on observed CER scores are controlled for by including appropriate variables in the statistical analyses, it is important to understand the limits on the generalizability of the results from this sample to avoid the drawing of unwarranted conclusions.

*Medium Selection:*

Much skepticism of prior attempts to evaluate the effectiveness of firms' CER efforts is grounded in the observation that reliable quantitative (or at least quantifiable) information, consistently measured and reported across a large number of firms, used to

be largely unavailable. In recent years, however, changes in firms’ reporting strategies as well as the ‘information revolution’ – notably the “meteoric” rise in popularity of the internet (Rikhardsson et al. 2002, 58) – have helped to alleviate the problem of data scarcity. The rapid increase in internet users across the globe is illustrated in Figure 4.1.

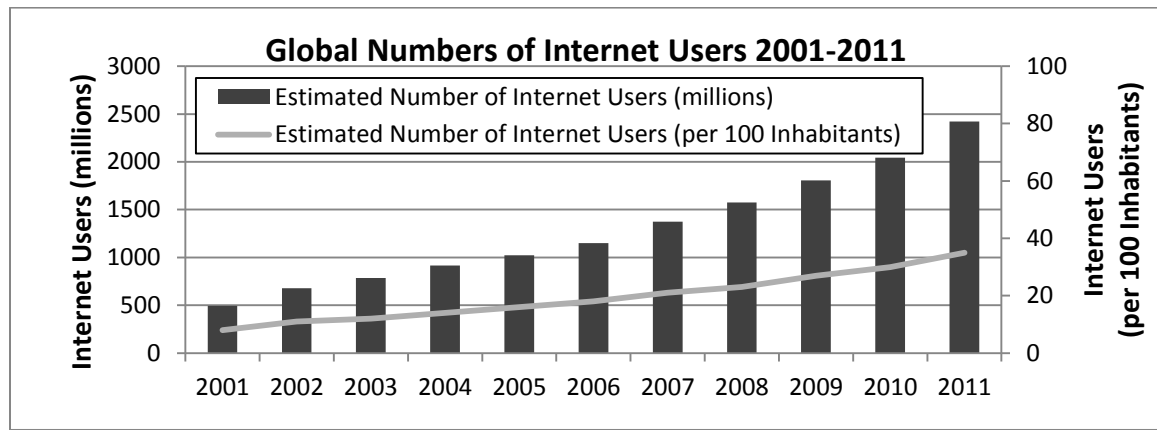
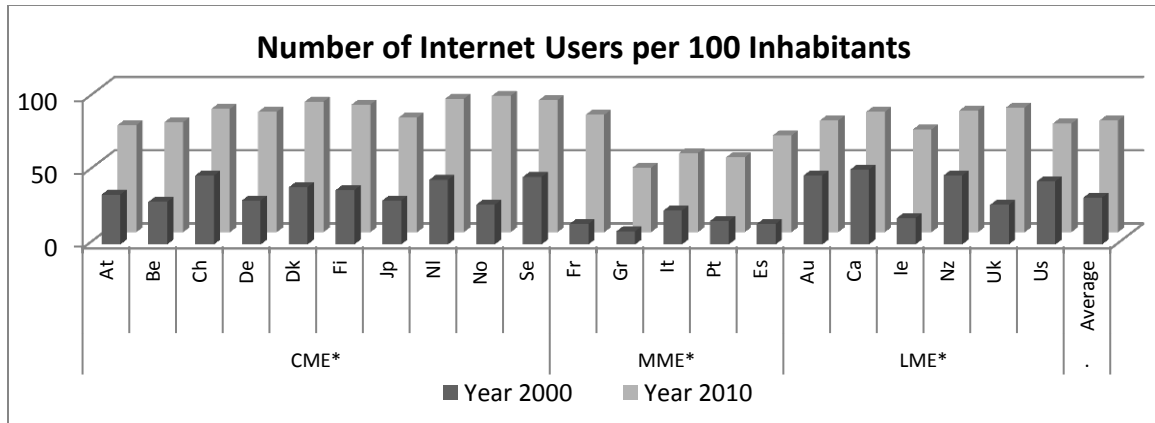


Figure 4.1: Estimated number of internet users, total and per 100 inhabitants, 2001-11<sup>8</sup>

Reflecting the global trend, the average percentage of citizens using the internet in the 21 countries under observation grew from 32% in 2000 to 76% in 2010. While the *Nordic* countries (Norway 93%, Sweden 90%, Denmark 89%, and Finland 87%) continue to outperform the *Mediterranean* countries (Spain 66%, Italy 54%, Portugal 51%, Greece 44%), all countries in the sample experienced significant increases in the number of internet users over the last decade. Figure 4.2 illustrates this development.

<sup>8</sup> Graph based on publicly available data provided by the International Telecommunication Union, accessible online at: <http://www.itu.int/ict/statistics>.



\*Countries grouped according to Hall and Soskice's Varieties of Capitalism classification scheme

Figure 4.2: Estimated number of internet users per 100 inhabitants in the 21 countries under observation, 2000 and 2010<sup>9</sup>

MNCs were quick to adapt to these changes in communication patterns. Recent studies have demonstrated the importance of corporate websites as tools for public relations (e.g. Snider, Hill, and Martin 2003; Hill and White 2000; Kent and Taylor 1998) and for communicating organizational responsibilities (e.g. Esrock and Leichty 2000; Esrock and Leichty 1998; Capriotti and Moreno 2007). Today, all FG 500 companies maintain at least a global website. Most of them use the internet as a medium to discharge social and environmental accountability, to disclose information on their efforts, and to make national, regional, or global sustainability reports available for download (cf. Rikhardsson et al. 2002; Crane 2008). Focusing on those firms with country-specific websites for all 21 economies allows for a more structured and complete quantitative analysis of publicly available information than the study of other sources of information.

<sup>9</sup> Graph based on publicly available data provided by the International Telecommunication Union, accessible online at: <http://www.itu.int/ict/statistics>.

For the purpose of this project, a *national website* is defined as a firm's official platform to present itself on the internet that uses the internet country code top-level domain (ccTLD) of the respective state. In cases of automatic redirection to a country-specific website located at a different top-level domain (upon insertion of the respective uniform resource locator (URL)), the latter is considered the national website. Information from regional as well as global websites is only considered under specific circumstance which are explained in the following subsection. The analysis of 54 firms' nation-specific websites for 21 states results in a maximum of 1134 observations.

#### DEPENDENT VARIABLE: NATIONALLY REPORTED COUNTRY SPECIFIC CER

Given that corporate environmental performance data have been notoriously spotty and uneven, a number of previous studies have attempted to measure firms' CER efforts by proxy. For instance, public statements by top executives have become a frequently used indicator to assess firms' environmental risk management (Hull 1971). However, the by now customary practice of firms to report their CER efforts on the internet allows for a more comprehensive, nuanced, and direct assessment of such efforts.

Using self-reported information to evaluate any corporate activity creates several major challenges. The most prominent of which is arguably the danger of mistaking "greenwashing" for genuine CER (cf. Clegg 2009; Hubbard 2009). Sustainability reports are certainly susceptible to emphasizing achievements and positive developments, while downplaying environmental misconduct, failures to meet targets, or reporting on them in a favorable way (O'Dwyer and Owen 2005; Jones et al. 2005). Numerous theoretical arguments can be made for why companies might under- or over-report their CER efforts,

thus decreasing accuracy and completeness of the information provided. For instance, shareholders might consider a firm's CER activities detrimental to management's efforts to put highest priority on maximizing income (Friedman 1970). At the same time, however, shareholders and management have a vested interest in the stability and legitimacy of the firm and its autonomy from state control. This provides strong incentives to disclose good news and to withhold bad news (Verrecchia 1983) or to disseminate embellished environmental disclosures to signal the firm's limited exposure to environmental risk. Moreover, Marshall and Brown (2003) find that corporate reports tend to focus on descriptive outcomes rather than benchmarking and describe operational performance rather than environmental impact. For these reasons, it would be problematic to equate voluntarily disclosed CER information with firms' actual aggregate impact on the environment.

Despite these issues, the use of self-reported CER information has several major advantages over other methods of data collection. First, the multitude of voluntarily disclosed information does provide the researcher with large amounts of verifiable, quantifiable, and comparable data that would be unavailable otherwise. The ready availability of this information on the internet provides access to comparable data for quantities of firms impossible only a decade ago. Second, because the studied data are public, cooperation on the part of the MNCs is not required. The latter are often reluctant to respond to survey questionnaires (because of survey fatigue, unwillingness to reveal specific information ad-hoc, or a multitude of other reasons) and response rates to voluntary business surveys are notoriously low (Levine and Chatterji 2006). Third, the use of such data decreases the risk of indicator selection bias caused by limited data

availability. It simultaneously increases the reproducibility of results and allows for more powerful reliability checks on the measures used and scales applied. Other methods, such as the usage of reputational scales, are difficult to replicate and reputation analysis generally does not allow for a comparison of such quantities of heterogeneous firms.

There certainly is a trade-off between the ability to compare a higher number of corporations by using publicly available information that might not always be the most precise and using more detailed data available for a smaller subset of these firms (Delmas and Blass 2010). However, a vast majority of the multinational corporations analyzed for this study do seek external assurance of the validity of the information reported. Validity and accuracy of subject matter, methodologies, and data presented in national, regional, and global CER reports are generally assured by governmental agencies, environmental organizations, stakeholder organizations, or accountancy firms. For instance, the validity of Daimler's global "*Daimler 360: Facts on Sustainability 2011*" report is assured by PricewaterhouseCoopers and Toyota Australia relied on Environmental Resources Management Australia Pty Limited (ERM) to verify the information reported in its "*2010 Sustainability Report*". Equally important, environmental NGOs and other stakeholder groups increasingly hold companies accountable for the accuracy of disclosed information by publicly denouncing firms that misrepresent scope and results of their engagement (Sasser et al. 2006).

For instance, Nestlé Waters North America's 2008 full page advertisements in Canadian newspapers claiming that "[m]ost water bottles avoid landfill sites and are recycled" and that "[b]ottled water is the most environmentally responsible consumer product in the world" was countered by a coalition of environmental groups (Friends of

the Earth Canada, the Polaris Institute, the Council of Canadians, Wellington Water Watchers and Ecojustice) filing a complaint against the company with the Canadian Code of Advertising Standards. By publicly criticizing the company for publishing misleading and substantially flawed information (CBC News 2008) they not only put the firm's social license to operate in jeopardy (by attracting substantial media, consumer, and pressure group attention) but also threatened legal action. Fourth, the research costs associated with this form of data collection are extremely low in comparison to other methods. Finally, it is important to note that this chapter's primary objective is to explore the relationship between the cross-national variation in multinational corporations' CER activities and national institutional systems. The actual environmental performance of the 21 countries under observation will be assessed in Chapter 4.

*Data Collection and Categorization:*

Complexity of and variation in national CER efforts reported on the 1134 individual websites under investigation pose a number of challenges to any attempt of measuring and evaluating these efforts in a holistic way. Different reporting styles and methods make the provided information not immediately usable for comparative research purposes. Therefore, the dependent variable is approximated by using several ordinal indicators. The final scores of these indicators are subsequently summed to create a comprehensive *Reported National CER* score for each MNC in each country. During the collection of quantitative (or quantifiable) information and the construction of the indicators, errors of two types are possible: 1. The formulation of a scale that does not reflect all issues encompassed by the underlying definition of CER, and 2. Inaccuracy in



recoding the raw data in terms of the selected indicators. These errors potentially affect validity and reliability of the resulting scale.

To minimize errors of the first kind, data were initially collected for a broad range of 34 CER indicators which are based on the Global Reporting Initiative's (GRI) Sustainability Reporting Framework.<sup>10</sup> Websites were systematically searched for a list of predefined keywords<sup>11</sup>, subsections, and hyperlinks related to environmental sustainability. Content in languages other than English, German, or French was translated by using Google Translate<sup>12</sup> as well as professional translator services. In cases where qualitative information needed to be quantified, content analysis was used to codify information into the respective categories. Audio-visual content provided on the websites under investigation was excluded from the analysis.

The initial use of 34 CER indicators turned out to be excessive: Due to the observation of an overdispersed distribution of the final combined CER score (the sum of the standardized scores for the 34 indicators) a principal components analysis (PCA)<sup>13</sup> was conducted, revealing that only 15 principal components were responsible for 95.5% of the variance observed across the observations in the dataset. The number of indicators

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<sup>10</sup> The Global Reporting Initiative (GRI) is a not-for-profit organization that produces one of the most comprehensive and widely used standards for sustainability reporting. The indicators developed in these guidelines are intended to capture the quality of the revealed information, the information's reliability, and the firms expressed commitment to future sustainability efforts. The website of the organization can be found at: <https://www.globalreporting.org/Pages/default.aspx>. All companies under observation for this paper have publically declared to adhere to these guidelines in their sustainability reporting efforts. A complete list and description of the Global Reporting Initiative's Environmental Core Indicators is accessible online at:

<https://www.globalreporting.org/reporting/reporting-framework-overview/Pages/default.aspx>.

<sup>11</sup> The keywords were translated into Danish, Dutch, Finnish, French, German, Greek, Italian, Japanese, Norwegian, Portuguese, Spanish, and Swedish. For a full list of the search terms, see: Appendix.

<sup>12</sup> Google Translate is an online machine translation service provided by Google Inc. at: <http://translate.google.com/>.

<sup>13</sup> PCA assumes the data to be numerical, rather than ordinal, a limitation that must be taken into consideration when interpreting results. In this sense, the indicator values are seen as points on a score scale, and PCA was applied to assess the sources of variation for these scores among observations.

was reduced to 12 by aggregating those indicators that measure related CER aspects into summary indicators that capture the main differences in reported CER among observations. For instance, the initially used indicators *Direct Energy Consumption*, *Indirect Energy Consumption*, *Direct Energy Saved*, and *Indirect Energy Saved*, are highly correlated and were therefore combined in a single *Energy Consumption and Reduction* indicator. After reducing the number of indicators in this manner, PCA showed that transforming the original variables into principal components would require 10 components in order to capture at least 95% of the original variance. Under these circumstances, further reduction of the number of outcome indicators through PCA was not considered to be desirable as the little gain from reducing the number of outcome indicators would be offset by the limited interpretability of the principal components themselves.<sup>14</sup> The final specifications of the 12 indicators are measured on standardized ordinal scales ranging from 0 to 4. They are grouped in the following categories:

1. *Commitment:*

Indicators contained in this category measure a firm's commitment to CER. Reflecting four manifestations of public acceptance of environmental responsibility, the publication of a (1) *Sustainability Report*, and an (2) *Environmental Statement* by the most senior decision-maker, active (3) *Endorsement of Environmental Charters*, and (4) *Membership in Environmental Associations* represent written declarations of intent against which stakeholders can evaluate corporations' actual behavior.

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<sup>14</sup> In order to detect errors of inaccuracy in recoding the raw data in terms of the selected indicators, a number of additional analyses (focusing on smaller country samples and individual industry sectors, and utilizing different coding schemes and indicator specifications) were conducted, none of which resulted in a better methodology to capture the variation in CER scores across observations.

2. *Resource Use:*

Indicators in this category, (5) *Input Materials: Reduction and Recycling*, (6) *Energy Consumption, Reduction*, and (7) *Water Use, Recycling, and Discharge*, capture a firm's willingness to reveal the scope of their current resource use, the intensity and effectiveness of their efforts to reduce the former, and their short, medium, and long-term strategies with regard to these issues. Together, they allow for an evaluation of the reporting firms' efforts to conserve and/or replenish the global resource base.

3. *Impact Mitigation:*

Indicators in this category capture firms' reported incentives to reduce environmental strains caused by their activities. (8) *Biodiversity Management* measures efforts to protect and restore natural habitats. By quantitatively reporting on their (9) *Air Emissions and Reduction* (including greenhouse gases, ozone depleting substances, NO<sub>x</sub>, SO<sub>x</sub>, and other relevant emissions) firms demonstrate their commitment to combating climate change and air pollution. Data on efforts to mitigate the environmental (10) *Impact of Products and Services* indicates the level of progress with regard to waste reduction, recycling, process efficiency, and product reusability. Finally, information on efforts to reduce environmental costs associated with the (11) *Transportation* of products, materials, and workers, signals willingness to reduce the ecological impact of distribution mechanisms.

4. *Environmental Protection Expenditures:*

Collecting disaggregate data on a firm's (12) *Environmental Impact Mitigation and Protection Expenditures* offers insights into the sincerity of a MNC's efforts.

Documenting the use of financial means for specific CER activities is an essential prerequisite for the establishment of a trustworthy and reliable corporate environmental management accounting system.

Taken together, the indicators in all four categories allow for a holistic assessment and comparison of firms' nationally reported country-specific CER efforts.<sup>15</sup> In order to be able to combine the 12 indicators into a single outcome variable, each indicators ordinal scores (ranging from 0-4) are treated as a scale on which the number of positive scores for each identified CER activity are being 'counted'. This allows for the calculation of a final CER score by summing the scores of all 12 indicators, and interpreting the resulting outcome as a *count variable* which can take on a maximum value of 48. Table 4.3 displays the final set of CER indicators and their respective measuring scales.

*Descriptive Statistics:*

Figure 4.3 shows all 54 multinational corporations' aggregate averaged *Reported National CER* scores by category, indicator, and country. Averages were chosen to demonstrate the variability among countries, despite the ordinal nature of the indicators, due to the highly right-skewedness of the outcome, which causes both median and the 75% percentile to be most frequently zero.<sup>16</sup>

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<sup>15</sup> The Cronbach's Alpha (measuring the internal consistency reliability of the chosen items) is .9127.

<sup>16</sup> For further discussion of the outcome variable, see: Methods and Statistical Models, p.162.

Table 4.3: List of CER indicators by category and coding scheme

Category	Indicator*	Coding Scheme
<b>Commitment</b>	<b>1. National/Global CER Report</b> (N/A) Provision of CER/Sustainability Report on country-specific website	0 = Not available 4 = Available
	<b>2. Executives' Statement</b> (1.1) Commitment to Sustainability by most senior decision-maker	0 = Not available 4 = Available
	<b>3. Signatory to Environmental Charters</b> (4.12) Number of reported externally developed environmental charters, principles, initiatives, etc. subscribed to or endorsed by the MNC	0 = None 1 = 1 2 = 2 3 = 3 4 = 4-6
	<b>4. Memberships in Env. Associations/Organizations</b> (4.13) Number of environmental associations/advocacy organizations in which the MNC has positions in governance bodies/ participates in projects or committees/ provides funding beyond membership fees	0 = None 1 = 1 2 = 2 3 = 3 4 = 4-29
<b>Resource Use</b>	<b>5. Input Materials: Reduction &amp; Recycling</b> (EN1, 2) Provision of quantitative, time-series information (weight/volume) on: <ul style="list-style-type: none"> <li>Total input materials</li> <li>Recycled input materials</li> <li>Reduction in input materials</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
	<b>6. Energy Consumption and Reduction</b> (EN3-5, 7) Provision of quantitative, time-series information on (Type, GJ, %): <ul style="list-style-type: none"> <li>Total consumption of direct/indirect primary energy</li> <li>Energy savings due to efficiency improvements</li> <li>Initiatives to reduce indirect energy consumption</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
	<b>7. Water consumption, Recycling, Discharge</b> (EN8-10, 21, 25) Provision of quantitative, time series information (Source, m <sup>3</sup> , %) on: <ul style="list-style-type: none"> <li>Total water withdrawal by source</li> <li>Recycling and reuse efforts</li> <li>Water discharges by quality and destinations</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
<b>Impact Mitigation</b>	<b>8. Biodiversity Management</b> (EN11-15) Provision of quant./quantified time-series information on (type,#): <ul style="list-style-type: none"> <li>Property in, or adjacent to areas of high bio-diversity value</li> <li>Impacts of activities on biodiversity in these areas</li> <li>Strategy for preventing or redressing negative impacts</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
	<b>9. Air Emissions and Reduction</b> (EN16-20) Provision of quant., time series information on (type, CO <sub>2</sub> Eq., g, %): <ul style="list-style-type: none"> <li>Direct and indirect green-house gas emissions by weight</li> <li>Emissions of ozone depleting substances by weight</li> <li>Initiatives to reduce emissions and reductions achieved</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
	<b>10. Product Impact Mitigation</b> (EN6, 22-24, 26, 27) Provision of quant. /quantified, time series information (type,#,m <sup>3</sup> )on: <ul style="list-style-type: none"> <li>Energy-efficient/renewable energy based products and services</li> <li>Waste by amount, type and disposal method</li> <li>Initiatives to mitigate environmental impacts of products/services</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
	<b>11. Transportation Impact Mitigation</b> (EN29) Provision of quantitative, time series information (type,#,CO <sub>2</sub> eq.) on: <ul style="list-style-type: none"> <li>Environmental Impact of transporting activities</li> <li>Initiatives to mitigate impact &amp; reductions achieved</li> <li>Initiatives to reduce transportation and reductions achieved</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
<b>Expend.</b>	<b>12. Financial Expenditures</b> (EN28,30) Provision of quantitative, time series information (type, \$) on: <ul style="list-style-type: none"> <li>Environmental protection expenditures &amp; investments by type</li> <li>Monetary value of fines and number of non-monetary sanctions</li> <li>Environmental Accounting mechanisms in place and planned</li> </ul>	0 = None 1 = External link** 2 = Data provided in one category 3 = Data provided in any two categories 4 = Data provided in all three categories
<b>Total Score</b>	<b>Summary Measure of all Indicators</b>	∑ of Indicator Scores (0-48)

\*Identifiers of underlying original GRI Environmental Performance indicators in parentheses  
 \*\*Hyperlink to relevant information on an external regional or global website

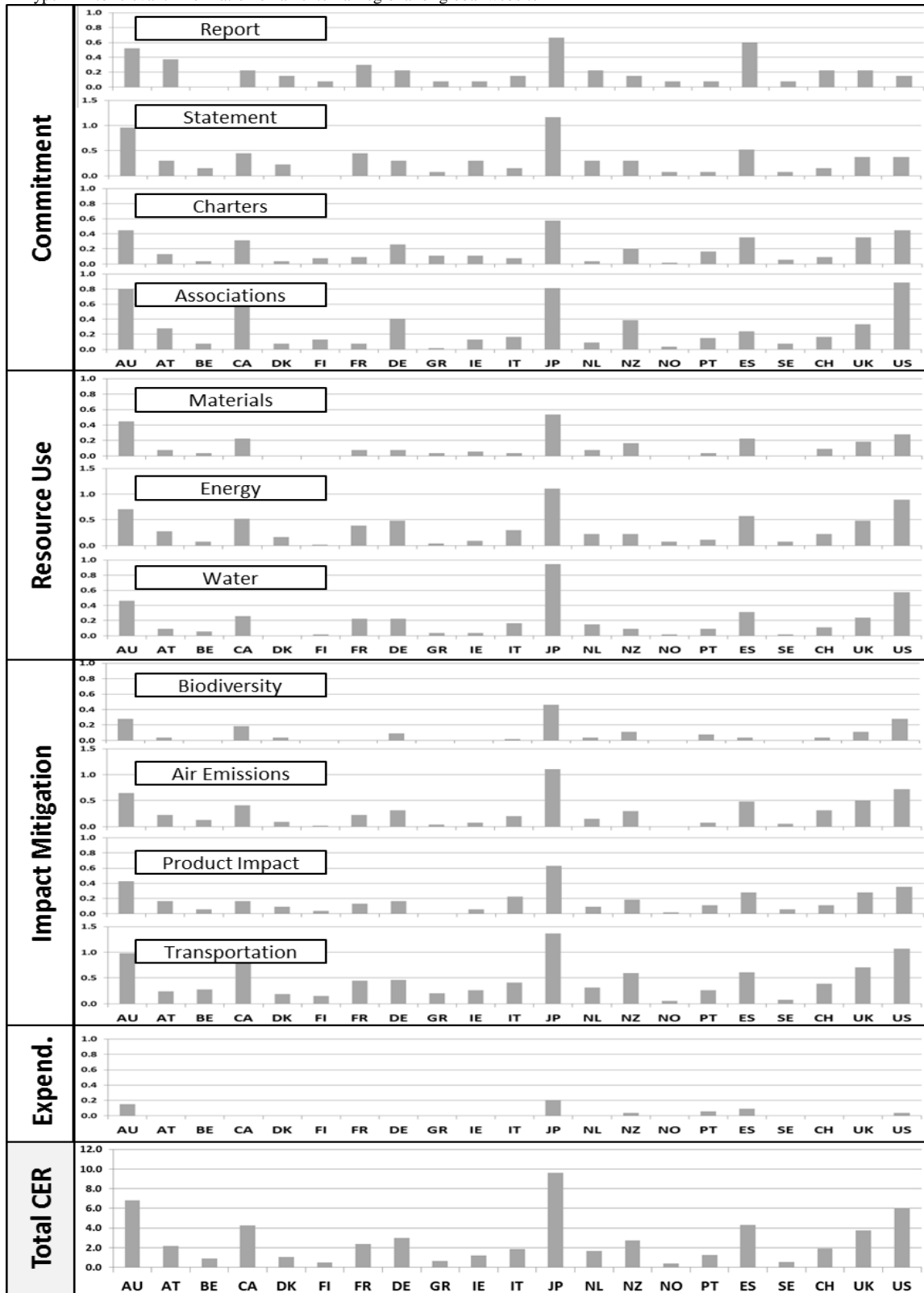


Figure 4.3: Countries' average CER indicator scores (ordinal scale, ranging from 0 to 4) and total CER scores (count variable summing all 12 indicators, ranging from 0 to 48)

## COUNTRY-LEVEL EXPLANATORY VARIABLES

This study employs two sets of predictors: country-level and company level explanatory variables. The first set is incorporated in the analysis in order to test the first hypothesis, the second set to test the second hypothesis. The former will be introduced first:

### *Institutional system of the host state*

Even though most scholars agree that national systems can be distinguished according to their level of coordination, disputes about definitions, the use of different measurement techniques, and the inclusion of different indicators have led to the emergence of a multitude of scales and typologies (cf. Lijphart and Crepaz 1991). In addition, several authors of empirical studies advise against the use of theoretically derived typologies altogether and instead advocate purely data driven approaches. Alquist and Breunig (2008), for instance, criticize the habit of researchers in the VOC tradition to hold strong notions of equilibrium that imply time invariance (or at least very gradual change) of country clusters. Besides questioning the temporal stability of institutional clusters, they highlight the existence of considerable uncertainty with regard to their number and precise specification. Pryor criticizes that researchers frequently employ “ad hoc methods to delineate the various systems of advanced market economies” (Pryor 2005, 26) and rather arbitrarily choose a small number of property or distribution institutions to specify the economic system (e.g. the degree of government regulation or the public expenditures to GDP ratio). Critical of the VOC approach underlying this thesis, Pryor cautions that typifying economies according to a limited set of institutional indicators problematically

presumes to identify the basic core of a system without necessarily specifying the actual institutional differences among countries in detail. Thus, it remains unclear whether the institutions chosen are the most important ones and whether all other economic institutions and organizations in the economy vary in a similar manner.

In order to minimize such potential selection bias, Pryor suggests the categorization of economic systems in terms of clusters of complementary or co-varying institutions (based on a set of 40 initial institutional indicators) in a way that the degree of association between two institutional systems is maximal if they belong to the same group and minimal otherwise. Cluster analysis is to be used as an unbiased approach to discover structures in the data without relying on a previously developed theoretical foundation. Such an approach takes into account many different institutional dimensions, rather than only one or two that are imposed by the investigator. Pryor's research provides justification for dividing the economies of the 21 countries under investigation into 3 to 6 clusters, with the four cluster specification representing the optimal classification<sup>17</sup>.

In order to address Pryor's concerns of 'arbitrary selection' and similar criticisms leveled against the VOC approach, several different specifications of the key independent variable were compared. Table 4.4 displays differences and similarities between Hall & Soskice's institutional categories (comprise of coordinated (CMEs), mixed (MMEs) and liberal (LMEs) market economies and Pryor's institutional clusters<sup>18</sup>.

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<sup>17</sup> Using the minimum description length (MDL) technique, Pryor determined the optimal number of clusters by weighting information gains against the costs of increased complexity as the number of selected clusters increases.

<sup>18</sup>The 6 cluster variation was left out due to spatial limitations. It differs from the 5 cluster specification in that Japan and Switzerland together form a separate cluster and that the 'Anglo Saxon' cluster splits into



Table 4.4: Hall and Soskice's and Pryor's\* institutional classification schemes

H&S		Pryor3		Pryor4		Pryor5	
VOC	Country	Cluster	Country	Cluster	Country	Cluster	Country
CME	<i>Denmark</i> <i>Finland</i> <i>Norway</i> <i>Sweden</i>	Nordic & Continental Europ.	<i>Dk</i> <i>Fi</i> <i>No</i> <i>Se</i>	Nordic	<i>Dk</i> <i>Fi</i> <i>No</i> <i>Se</i>	Nordic	<i>Dk</i> <i>Fi</i> <i>No</i> <i>Se</i>
	<i>Japan</i> <i>Switzerland</i>						
	<i>Austria</i> <i>Netherlands</i> <i>Belgium</i> <i>Germany</i>		<i>At</i> <i>Nl</i> <i>Be</i> <i>De</i> <i>Fr</i>	Continent.	<i>At</i> <i>Nl</i> <i>Be</i> <i>De</i> <i>Fr</i>	Continent.	<i>Ch</i> <i>At</i> <i>Nl</i> <i>Be</i> <i>De</i>
MME	<i>France</i> <i>Greece</i> <i>Italy</i> <i>Portugal</i> <i>Spain</i>	Medit.	<i>Gr</i> <i>It</i> <i>Pt</i> <i>Es</i>	Medit.	<i>Gr</i> <i>It</i> <i>Pt</i> <i>Es</i>	Medit.	<i>Fr</i> <i>Gr</i> <i>It</i> <i>Pt</i> <i>Es</i>
LME	<i>Australia</i> <i>Ireland</i> <i>New Zealand</i> <i>Canada</i> <i>United Kingdom</i> <i>United States</i>	Anglo-Saxon+	<i>Ch</i> <i>Jp</i> <i>Au</i> <i>Ie</i> <i>Nz</i> <i>Ca</i> <i>Uk</i> <i>Us</i>	Anglo-Saxon+	<i>Ch</i> <i>Jp</i> <i>Au</i> <i>Ie</i> <i>Nz</i> <i>Ca</i> <i>Uk</i> <i>Us</i>	J	<i>Jp</i>
						Anglo-Saxon	<i>Au</i> <i>Ie</i> <i>Nz</i> <i>Ca</i> <i>Uk</i> <i>Us</i>

\*Dotted lines signify splits that will materialize in the cluster categorization to the right.

The observation that Hall and Soskice's classification scheme and Pryor's clusters show remarkable similarities lends support to the former's theoretical framework by providing evidence of its robustness and empirical validity. Moreover, they overlap to a significant degree with institutional groupings proposed in other recent studies (Midttun,

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two clusters, one containing Canada, the United Kingdom, and the United States, the other one Ireland, New Zealand, Australia.

Gautesen, and Gjølborg 2006; Visser 2001; Nicoletti, Scarpetta, and Boylaud 1999; Kitschelt et al. 1999b; Obinger and Wagschal 2001). For instance, Pryor's four cluster specification is identical to Saint-Arnaud and Paul's classification (2003).

Eighteen of the 21 countries under observation remain in the expected categories across all specifications. While Hall and Soskice's coordinated market economies split into a *Nordic* (1) and a *Continental* (2) cluster when 4 or more clusters are specified (Pryor4 and Pryor5 classification schemes), their distinction between coordinated, mixed, and liberal market economies remains visible throughout all classifications. The categorization of the *Nordic* countries (Denmark, Finland, Norway, and Sweden) in a separate cluster is intuitively comprehensible. These countries share a history of high levels of coordination and a consensual political tradition (cf. Midttun, Gautesen, and Gjølborg 2006; Elder, Thomas, and Arter 1982). MNCs' CER efforts are expected to be lowest in countries grouped in this cluster. The *Continental European* countries represent a more heterogeneous group. The group differs from the *Nordic* countries in that coordination is primarily administrated at the sectoral rather than the national level (Kitschelt et al. 1999b) and its members show greater variation with regard to specific institutional setups. Countries in this cluster generally attain medium scores with regard to economic coordination (Midttun, Gautesen, and Gjølborg 2006). Consequently, firms' CER efforts are expected to be higher in *Continental European* than in *Nordic* countries.

The fact that four of the mixed market economies (the *Mediterranean* countries: Portugal, Spain, Greece, and Italy) cluster together across all system specifications lends support to the argument that they are not simply anomalous cases but ones that display particular forms of coordination with significant implications for what their firms and

governments can do (Hall and Soskice 2001). Even though these countries are not classified often enough to claim any scholarly agreement (Siaroff 1999) and some of them experienced dramatic political-institutional changes over the past decades, they appear to constitute a distinctive type of capitalism that continues to be shaped by a comparatively large agrarian sector and recent histories of extensive state intervention. According to Hall and Soskice (2001, 21) these developments facilitated the emergence of specific capacities for non-market coordination in some spheres and more liberal arrangements in others. These countries are generally expected to score low on most economic coordination indicators. Moreover, with regard to many measures of socio-economic development, this group of economies is least developed (e.g. GDP per Capita, Number of Individuals using the Internet) and their citizens display the most traditional as opposed to postmaterialist values orientations among all countries in the sample (cf. Inglehart 1990). MNCs' CER efforts are expected to be mixed, but generally to be somewhat higher than in the *Nordic* countries. Finally, the *Anglo-Saxon* countries (Australia, Canada, Ireland New Zealand, the United Kingdom and the United States), all of which are classified by Hall and Soskice as *Liberal Market Economies*, generally score lowest on coordination indicators (Bruno and Sachs 1985) and are consequently expected to experience the most intensive CER efforts.

Hall and Soskice's theoretically derived and Pryor's data-driven institutional system classifications differ substantially only with regard to three countries: Japan, Switzerland, and – to a lesser extent – France. This is not surprising as these three countries are frequently characterized as most problematic with regard to the classification of their economic systems (Lehmbruch 1984). France's 'move' from Hall

and Soskice's mixed market economies classification to the *Continental European* group in Pryor's three cluster specification and its subsequent 'return' into the *Mediterranean* cluster when 5 or more clusters are selected reflects scholarly dissent with regard to evaluating the effects of its statist approach to economic and environmental politics (Szarka 2000). Similarly Switzerland, which is a questionable member of the *Anglo-Saxon/LME* cluster in Pryor's 3 and 4 cluster classification, 'returns' to the *Continental European* group when five clusters are specified (and forms a new cluster together with Japan when 6 clusters are selected (not shown)). Some of the variation in the classification of Switzerland can be explained by the country's recent economic development. Wienröder (2012) for instance argues that of all European economies Switzerland experienced the most radical transition from a traditional consensus-oriented business system towards a more liberal one over the past several years. According to the author this development is particularly evident in the internationalization of the country's major corporations and their adaptation of American business practices and strategies.

The classification of the Japanese economy, often characterized as a particular kind of consensus oriented system, in the *Anglo-Saxon/LME* cluster in Pryor's 3 and 4 cluster calculations appears counterintuitive. However, somewhat similar to Switzerland, the Japanese economy incorporates a variety of economic institutions from different traditions and industrialized with a very mixed type of institutional structure (cf. Pryor 2005). The fact that Japan detaches itself from the *Anglo-Saxon* group and forms an independent cluster when 5 institutional clusters are specified reflects this distinctive development. Moreover, due to its unique demographic and geographic features, Japan developed comprehensive strategies to address environmental issues earlier than most of

its Western counterparts. For instance, while the United States and Canada are characterized by a comparable degree of industrialization, they are endowed with vast territories and relatively decentralized societies. The pollution produced in these economies is much more dispersed than in much smaller and more densely populated Japan. Consequently, Japan experienced environmentalist protests already in the 1960s and 1970s and political and economic elites implemented early environmental measures to prevent the formation of environmental groups (McKean 1981).

A number of scholars add that the interaction of material, institutional and cultural factors, explains differences between the dominance of specific actors and the pattern of outcomes in Japan and its Western counterparts (e.g. Broadbent 1998; Pierce et al. 1987). For instance, the strong focus on the development of environmental technologies conforms well to Japanese “technonationalism” (Pauly and Reich 1997) and helps Japanese firms to remain leaders in the growing world markets for environmental technology (Moore and Miller 1994). Unlike many of their Western counterparts, “the more radical technology-driven, first-to-market approach of Japanese firms suggests they are driven more by internal strategies than reacting to market forces. They are not waiting until the moment is right [...] but are developing and marketing new technologies regardless of whether a market exists for them yet, and without waiting for markets to mature” (Mikler 2006, 113). Following this approach, “Japanese firms go beyond cooperating with government to assume a leadership position. As firms based in a technonationalist CME with philosophical commitment to the environment, they are driven to produce technologically radical environmentally-friendly vehicles such as Toyota’s Prius [...]. The result for firms such as Toyota is that they are increasingly

branding themselves as environmental firms as part of being technological leaders. In so doing, environmental leadership is becoming a core management objective” (Mikler 2006, 317).

Moreover, the Japanese economy is characterized by an unparalleled degree of group-based coordination. Unlike the industry-based coordination characteristic for many *Continental European* CMEs, the country’s most important business networks are built on *keiretsu*, families of companies with dense interconnection that cut across many different sectors. By virtue of these close linkages among firms across sectors, Japanese companies are well-placed to collaborate on cutting-edge research. As a result, they have extensive capacities for developing comprehensive environmental strategies and ecofriendly products that combine technologies. The self-regulatory manner in which regulations are set lets firms lead the state and markets with their environmental product development initiatives. Mikler (2006) finds that “the Japanese industry’s leadership role on the environment is the least associated with changes in social attitudes and willingness to act on these of the three, but its CME variety of capitalism led the fact of the existence of social concern to be more strategically important” (319). For these reasons Japan not only maintains one of the most comprehensive and strongest approaches to environmental protection (Reed 1981), but Japanese firms can be expected to invest substantially in CER efforts at home and abroad as well.

In summary, MNCs’ CER efforts are expected to be most elaborate in *Anglo-Saxon* countries that can be characterized as liberal market economies and in Japan. At the other end of the scale, the *Nordic* coordinated market economies are expected to experience the least individual CER efforts. The levels of voluntary environmental

activity in *Continental European* and *Mediterranean* economies are expected to be between these two extremes, with the former outperforming the latter. All specifications are tested and the cases of France, Japan, and Switzerland will be explored in greater detail below. The variable *institutional system* is measured on a categorical scale ranging from 1 to 3 for statistical models utilizing Hall and Soskice's (H&S) classification system and Pryor's three cluster specification (Pryor3) to 4 for models using Pryor's four cluster specification (Pryor4) and to 5 for models utilizing his five cluster specification (Pryor5).

#### *Population size (log)*

The variable *population size* controls for the possibility that a firm operating in a country with a larger population – and a larger market for its products and services – might invest more in CER than the same firm operating in a smaller country (Visser 2008). Moreover, it accounts for the possibility that politics in general (Katzenstein 1985) and environmental policies in particular are affected by a country's population size. It can be expected that population size is positively correlated with MNCs' nationally reported CER efforts. The continuous variable is measured using annual census data reported on the OECD statistics portal.<sup>19</sup> A country's population encompasses all nationals present in or temporarily absent from as well as aliens permanently settled in it. The original records were log transformed to reduce skewedness and overdispersion in the distribution of the data, and to avoid model fitting problems due to a measurement scale greatly different from that of the other variables. Figure 4.4 shows the population size of all 21 countries under observation, grouped by Institutional System (H&S specification).

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<sup>19</sup> The OECD Statistics Portal's data are available on the internet and can be accessed at: [http://www.oecd.org/topicstatsportal/0,3398,en\\_2825\\_494553\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/topicstatsportal/0,3398,en_2825_494553_1_1_1_1_1,00.html).

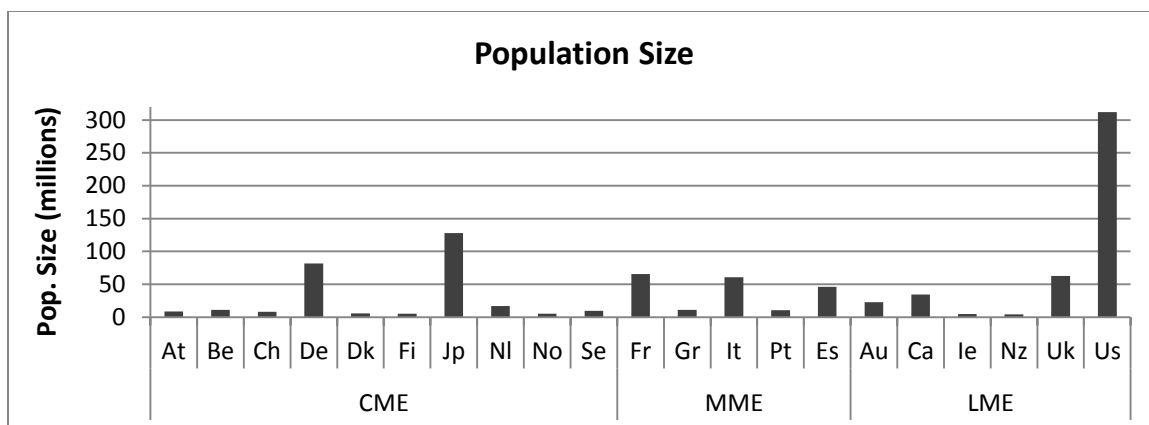


Figure 4.4: Population size of the 21 countries included in the analysis, by institutional system (H&S specification)

#### *GDP per capita (log)*

This variable measures GDP at purchasing power parity per capita. Its inclusion in the analysis aims at accounting for the possibility that observed systemic differences as well as discrepancies in CER efforts are merely a function of levels of economic development (Pryor 2005). For example, over the 21<sup>st</sup> century, the OECD members in the mixed market economy/*Mediterranean* group (with the exception of France) have had a significantly lower average GDP per capita than other countries in the sample. It can be expected that the variable *GDP per Capita* is positively correlated with firm's nationally reported CER efforts. Publically available World Bank data<sup>20</sup> were log transformed in order to produce a measurement scale more comparable to the other variables included in the models. Figure 4.5 shows the GDP per capita in US dollars for each of the 21 countries included in the study by Institutional System (H&S).

<sup>20</sup> The World Bank's World Development Indicators database from which the data were derived can be accessed at: <http://databank.worldbank.org/ddp/home.do?Step=12&id=4&CNO=2>.



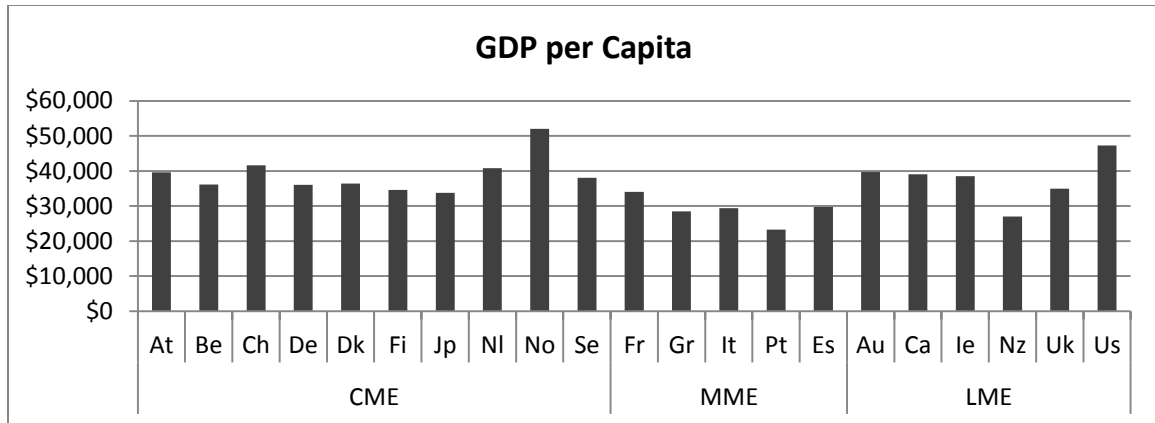


Figure 4.5: GDP per capita in 2011 of the 21 countries included in the analysis, by institutional system (H&S specification)

#### *Level of human development*

Previous research indicates a correlation between human development and the supplementation and substitution of materialist values with postmaterialist values (cf. Inglehart 1995; Betz 1990; Hoffmann-Martinot 1991; Mueller-Rommel 1990). Maxwell, Lyon and Hackett (1998), for instance, find that the higher the percentage of a population holding college degrees, the higher its environmental consciousness. This variable accounts for the possibility that the level of human development might impact a population's demand for CER. Data were derived from the 2011 Human Development Report of the United Nations Development Program. Measured on a continuous scale from 0.00 to 1.00 the variable combines three dimensions of development: life expectancy, education, and standard of living. The fact that only OECD countries that have achieved a 'very high level of human development' are included in the country-sample, results in a range from 0.81 (Portugal) to 0.94 (Norway). Figure 4.6 displays the Human Development Index (HDI) score for each of the 21 countries under observation.

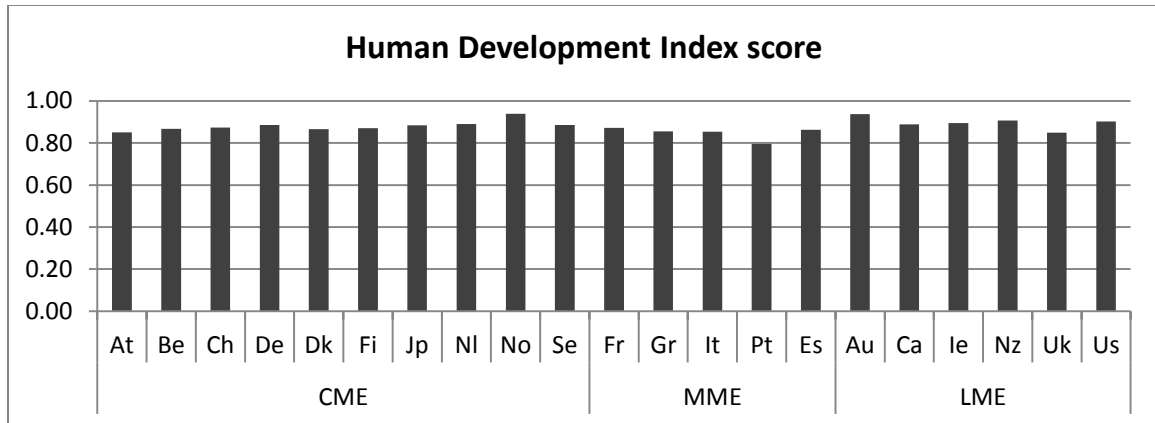


Figure 4.6: Human Development Index scores in 2011 of the 21 countries included in the analysis, by institutional system (H&S)

*Environmental values:*

Higher general demand for environmental protection can be expected to result in firms' higher nationally reported CER efforts. The World Values Survey (waves 1999-2007) includes several questions that measure interviewees' willingness to make financial sacrifices for the environment.<sup>21</sup> While large majorities of most populations support the idea of environmental protection, they are much more reluctant to support it financially (Inglehart 1995). Responses to the following statements were utilized to construct three variable specifications: 1. V 105: "I would give part of my income if I were certain that the money would be used to prevent environmental pollution." 2. V 106: "I would agree to an increase in taxes if the extra money were used to prevent environmental pollution." 3. V 107: "The Government should reduce environmental pollution, but it should not cost me any money." Figure 4.7 display stated levels of support for each statement.

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<sup>21</sup>Data and methodology can be accessed online at: <http://www.worldvaluessurvey.org/>.

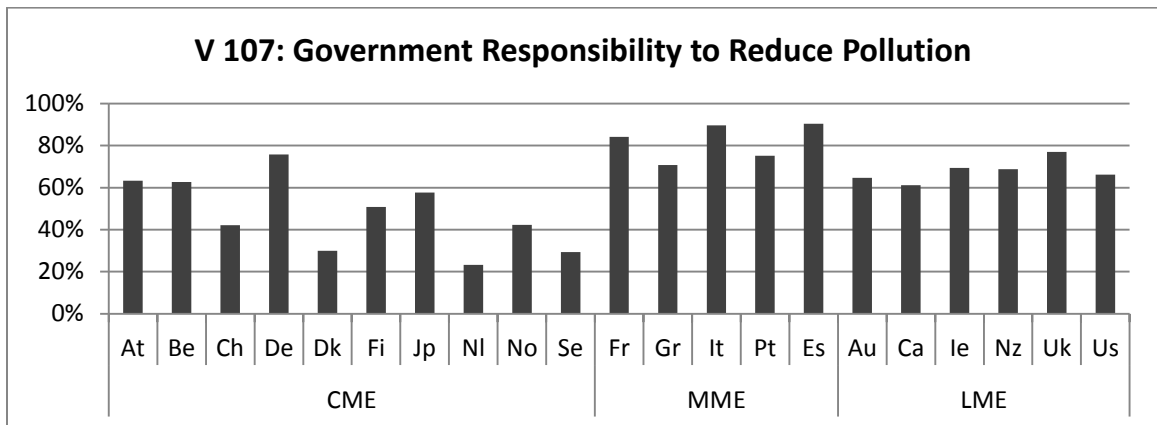
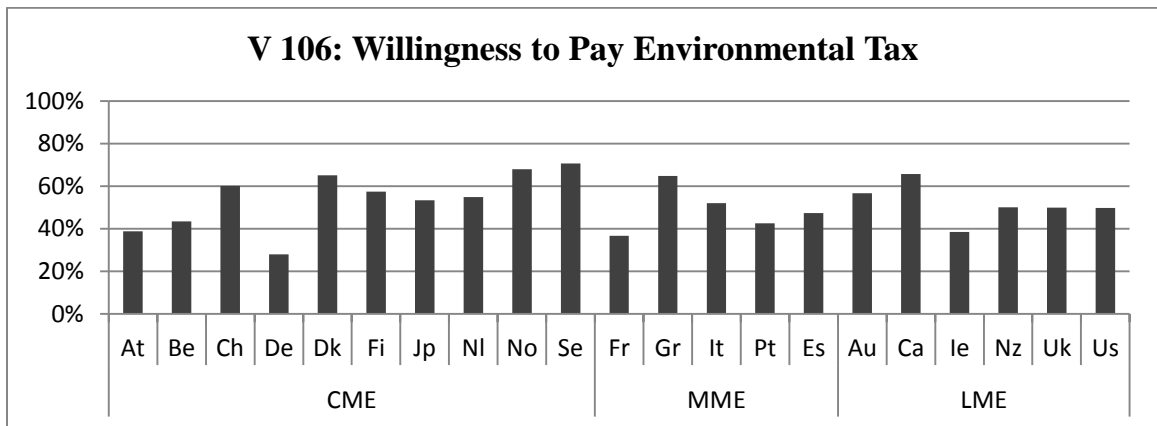
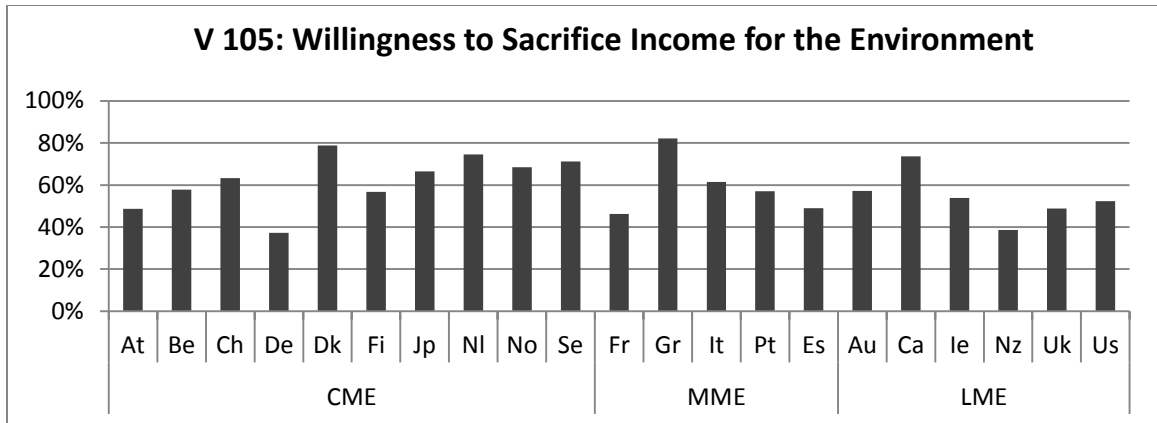


Figure 4.7: Positive responses to World Values Survey statements V105-107, in percentage of all responses given in the 21 countries included in the analysis, by institutional system (H&S)

Reactions to statement V105 indicate that large numbers of respondents from all 21 economies are willing to make financial sacrifices in order to protect the environment. Support ranges from 82% in Greece to 37% in Germany. However, asked about their willingness to pay environmental taxes (V106), the level of support drops significantly from the previous statement's 59% to 52% and the rank ordering of countries changes as well. Like statement V 105, statement V 107 explores respondent's willingness to make financial sacrifices in order to protect the environment. However, V 107 "makes it easier to say 'No' and by changing polarity, it minimizes the impact of the response set" (Inglehart 1995). This change of format has a significant effect on stated levels of support for environmental protection: Now 62% of respondents indicate unwillingness to make financial sacrifices, indicating that environmental protection should be provided by the government for free. In view of these conflicting observations Inglehart (1995) cautions that, while "each of these items provides useful information about the extent of environmental support: the diverging results simply reflect the fact that the way a question is formulated helps shape the responses" (60). In the regression models, the statements were utilized as alternative specifications of the continuous variable *environmental values orientation*.

#### *Membership in the European Union*

Fourteen of the 21 countries under observation are members of the European Union. This variable aims at controlling for the potential confounding influence of this supranational political institution on the impact of national institutions on firms' CER efforts. Comparative environmental performance between members and non-members might differ as the EU's influence on national environmental policy making arguably created

upward policy convergence among its member countries (Scruggs 2001). EU legislation is expected to reduce the pay-off of MNCs' individual CER efforts and consequently to reduce reported CER across EU member-states. The binary variable *EU membership* is coded '1' if a country is a member, '0' otherwise.

#### *Company headquarters*

This variable aims at accounting for the possibility that MNCs' CER efforts in their home countries differ from their international strategies. Despite the development of global production and distribution networks, MNCs' majority of shareholders and central infrastructure frequently continue to be located in their home countries. Relatedly, they often maintain a more prominent social, economic, and political role in these countries because they have a longer history of operations, employ a larger number of people, have larger market shares, and – not lastly – have a greater impact on the environment. In this regard, Hirst and Thompson observe that “most major manufacturing multinationals account for two thirds of their sales within their home region; moreover, there seems to be no tendency for this ratio to diminish” (Hirst and Thompson 1997, 346). Under these circumstances, it is reasonable to assume that multinational corporations' behavior is conditioned by different incentives in their home states than in host states. Consequently, MNCs' CER efforts are expected to be greater in their home countries. The binary variable *headquarters* is coded '1' if the country under investigation is the home country of the company under investigation, '0' otherwise. Table 4.5 and Figure 4.8 display all countries that host the headquarters of any of the 54 firms under investigation. Three of the 54 companies under investigation are headquartered in the Republic of Korea, a country that is not part of the country sample underlying this study.

Table 4.5: List of all 54 MNCs under observation by headquarters location (country and institutional system (H&S))\*

System	Country	HQs	Company Names
CME	Japan	12	Fujifilm, Fujitsu, Hitachi, Honda, Mazda, Mitsubishi, Nissan, Ricoh, Sony, Suzuki, Toshiba, Toyota
	Germany	8	Allianz, BASF, Bayer, Daimler, Deutsche Post, Lufthansa, Robert Bosch, Volkswagen
	Switzerland	4	ABB, Adecco Group, Nestlé, Roche
	Sweden	2	L.M. Ericsson, Volvo
	Finland	1	Nokia
	Netherlands	1	Philips
MME	France	2	Danone, Schneider Electric
LME	United States	20	3M, American Express, AIG, Apple, Coca-Cola, Dell, Eli Lilly, FedEx, Ford, General Electric, General Motors, Google, Hewlett-Packard, IBM, McDonald's, Microsoft, Oracle, Pfizer, UPS, Xerox
	United Kingdom	1	GlaxoSmithKline
N/A	Korea**	3	Samsung, LG, Hyundai

\* H&S stands for Hall and Soskice's (2001) Institutional Classification Scheme

\*\*Korea is not in the sample of countries under investigation and its institutional system was not classified

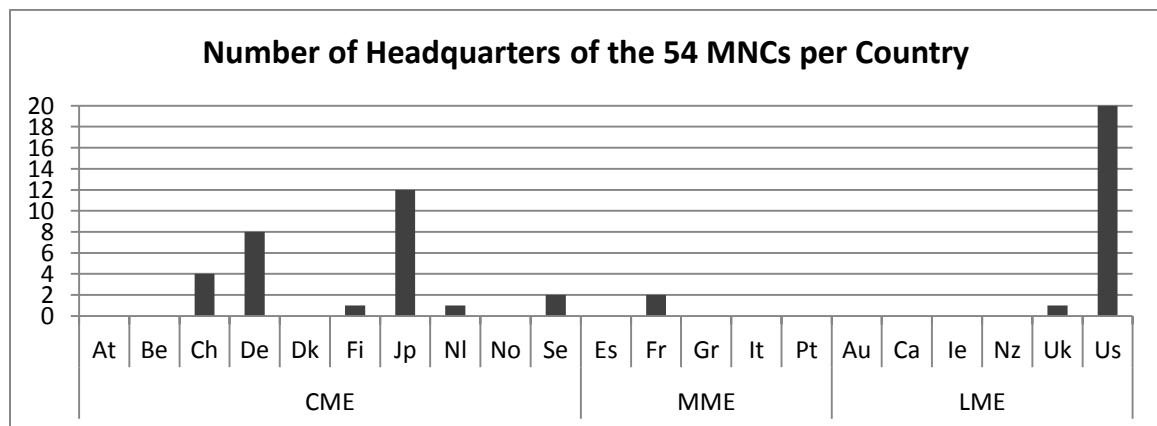
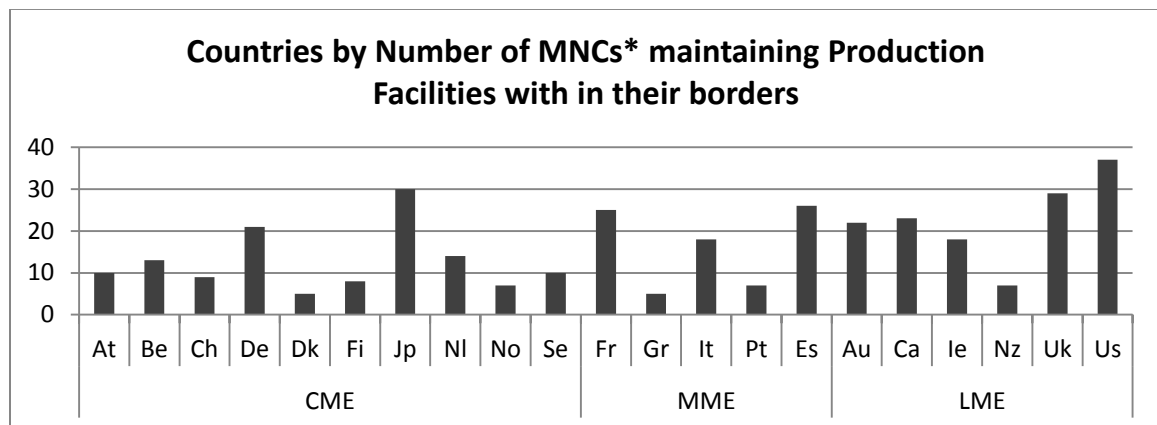


Figure 4.8: MNCs' headquarters location for the 54 companies included in the analysis, by country and institutional system (H&S)

### *Production facilities*

The existence of a firm's production facilities in a country is likely to increase its country-specific environmental footprint (e.g. point source pollution). As the company's activities are more 'visible' and more likely to gain attention from citizens, the media, and policy makers, CER efforts are expected to be higher in these countries. The binary variable *production facilities* takes on the value '1' if one or more production facilities exist in a country, '0' otherwise. Figure 4.9 displays all 21 countries by the number of multinational corporations that maintain such facilities within their borders.



\*Out of the 54 multinational corporations under investigation, total: 344 production facilities

Figure 4.9: Number of MNCs maintaining production facilities within the borders of each of the 21 OECD countries included in the analysis, by institutional system (H&S)

## COMPANY-LEVEL CONTROL VARIABLES

Indicators in the second set of predictor variables vary across companies. These measures are utilized to test the second hypothesis, postulating that the institutional setup of firms' home states has important ramifications for the formers' environmental efforts abroad.

### *Institutional system of multinational corporations' home states*

Cross-ownership linkages have become the norm as stocks are traded internationally and corporations buy, own, or have a controlling stake in other firms (cf. Mikler 2007). For instance, the French Renault S.A.<sup>22</sup> owns 44% of Japanese Nissan Motor Company Ltd. However, important characteristics (e.g. headquarters location or nationality of board members) frequently continue to reflect firms' origin and to influence their strategies. In the Renault-Nissan case, the two automobile manufacturers forged a strategic alliance but retain the (national) identities of both brands, conduct separate operations, and undertake separate reporting. Unlike other MNCs (such as the Anglo-Australian Rio Tinto Group) none of the firms under observation maintain headquarters in more than one country.

All 54 MNCs can be unequivocally allocated to a specific home country. The categorical variable *home system* takes on values corresponding to the respectively applied *institutional system* classification scheme (see above). For instance for US-based General Electric, *home system* takes on the value '3' (*LME*) in models utilizing the H&S or Pryor3 *institutional system* specifications, '4' (*Anglo-Saxon+*) in those using the Pryor4 specification and '5' (*Anglo-Saxon*) in the model using the Pryor5 one. Table 4.6 displays the number of MNCs headquartered in each *home system*.

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<sup>22</sup> Renault is not included in the sample of 54 companies under observation because the company does not operate in all 21 countries included in the analysis. It ceased operations in the US and Canada in the 1980s.



Table 4.6: Number of MNCs headquartered in each home system (H&S and Pryor 3-5)\*

H&S		Pryor3		Pryor4		Pryor5	
CME	28	Cluster 1 (Nordic/Continental)	14	Cluster 1 (Nordic)	3	Cluster 1 (Nordic)	3
MME	2	Cluster 2 (Mediterranean)	0	Cluster 2 (Continental)	11	Cluster 2 (Continental)	13
LME	21	Cluster 3 (Anglo-Saxon+)	37	Cluster 3 (Mediterranean)	0	Cluster 3 (Mediterranean)	2
				Cluster 4 (Anglo-Saxon+)	37	Cluster 4 (Japan)	12
						Cluster 5 (Anglo-Saxon)	21

\*The three companies headquartered in Korea (Samsung, LG, and Hyundai) were excluded from this table

### *Industry sector*

It is reasonable to assume that MNCs operating in different industry sectors report differently and with different priorities on their responsibility effort (Callan and Thomas 2009). Discussing how the ethical case for responsible behavior is different when the firm is actually contributing to the problem at hand than when it is not, Margolish and Walsh (2003) find that stakeholders expect firms to take care of reducing harmful externalities they are directly causing. Taking an active stance in generating positive externalities only comes second in stakeholder expectations. Consequently, firms operating in resource and energy intensive industries that are associated with pollution and environmental degradation have a stronger incentive to invest in CER than companies operating in industries with comparatively smaller ecological footprints (cf. Deloitte 2010). Khanna, Quimio, and Bojilova (1998) and Arora and Cason (1996) demonstrate that firms operating in industries with high R&D intensities are more likely to undertake voluntary

environmental activities. Moreover, MNCs operating in more competitive industries can be expected to invest more in CER in order to distinguish their products from those of their competitors (Heal 2004).<sup>23</sup>

Finally, there is reason to believe that firms from different sectors focus on different aspects of CER. MNCs operating in resource intensive industries are likely to emphasize their material and fuel reduction efforts, while financial institutions might focus on communicating reductions in their travel and communications carbon footprint. The categorical variable *industry sector* was – with some departures – developed based on the Industry Supersector Classifications of the Dow Jones/FTSE Industry Classification Benchmark<sup>24</sup>. Table 4.7 displays the 54 firms under observation by *industry sector*. Figure 4.10 displays the average CER score for each firm (across all 21 countries evaluated). The small excerpt in the figure summarizes CER by *Industry Sector*.

Table 4.7: All 54 firms under observation grouped by industry sector

Industry Sector	# of MNCs	Company Names
Heavy and Basic	7	3M, ABB, BASF, Bayer, General Electric, Hitachi, Schneider Electric
Automobile	13	Daimler, Ford, General Motors, Honda, Hyundai, Mazda, Mitsubishi, Nissan, Robert Bosch, Suzuki, Toyota, Volkswagen, Volvo
Food	4	Coca-Cola, Danone, McDonald's, Nestlé
Technology	18	Apple, Dell, Fujifilm, Fujitsu, Google, Hewlett-Packard, IBM, L.M. Ericsson, LG, Microsoft, Nokia, Oracle, Ricoh, Philips, Samsung, Sony, Toshiba, Xerox
Transport/Logistics	4	Deutsche Post, FedEx, Lufthansa, UPS
Healthcare	4	Eli Lilly, GlaxoSmithKline, Pfizer, Roche Group
Financials+	4	Adecco Group, Allianz, American Express, AIG

<sup>23</sup>The initially included variable *idiosyncratic firm characteristics* (Guler, Guillen, and Macpherson 2002) showed high colinearity with the variable *industry sector*. It was therefore dropped from the analysis.

<sup>24</sup>Methodology and further information for the Industry Classification Benchmark (ICB) are accessible at: <http://www.icbenchmark.com/ICBDocs/ICB%20Product%20Spec%20-%20Oct2011.pdf>.

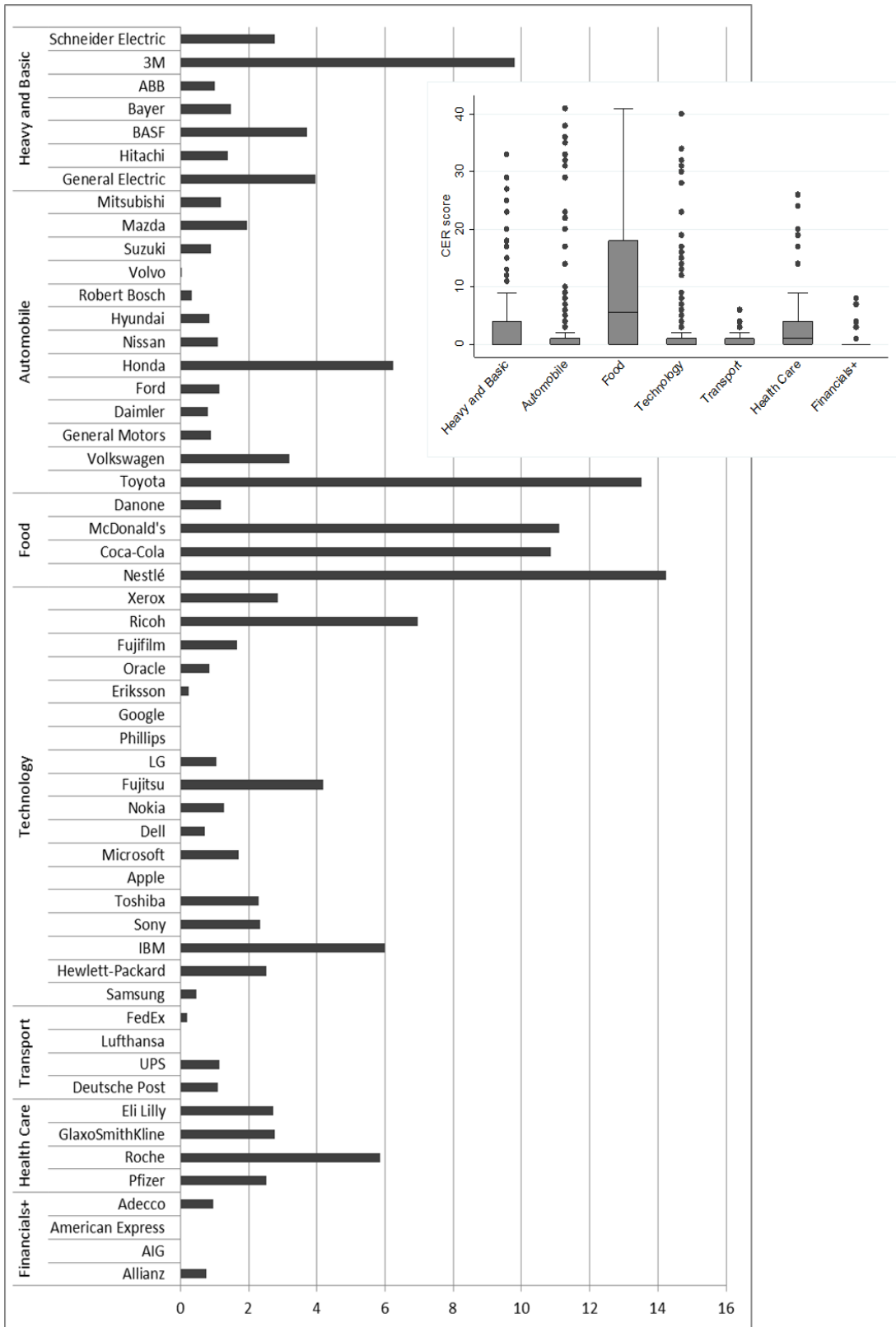


Figure 4.10: Averaged (across all 21 countries) reported CER efforts by company and industry sector (boxplot, top right panel), for the 54 MNCs included in the study

### *Company size*

Several previous studies, using sales, number of employees, or the value of assets as proxies for firm size find that larger firms are more likely to undertake and report on voluntary corporate actions than smaller ones (Marshall and Brown 2003). Arora and Cason (1996), and Khanna and Damon (1998) find support for their hypotheses that larger firms are more likely to join the EPA's 33/50 program in the US. Konar and Cohen (1997) report that larger firms were more likely to reduce their emissions of Toxic Release Inventory (TRI) chemicals over the period 1989 to 1992. One explanation for the correlation between firms' financial capabilities and increased CER efforts is provided by Waddock and Graves' (1997) slack resources theory: Larger firms have more resources available to invest in CER activities and can afford to invest in ways that have a more long-term strategic impact. Moreover, because of their higher public profiles, larger firms may feel more pressure to act from environmental groups, politicians, regulators and concerned citizens. Finally, it is often asserted that the fixed costs associated with environmental compliance are large enough to generate economies of scale that make it relatively cheaper for large firms to comply with regulations. It is reasonable to assume that the same is true for over-compliance. Log transformed, annual *revenue* in millions of US dollars is used to measure firm size (cf. Table 4.2).

## METHODS AND STATISTICAL MODELS

The distribution of the final Reported CER scores (summary measure containing all 12 CER indicators) is shown in Figure 4.11.

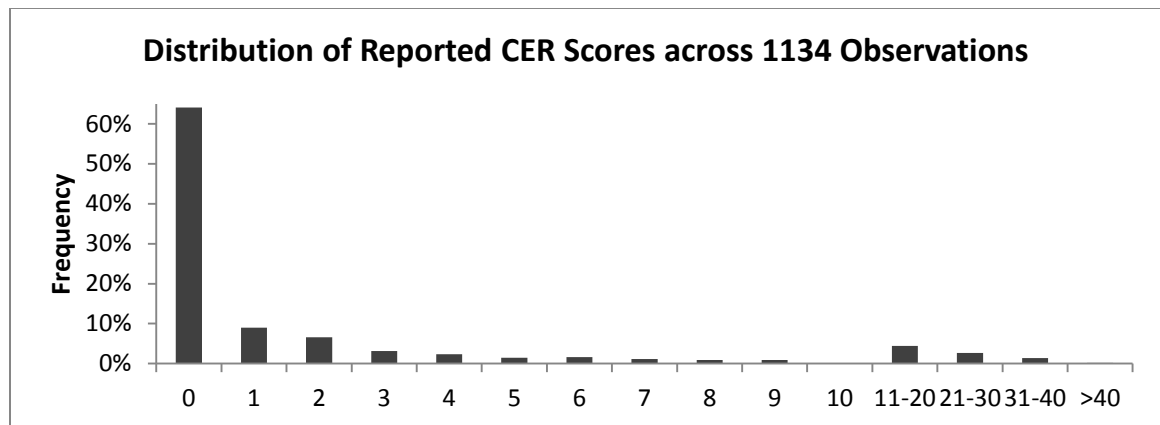


Figure 4.11: Distribution of CER scores across the 1134 observations evaluated in this study

The observations included in this study violate the basic assumption of independence, as they are organized under two independent hierarchies: companies and countries. The use of mixed models to account for either hierarchical structure would not account for the clustering of observations for both hierarchies. The choice of regular (fixed effects) regression models was consequently made based on two main premises: (i) the number of companies per country and the number of countries per company are identical; (ii) variables to control for both company and country level effects are used (see above). The analysis aims at assessing variation in CER efforts within the same company across

different countries. While effects of *home system*, *industry sector*, and *firm size* are assessed, a direct comparison of individual companies is beyond the scope of this study.

The distribution of the outcome variable shown in Figure 4.11 suggests that the regression should account for zero-inflated count data. Consequently, a negative binomial regression model was used. Equation 1 represents the chosen statistical model. The negative binomial model expands the conditional variance of the Poisson model (which is equal to the conditional mean  $\mu$ ) to  $\mu(1+\alpha\mu)$ .

$$\ln(\text{Expected (CER)}) = \beta_0 + \sum_{s=1}^4 \beta_s X_s + \sum_{s2=1}^4 \beta_{s2} X_{s2} + \sum_{i=1}^6 \beta_i X_i + \dots + \beta_n X_n \quad (1)$$

Where:

- s = System, host state, represented by 2-4 indicator variables to represent the 3-5 categories for this variable
  - s2 = System, home country, represented by 2-4 indicator variables to represent the 3-5 categories for this variable
  - i = Industry, a variable with 7 categories and therefore represented by 6 indicator variables
- Additional variables included (and not explicitly shown) are discussed below

In order to determine their statistical significance in predicting the outcome (in the absence of other variables), all explanatory variables were evaluated using univariable analysis. Variables showing statistical significance of at least 10% were included in the full models. Evaluating the alternative system classification typologies outlined above, the six evaluated models (H&S, Pryor3, Pryor4, Pryor5, H&S/Pryor3-FrJpCh, and Pryor4/5-FrJpCh) are described in Table 4.8. The first model – H&S – uses Hall and

Soskice's (2001) classification to group the institutional systems of the host and home states for each MNC. The models Pryor3, Pryor4, and Pryor5 utilize Pryor's (2005) three, four, and five cluster specifications to categorize the systems, respectively. The models H&S/Pryor3-FrJpCh and Pryor4/Pryor5-FrJpCh are identical to the original models with the exception that France, Japan, and Switzerland were excluded from the analysis. Removing these three countries from the analysis reduces the number of observations from 1134 to 972 and results in a convergence of the H&S and Pryor3 as well as the Pryor4 and Pryor 5 classifications. This is due to the fact that France, Japan, and Switzerland are the only countries that move between categories when alternative classifications are selected. For models H&S/Pryor3-FrJpCh and Pryor4/Pryor5-FrJpCh *home system* was recoded to '99' for MNCs headquartered in any of these countries.

Variables that failed to reach statistical significance at the 95% confidence level were sequentially dropped from the full models (however, all variables that reached statistical significance at the 95% confidence level in any of the models were retained in the analysis). Coefficient changes were evaluated after dropping each variable, and potential confounders (changes greater than 20%) were kept regardless of statistical significance. This process was repeated until a final model for each institutional system specification was specified. Non-significant variables are retained in the final models only when a confounding effect was observed, or when keeping them is required for comparative purposes. The following section displays and discusses the statistical results, model fit, and diagnostics.

Table 4.8: Six models estimating MNCs' nationally reported CER efforts

Model	<i>Institutional System &amp; Home System Classification</i>	Countries	Obs.
H&S	Hall and Soskice's (2001) original categorization	All 21	1134
Pryor3	Pryor's (2005) three clusters		
Pryor4	Pryor's (2005) four clusters		
Pryor5	Pryor's (2005) five clusters		
H&S/Pryor3 -FrJpCh	Removing France, Japan, and Switzerland from the estimation results in a convergence of the H&S and Pryor3 categorizations		
Pryor4/5 -FrJpCh	Removing France, Japan, and Switzerland from the estimation results in a convergence of the Pryor4 and Pryor5 categorizations	All, except Fr, Jp, Ch	972

## 4.2 STATISTICAL RESULTS AND DISCUSSION

This section presents and discusses the results of the 6 models developed to test the influence of institutional systems on nationally reported country-specific CER efforts.

### STATISTICAL RESULTS

The variables *GDP per capita* (log) as well as *revenue* (log) failed to reach statistical significance at the 10% confidence level in preliminary univariable analyses and were not included in the models. The remaining explanatory variables were found in preliminary univariable analysis to be significantly related to the national CER outcome. Failing to reach statistical significance at the 5% level, all specifications of the *environmental values orientation* variable were dropped from the analyses. Even though the variable *human development* failed to reach statistical significance in any of the models it was kept in the analysis due to its confounding effect on the variables *institutional system* and *EU membership*. The final 6 models are shown in Table 4.9.



Table 4.9: Six regression models evaluating the relationship between the institutional systems of MNCs' host and home countries and their reported national CER efforts\*

	H&S	Pryor3	Pryor4	Pryor5	HS/Pryor3-FrJpCh	Pryor4/5-FrJpCh
Variables:	IRR <sup>abc</sup>	IRR <sup>abc</sup>	IRR <sup>abc</sup>	IRR <sup>abc</sup>	IRR <sup>abc</sup>	IRR <sup>abc</sup>
<i>instit. System</i>	*	*	**	**	*	**
<i>system2</i>	0.81 (0.165)	1.03 (0.223)	2.05* (0.490)	2.01* (0.473)	0.83 (0.202)	2.21* (0.567)
<i>system3</i>	1.72* (0.325)	1.90* (0.464)	1.74* (0.483)	1.61 (0.449)	1.85* (0.489)	1.47 (0.441)
<i>system4</i>	N/A	N/A	2.94** (0.817)	3.48* (1.586)	N/A	2.95** 0.8789
<i>system5</i>	N/A	N/A	N/A	3.08** (0.846)	N/A	N/A
<i>pop.size(log)</i>	1.34** (0.093)	1.30** (0.087)	1.22* (0.085)	1.19* (0.090)	1.30** (0.106)	1.20* (0.101)
<i>Production</i>	2.15** (0.400)	2.16** (0.395)	2.14** (0.391)	2.39** (0.436)	2.19** (0.449)	2.18** (0.445)
<i>Headquarters</i>	2.10* (0.763)	2.02* (0.692)	2.09* (0.709)	1.84 (0.632)	1.44 (0.668)	1.41 (0.647)
<i>EU member</i>	0.67* (0.138)	0.93 (0.257)	0.86 (0.235)	0.88 (0.210)	0.77 (0.249)	0.72 (0.230)
<i>human dev.</i>	1.20 (3.943)	47.90 (159.613)	87.21 (292.973)	24.59 (82.760)	1.71 (6.647)	4.03 (15.702)
<i>home system</i>	*	**	**	**	**	*
<i>homesys.2</i>	0.38* (0.154)	no obs.	1.17 (0.455)	1.34 (0.516)	no obs.	1.19 (0.527)
<i>homesys.3</i>	0.82 (0.133)	2.20** (0.385)	no obs.	0.64 (0.332)	1.56 (0.356)	no obs.
<i>homesys.4</i>	N/A	N/A	2.52* (0.855)	3.42** (1.212)	N/A	1.83 (0.719)
<i>homesys.5</i>	N/A	N/A	N/A	1.64 (0.575)	N/A	N/A
<i>homesys.99</i>	0.52* (0.169)	1.09 (0.384)	1.27 (0.564)	1.36 (0.599)	2.25** (0.505)	2.52* (0.984)
<i>industry sector</i>	**	**	**	**	**	**
<i>automobile</i>	0.53* (0.142)	0.61* (0.143)	0.58* (0.137)	0.35** (0.094)	0.54* (0.149)	0.51* (0.140)
<i>food</i>	3.27** (0.976)	2.74** (0.808)	2.51* (0.746)	3.02** (0.876)	2.91** (0.955)	2.58* (0.848)
<i>technology</i>	0.54* (0.137)	0.55* (0.130)	0.52* (0.130)	0.41** (0.105)	0.53* (0.139)	0.49* (0.134)
<i>Transport</i>	0.28** (0.101)	0.38* (0.134)	0.37* (0.130)	0.32** (0.115)	0.43* (0.168)	0.41* (0.161)
<i>healthcare</i>	1.13 (0.348)	0.96 (0.292)	0.92 (0.281)	1.09 (0.328)	1.13 (0.378)	1.06 (0.355)
<i>finance+</i>	0.23** (0.085)	0.29** (0.103)	0.25** (0.090)	0.26** (0.098)	0.29* (0.115)	0.24** (0.097)
Observations	1134	1134	1134	1134	972	972
AIC <sup>d</sup>	3584.5	3571.8	3566.6	3559.1	2947.6	2941.8
log likelihood	-1774.24	-1768.90	-1764.31	-1757.56	-1456.80	-1451.92

\*Incidence Rate Ratio (IRR) estimates represent the ratio between the expected count in each category, and the expected count in the reference category (ceteris paribus). For continuous variables, IRR represents the ratio of counts after a one unit increase in the independent variable. The reference category for binary variables is '0.'

<sup>b</sup>Standard Errors in parentheses

\*p<0.05; \*\* p<0.001

<sup>d</sup>Akaike Information Criteria (AIC)

## MODEL DIAGNOSTICS

Across all models, the key explanatory variables achieve statistical significance and their general effects are in the predicted direction. AIC and loglikelihood indicate that the models based on Pryor's classifications have a slightly better fit. The model utilizing 5 institutional clusters (Pryor5) has the lowest AIC despite the increase in the number of categories (which is penalized in the score calculation). Figure 4.12 plots model predictions against observed data for the model Pryor5, showing that the model reproduced the observed data remarkably well. An analysis of deviance, Pearson, Anscombe and Cook's residuals, showed no reason to suspect of lack of fit. For instance, for the Pryor5 model, only 1.85% of the observations showed standardized residuals that deviated from the mean plus or minus two standard deviations.

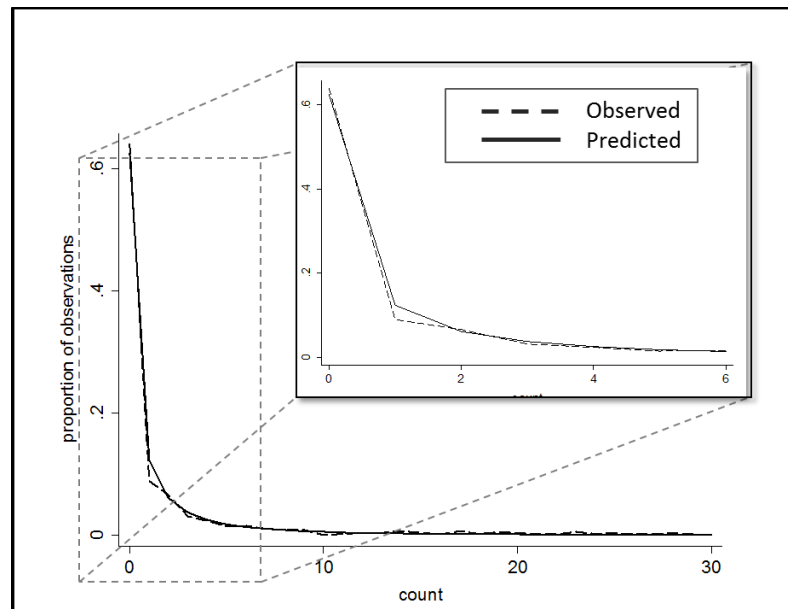


Figure 4.12: Predicted CER scores for all 1134 observations, using Pryor's five cluster categorization, plotted against the observed CER scores for the same observations

## DISCUSSION

The key explanatory variables *institutional system* and *home system* are discussed first, followed by the remaining country-level and company-level variables.

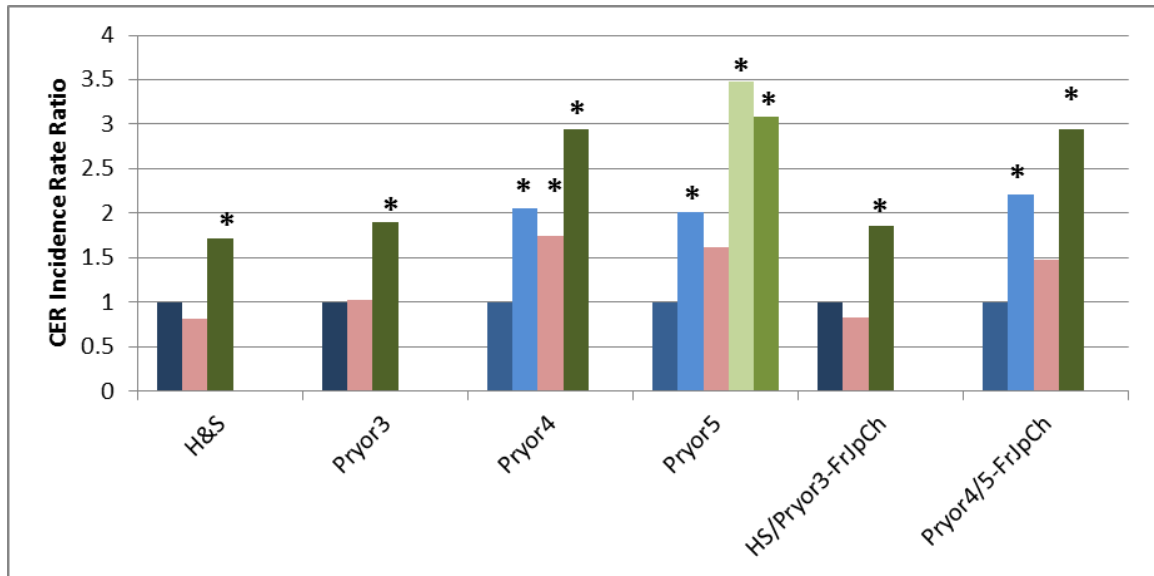
### *Institutional system of the host state*

The results presented above provide strong support for the first hypothesis, postulating that multinational corporations' reported CER efforts are influenced by the host country's institutional system. Across all models, the coefficients of the variable *institutional system* are statistically significant at the 95% confidence level and its effects are generally in the predicted direction. Robust across different model specifications<sup>25</sup> they predict substantive effects on firms' CER efforts. The effects of each *institutional system* on MNCs' reported national CER score are shown graphically in Figure 4.13. When interpreting the figure, differences in the composition of the clusters for each model specification need to be considered.

Ceteris paribus, the model H&S predicts that a firm operating in a liberal market economy achieves a 1.7 times higher nationally reported CER score than the same firm operating in a coordinated market economy. Using Pryor's alternative three cluster categorization (Pryor3) results in an expected reported national CER score for a firm operating in a country located in the third (*Anglo-Saxon+*) cluster that is 1.9 times higher than the score of the same firm operating in an economy in the first cluster (*Nordic/Continental*).

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<sup>25</sup> In addition to the models presented, models using Pryor's 6 cluster specification as well as Midttun, Gaudesen, and Gjørberg's (2006) measurement of institutional embeddedness were tested, providing comparable results.



\*Starred bars represent results that are significantly different from the reference category at the 95% confidence level

Figure 4.13: IRR model estimations by *institutional system* of the host country, compared to the reference ‘system 1’ within each cluster specification, according to the regression models shown in Table 4.9

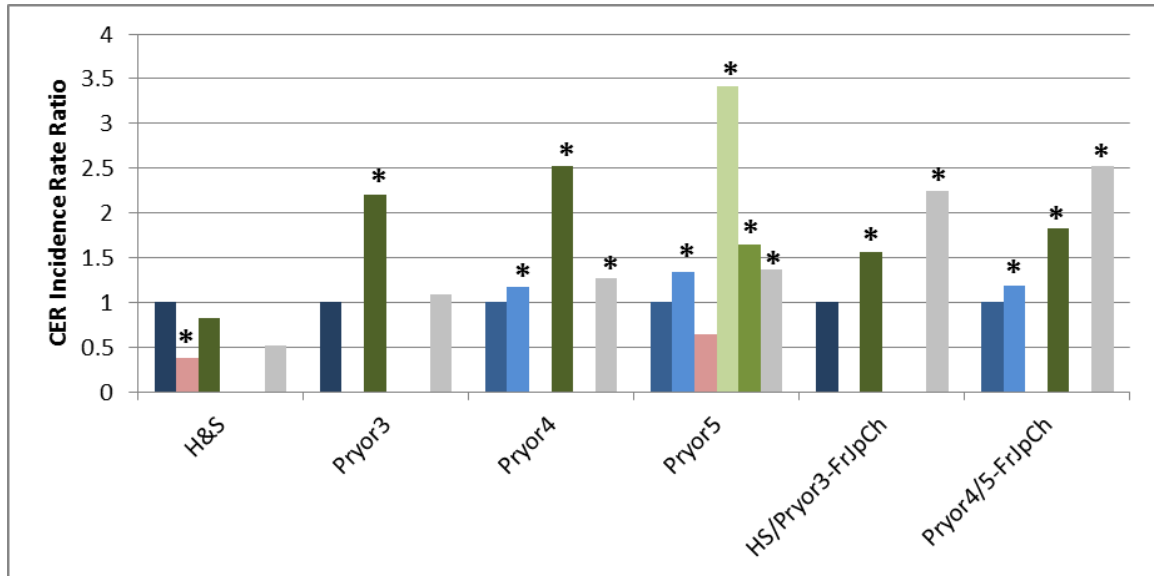
Removing the problematic cases of France, Japan, and Switzerland from the analysis results in a convergence of Hall and Soskice’s and Pryor’s three cluster categorizations (Model H&S/Pryor3-FrJpCh). In the new model, ceteris paribus, MNCs operating in *LMEs/Anglo-Saxon* countries are on average 1.85 times more likely to report on national CER than their counterparts operating in *CME/Nordic-Continental European* countries. In all three cluster model specifications the *MME/Mediterranean* categorization does not reach a significance level of 5%. This renders little confidence to an individual interpretation of the category. Model Pryor4 disaggregates the coordinated market economies into two distinctive categories: *Nordic* and *Continental European* CMEs. In this model, Japan and Switzerland are grouped with the LMEs while France joins the

'*Continental European*' CMEs. The former group again displays the highest predicted CER scores (2.9 times higher than those of the *Nordic* CMEs). The model furthermore confirms the expectation that the *MME/Mediterranean* countries' level of CER is situated between those of the *Nordic* and the *Continental European* CMEs. Removing the problematic cases of France, Japan, and Switzerland from the equation again only marginally alters the coefficients and does not alter the directions of the predicted effects. As expected, model Pryor5 which assigns Japan its own category shows that CER activity is particularly pronounced in this country. Ceteris paribus, firms operating in *Japan* are expected to report 3.4 times more on CER than the same firms operating in the *Nordic* countries.

#### *Institutional system of the home state*

The influence of institutional systems on corporate behavior is further demonstrated by the results for the company-level variable *home system*. Statistically significant at the 95% confidence level across all specified models, its coefficients' are generally in the predicted direction. Robust to all explored changes in model specification, these results provide strong support for the second hypothesis, postulating that MNCs' CER strategies are influenced by their home countries' system of capitalist relations. Figure 4.14 provides a graphical visualization of the impact of *home system* on firms' CER efforts.

Model Pryor3, for instance, predicts that ceteris paribus, a company headquartered in a country from the third cluster (*Anglo-Saxon+*) achieves a 2.2 times higher reported national CER score than a firm headquartered in a country from the first cluster (*Nordic/Continental*).



\*Starred bars represent results that are significantly different from the reference category at the 95% confidence level. The grey bars represent Homesystem 99. This category includes the three companies headquartered in Korea in models H&S and Pryor3-5, and all companies headquartered in Korea, France, Japan, and Switzerland for models H&S/Pryor3-FrJpCh and Pryor4/5-FrJpCh

Figure 4.14: IRR model estimations by institutional system of MNCs' home countries, compared to the reference 'system 1' within each model specification, according to the regression models shown in Table 4.9

Removing France, Japan, and Switzerland from the analysis (Model H&S/Pryor3-FrJpCh) reduces this lead to 1.5. While its effects are in the predicted direction, the *home system MME/Mediterranean* only exists in two model specifications and only reaches statistical significance at the 5% significance level in the H&S model. This is due to the fact that none of the 54 companies under observation are headquartered in Greece, Italy, Portugal, or Spain, and only two in France. Consequently, only models locating France in this category contain observations for the variable and they only encompass 2 companies (42 observations).

Even when Japan is removed from the *Anglo-Saxon+* category (Pryor5), firms headquartered in a country located in that category are predicted to report 1.6 times more on national CER than firms headquartered in *Nordic* countries. As expected, model Pryor5, assigning Japan its own category, shows that its corporations are most active with regard to reported CER efforts, being 3.4 times more likely to report on national CER than firms headquartered in the reference category. The changes in the magnitude of the effect of *Homesystem 99* across models is due to the fact that it contains only the three companies headquartered in Korea in models H&S, Pryor3, Pryor4, and Pryor5, while containing all companies headquartered in Korea, France, Japan, and Switzerland in models H&S/Pryor3-FrJpCh and Pryor4/5-FrJpCh.

#### *Population size (log)*

As expected, country population size, a proxy for its importance as a market, has a statistically and substantially significant positive impact on firm's reported national CER efforts across all model specifications. A one unit increase in logged *population size* (tenfold increase in actual population size) leads to a 1.2 (Pryor4, Pryor5, Pryor4/5-FrJpCh) to 1.3 (H&S, Pryor3, H&S/Pryor3-FrJpCh) times increased predicted CER score for a firm operating in that country.

#### *Production facilities*

Likewise, the presence of a firm's *production facilities* in a country significantly increases its expected reported national CER efforts. The six models predict that firms have a 2.1 (Pryor4) to 2.4 (Pryor5) times higher reported national CER score in countries in which they maintain production facilities than in countries where they do not.

### *Headquarters*

The effects of the variable *headquarters* are in the predicted direction across all models. However, it reached statistical significance in only three of them. Ceteris paribus, models H&S, Pryor3, and Pryor4 predict that companies report about 2 times more on national CER activities in their home countries than in international markets. The failure to reach statistical significance in the other three models might be related to the fact that many of the 54 companies in the sample are headquartered in Japan (12), France (2), and Switzerland (4). By dropping these three countries, 18 of the 51<sup>26</sup> headquarter observations are removed from the analysis.

### *EU membership & level of human development*

While its effect is in the predicted direction, the variable *EU membership* only reaches statistical significance at the 5% significance level in one of the models (H&S). However, like the variable *level of human development*, which never reaches statistical significance, it was kept in the analysis across all national models due to its confounding effect on the variable *institutional system* and to assure comparability across models. With regard to the interpretation of the effect of the variable *level of human development* it is important to keep in mind that the focus on 21 highly industrialized and developed economies removed much of the variation from the analysis.

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<sup>26</sup> Three of the 54 companies (Samsung, LG, and Hyundai Motor) are headquartered in Korea, thus reducing the number of companies headquartered in any of the 21 countries under observation to 51.



### *Environmental values orientation*

None of the specifications of the variable *environmental values orientations* reached the 5% significance level in any of the models. These results are only at first sight surprising. It is important to keep in mind that the country sample selection process removed much of the variation with regard to the variable from the analysis. Environmental attitudes vary much more among developed and developing economies than within each group. Moreover, the fact that relatively high levels of environmental consciousness and concern are countered by a relatively low willingness to pay for environmental protection measures negates efforts to draw conclusions about the importance of self-declared environmental concerns. In addition, misinformation, information overload, and greenwashing have led to increasing skepticism within many populations about the best ways to avert the ecological crisis. Across developed economies, consumers report both a declining faith in nearly all sources of environmental information and confusion or misinformation about those actions that count most or about which environmental problem should be given priority (OECD 2002).

Consequently, while it is encouraging to observe growing concern for environmental issues across all OECD economies, these responses do not reveal much about how deeply these attitudes are really held. Moreover, it is important to bear in mind that the surveys were conducted in different countries in different years. While some responses date back as far as 1999, others were collected as recently as 2007. These circumstances make it difficult to draw any strong conclusions about the specific causal mechanisms linking particular environmental attitudes of a population to a firm's specific national CER efforts.

### *GDP per capita (log)*

The variable never reached statistical significance at the 5% significance level and was consequently dropped from the analysis. Similar to the variable *environmental values orientation* it is important to keep in mind that much of the variation in *GDP per capita* was removed during the country selection process, as only highly developed OECD economies were kept in the sample.

### *Revenue*

The company-level variable *revenue*, a proxy for company size, did not reach statistical significance in any model specifications. Again, the failure to do so may be due to the selected company sampling process. All firms under observation are among the 500 largest corporations in the world. Even though they vary significantly in size and revenue (cf. Table 4.2), this variation occurs at a very high level.

### *Industry sector*

As expected, the variable *industry sector* influences the intensity of MNCs reported national CER efforts. Across all models, firms operating in the *food* industry are predicted to report most intensively on their national CER efforts. Their predicted scores are 2.5 (Pryor4) to 3.3 (H&S) higher than those of the reference category (encompassing MNCs operating in the *heavy and basic* industry sectors). This is not surprising as producers and distributors of food products are arguably the most scrutinized by public opinion and have therefore the highest incentive to demonstrate safety and sustainability of their products to interest groups and final consumers. Moreover, earlier studies have shown that the food and beverage sector is characterized by the unique combination of

having one of the highest environmental impacts while at the same time relying most heavily on intensive communications with consumers (Aldhous and McKenna 2010).

The second most active sector appears to be the *health care* industry; however, while the effects are in the predicted direction, the category fails to reach significance at the 5% confidence level across all model specifications. The third most active are companies grouped in the reference category *heavy and basic* industries. The fourth most active are in most models the *automobile* manufacturers, followed by *technology* companies. The fact that this order is reversed in models H&S and Pryor5 can be explained by the observation that the predicted reported national CER scores of both sectors are in very close proximity to one another across all models. They are followed by the *transportation* industry and finally by the firms in the *finance+* category. The observation that banks, insurance, and human resources companies bring up the rear of the MNC with regard to reported CER activities is arguably due to the fact that they utilize the least amount of environmental resources and that their business operations, products and services produce the least amounts of waste, emissions, and other environmental externalities.

The small number of MNCs in some categories requires that caution be used when interpreting and generalizing these results. For instance, some categories are characterized by significant discrepancies in reported national CER activities among their members (Figure 4.10). While Toyota achieves an average reported national CER score of 13.5, General Motors only achieves an average score of 0.9. Obviously, idiosyncratic characteristics which permeate firms' global operations (Guler, Guillen, and Macpherson 2002) and reporting strategies are responsible for certain aspects of inter-firm variation.

### 4.3 CONCLUSION

The chapter provided an empirical test of the first two hypotheses developed in the preceding chapter. It analyzed the impact of the institutional frameworks of MNCs' host and home states on their self-reported voluntary environmental activities.

The quantitative assessment is based on a novel dataset, containing data for 1134 company-country observations collected by the investigator. It employs a newly developed measurement of CER. Several statistical models were constructed that utilize different institutional system classifications and account for the most important alternative explanations identified in the literature. Although the analyses were hampered by imperfect data, this chapter provides substantial empirical evidence for both the first and the second hypothesis, suggesting that institutional frameworks shape corporate environmental strategies in two important ways.

On the one hand, the fact that firms' CER activities show remarkable differences across countries of similar socio-economic development demonstrates that their voluntary environmental activities do not merely represent universal response strategies to rising global environmental awareness. Instead, the results suggest that firms' CER activities are inversely related to the level of a country's economic coordination. The observation that firms' operations in liberal market economies are hallmarked by significantly greater CER efforts than the same firms' operations in coordinated market economies supports the notion that CER efforts are in fact carefully crafted business strategies that are frequently tailored towards the institutional environments of specific national markets.

On the other hand, the assertion was made that, although rationalist considerations are important, institutional factors are crucial for explaining why firms headquartered in

different countries approach environmental activities in different ways. The finding that those corporations that are headquartered in liberal market economies outperform their competitors headquartered in coordinated market economies with regard to their CER activities in international markets suggests that the institutional systems of corporations' home countries continue to influence their global environmental strategies.

In line with a number of recent studies that indicate that national institutional contexts significantly impact corporate responsibility strategies (Matten and Moon 2008; Kinderman 2009; Carbone and Moatti 2010) the results presented above provide an important contribution to the broader discourse about extent, speed, and direction of socio-economic globalization and challenge assumptions of a corporate 'global perspective' on environmental issues. While they do not contradict globalists' perspective that markets are increasingly important and that the power of traditional state-actors is diminishing, they demonstrate that institutional systems continue to be important factors in shaping corporate behavior and country-specific outcomes. Beyond a doubt, corporations act on strong incentives to globalize their environmental activities. However, they do so by simultaneously adjusting their efforts to country-specific requirements and their strategies remain shaped by their experiences in their national bases. Therefore, whatever the theoretical perspective adopted, both influences need to be taken into account. The evidence suggests that a comparative international perspective should supplement any globalist explanation of contemporary development in the realm of corporate environmental responsibility.

Furthermore, the results of the analyses conducted in this chapter provide an important contribution to the debates on measurement and classification of institutional

differences among modern market economies. The models utilizing Hall and Soskice's (2001) theoretically-derived classification scheme and the models using Pryor's (2005) empirically-based clustering schemes show remarkable similarities in terms of country classification. In fact, the alternative schemes differ only with regard to the classification of three countries – France, Japan, and Switzerland – all of which are commonly characterized in the literature as particularly problematic cases. These findings imply that using the varieties of capitalism framework to typify economies according to a limited set of institutional indicators is not only theoretically feasible but also supported by empirical evidence.

Firms are, of course, largely autonomous actors with access to resources beyond the institutional ones highlighted in this analysis. There is substantial variation in corporate strategy inside all economies; and the institutional support provided at sectoral or regional levels can give rise to systematic differences in firm strategy at that level as well (cf. Herrigel 1995). Moreover, focusing on a sample of highly developed economies might not allow for a global generalization without further testing. Finally, due to the reliance on self-reported CER information, preventing a definite distinction between genuine CER and 'greenwashing', the relationship between institutional frameworks, CER and the environmental bottom remains unaddressed. However, some interesting observations with regard to MNCs' CER reporting suggest that there might be a tangible causal relationship between them: In addition to the national CER data utilized in this chapter, nationally reported global CER data were collected. Figure 4.15 compares the distribution of average nationally reported national and global CER scores across the 1134 websites under observation.

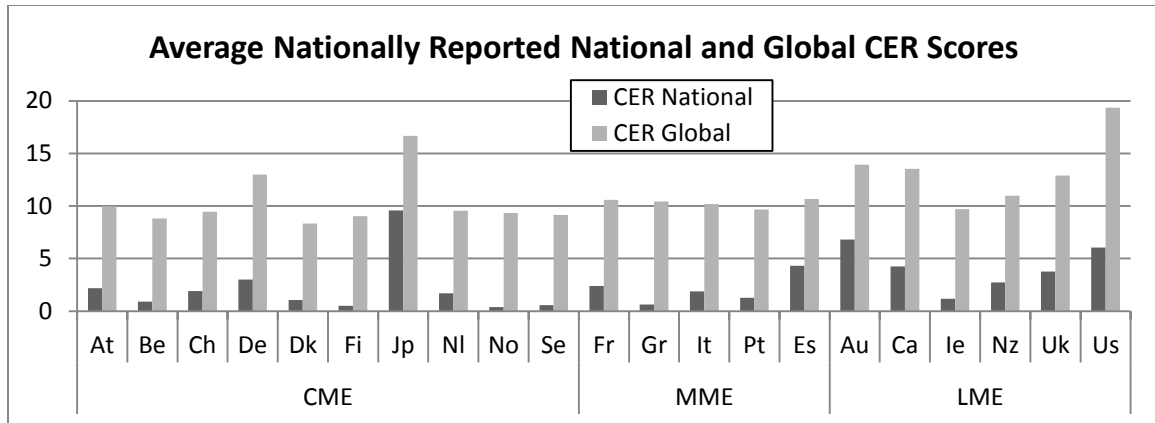


Figure 4.15: Average reported national and global CER scores across the 1134 national websites under observation, by institutional system (H&S)

Not surprisingly, across all economies, MNCs report significantly more extensively on their global CER activities than on their national CER activities (with firms achieving an average reported national CER score of 2.72 and an average reported global CER score of 11.2 across the 21 countries under observation). What is surprising is that firms' reporting on global CER efforts shows cross-national variation, ranging from an average score of 19.35 (United States) to 8.33 (Denmark). Although there are a number of reasons why companies might over- or underreport their CER efforts under particular circumstances (see above), the observed variation in reporting on identical voluntary activities is somewhat puzzling. This issue will be addressed in Chapter 5.

## CHAPTER 5

### INSTITUTIONAL SYSTEMS AND ENVIRONMENTAL PERFORMANCE: COMPARATIVE ASSESSMENTS OF THE ENVIRONMENTAL BOTTOM LINE

The literature review in the first chapter of this dissertation showed that attempts to comparatively assess the environmental performance of different institutional systems have a long interdisciplinary history. Aside from developing a substantial body of theories and exploring a multitude of case studies, a number of studies tried to develop novel performance metrics and utilized statistical techniques to explore the relationship between institutional frameworks, policy choices, and environmental performance (cf. York, Rosa, and Dietz 2003; Dasgupta et al. 2001). However, the number of examined countries is generally confined to a handful of ‘critical cases’ and large-n cross-national comparisons of the subject matter remain scarce. This state of affairs is unfortunate because “without solid evidence on how regulatory choices and a nation’s underlying economic and legal system affect environmental performance, policies are often based on crude analysis, heated rhetoric, and imprecise concepts such as ‘sustainable development’” (Esty and Porter 2005, 392). Without data-driven assessments of countries’ ecological performance relative to their peers it is difficult to resolve contemporary controversies over the influence of institutional frameworks on environmental strategies and their relative success (Panayotou and Vincent 1997).



Objectively comparing the environmental performance of the 21 OECD countries under investigation with regard to several environmental indicators, this chapter is intended to address this shortcoming in the literature. Conducting empirical assessments of each country's ecological footprints, it assesses the third hypothesis, which postulates that coordinated market economies, emphasizing governmental intervention in the market, outperform liberal market economies, relying more heavily on market mechanisms, with regard to their environmental performance.

The chapter is divided into three parts: The first section conducts a panel data analysis of the relationship between a country's institutional system and its carbon dioxide emissions (per capita as well as per dollar of GDP) over the past three decades. As CO<sub>2</sub> emissions are only one of several measures of a country's environmental performance, this longitudinal analysis is supplemented by a detailed assessment of other relevant environmental performance indicators, identified by the 2012 Environmental Performance Index (EPI) and the Trend Environmental Performance Index (Trend EPI) (Emerson et al. 2012). Both sections provide empirical support for the assumption that coordinated market economies outperform liberal market economies with regard to their ecological impact while simultaneously highlighting the importance of country-specific and regional factors. These observations suggest that for now, the implementation of coordinated, government-backed environmental regulatory regimes presents a more effective way to preserve the natural environment than increasing reliance on individual firms' environmental protection measures. Concluding the chapter, the third section discusses the theoretical relevance of these findings and addresses the limitations of this study.

## 5.1 CO<sub>2</sub> EMISSIONS: TRENDS ACROSS 21 OECD ECONOMIES

The most pressing environmental issue to date is arguably anthropogenic climate change. The accelerating emission of greenhouse gases (GHGs)<sup>27</sup> is generally considered to be its main cause. Due to the fact that GHGs affect the global climate irrespective of the geographical location of their emission, scholars across disciplines consider their international limitation, mitigation, and monitoring to be one of the most important global environmental challenges (Schmalensee, Stoker, and Judson 1998).

Of the six GHGs, CO<sub>2</sub> is by far the most important contributor to the greenhouse effect. While data on CO<sub>2</sub> emissions have been gathered annually by a number of international agencies for several decades, there are still major gaps in inventories for the other five gases. For instance, national statistical offices of OECD members generally report detailed information on the latter only every five years to the International Energy Agency (OECD Environment Directorate 2008). For these reasons, this section focuses on comparing CO<sub>2</sub> emissions per capita as well as per GDP across all 21 countries under observation. The map depicted in Figure 5.1 shows per capita carbon dioxide equivalent emissions (in metric tons) at the country-level for the year 2009.

While CO<sub>2</sub> emissions are arguably the most frequently used metric to assess a country's environmental performance, they only assess one dimension of the concept. In order to further investigate the claim that CMEs outperform LMEs with regard to their ecological footprint, a range of additional indicators, derived from the 2012 EPI and Trend EPI, is assessed, presented, and discussed in the second section of this chapter.

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<sup>27</sup>According to the United Nations Framework Convention on Climate Change (UNFCCC), the most important greenhouse gases are: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>).

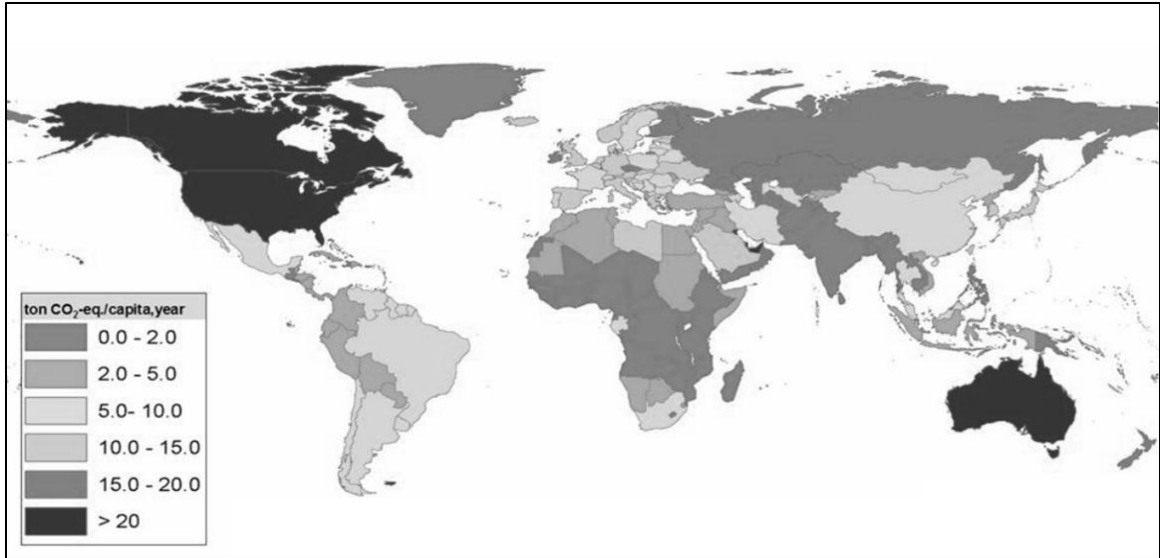


Image Source: Emission Database for Global Atmospheric Research (EDGAR)

Figure 5.1: Annual CO<sub>2</sub> equivalent emissions per capita by country in 2009

## RESEARCH DESIGN

This subsection illustrates the operationalization of the initial empirical test for the third hypothesis. It explains the choice of unit of analysis, the specification of dependent and explanatory variables, and methodology and statistical models utilized in this study.

### *Unit of Analysis*

The unit of analysis of this study is country-year. The relationship between institutional system and environmental performance is assessed by comparing the same set of 21 OECD countries investigated in Chapter 4 during the time period from 1980 to 2008. The number of observations ranges from 522 to 609. The starting point was determined by data availability. The final year of 2008 was chosen to eliminate the influence of the 2008–2012 global recession on countries' CO<sub>2</sub> emissions from the analysis.

*Dependent Variable: Carbon Dioxide Emission*

The dependent variable, *carbon dioxide emission* – is specified in two alternative ways. The first specification, quantifies a country's annual CO<sub>2</sub> emissions per capita. Measured in metric tons, data were derived from the Emission Database for Global Atmospheric Research (EDGAR)<sup>28</sup>. Focusing on emissions from the burning of fossil fuels, the indicator excludes CO<sub>2</sub> emissions originating from IPCC sector 5 (Land-Use, Land Use Change, and Forestry (LULUCF))<sup>29</sup>. Each country's CO<sub>2</sub> emissions value was divided by the number of inhabitants in a given year<sup>30</sup>. Figure 5.2 depicts CO<sub>2</sub> emissions per capita for all 21 countries under observation during the period of the analysis. The second specification quantifies a country's annual CO<sub>2</sub> emissions per dollar of GDP. To obtain the yearly value, the cumulative CO<sub>2</sub> emissions of each country were divided by its GDP for each given year. The CO<sub>2</sub> emissions data were derived from EDGAR, the GDP data (measured in current US dollar) were taken from the World Bank's national accounts dataset.<sup>31</sup> Figure 5.3 depicts CO<sub>2</sub> emissions per GDP for all 21 countries under observation from 1980 to 2008, by institutional system.

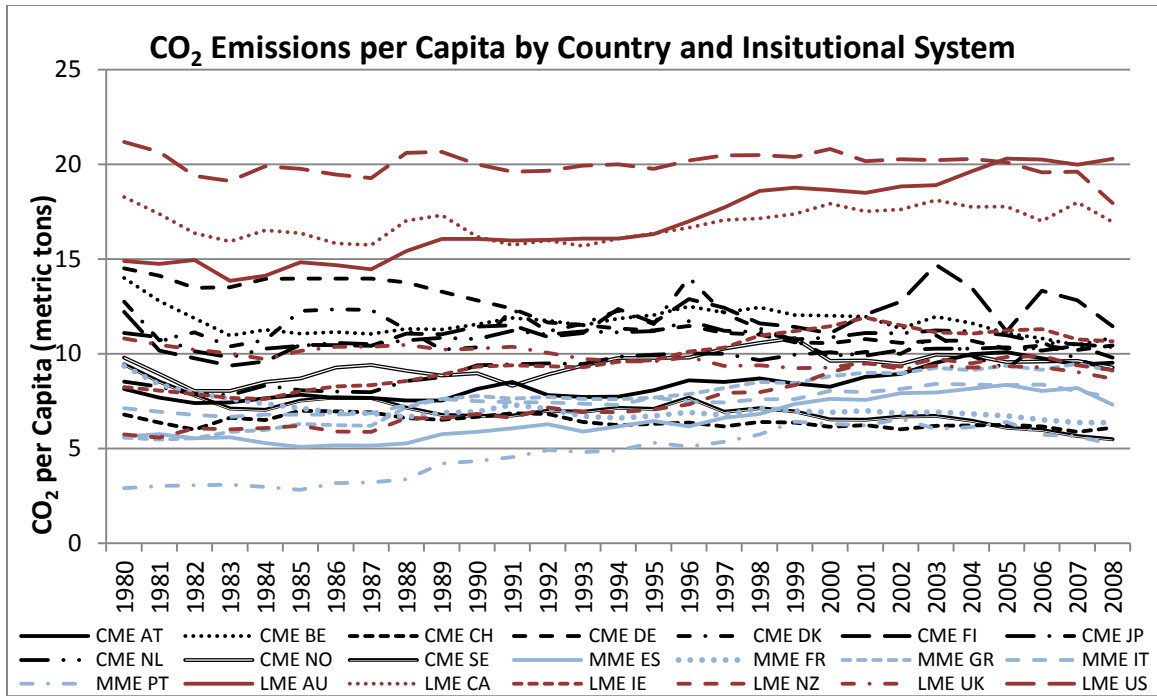
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<sup>28</sup> EDGAR is a project of the European Commission Joint Research Centre and the Netherlands Environmental Assessment Agency.

<sup>29</sup> The United Nations Framework Convention on Climate Change (UNFCCC) Reporting Guidelines on Annual Inventories require parties to provide annual national greenhouse gas (GHG) inventories covering emissions and removals of direct GHGs from the six sectors a. Energy, Industrial Processes, b. Solvent & Other Product Use, c. Agriculture, d. Land Use, e. Land Use Change and Forestry, and f. Waste. Across the OECD, on balance, LULUCF is currently a net sink for greenhouse gases.

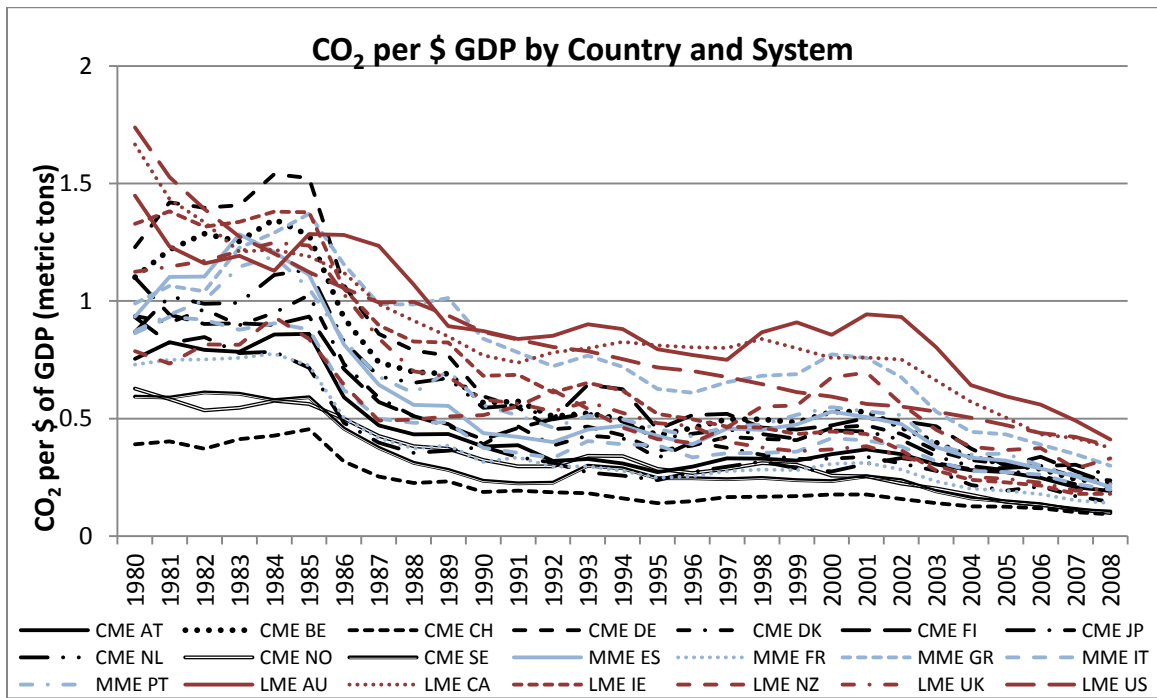
<sup>30</sup> The population data were derived from the OECD's population statistics for OECD member countries dataset. It can be accessed on the internet at <http://stats.oecd.org/index.aspx?queryid=254>.

<sup>31</sup> The World Bank's national accounts dataset contains each country's GDP. Measured at purchaser's prices the indicator contains the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. The dataset can be accessed on the internet at: <http://data.worldbank.org/indicator/NY.GDP.MKTP.CD>.



\* Germany's emissions up to 1989 were calculated by summing the results for the FRG and those for the GDR

Figure 5.2: CO<sub>2</sub> emissions per capita (measured in metric tons) for 21 OECD countries, by institutional system (H&S)\*



\* Germany's emissions up to 1989 were calculated by summing the results for the FRG and those for the GDR

Figure 5.3: CO<sub>2</sub> emissions per dollar of GDP for 21 OECD countries, by institutional system (H&S)

## EXPLANATORY VARIABLES

Aside from the different specifications of the key independent variable – institutional system – several time-invariant and time-variant control variables identified in the literature are employed in this study.

### *Institutional system*

In order to test the relationship between institutional configurations and environmental outcomes, this analysis utilizes the same categorizations of institutional systems as the preceding chapter: Hall and Soskice's (2001) classification of varieties of capitalism and Pryor's (2005) three, four, and five institutional cluster specifications<sup>32</sup>. While institutional systems are not static, their evolution generally processes in an incremental manner (cf. Clemens and Cook 1999). In light of the socio-political developments of the 21 developed economies under observation over the past three decades it is reasonable to presume that their institutional frameworks did not radically change over this time period.

### *Climate system*

It is reasonable to assume that different weather regimes throughout the year impact a country's CO<sub>2</sub> emissions. For instance, countries with long, harsh winters are likely to burn more fossil fuels for heating purposes than countries with mild or warm winters (Neumayer 2004). Likewise, countries with hot summers can be expected to have greater cooling requirements. The climate of a country is affected by a multitude of factors, such as latitude, terrain, and altitude, proximity to water bodies and their currents. Moreover, many countries are characterized by remarkable climate variations across their territory.

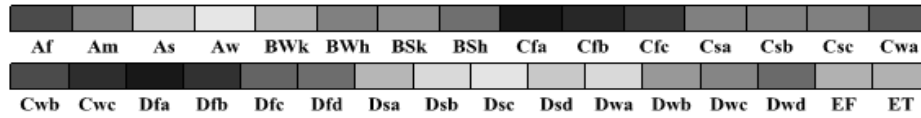
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<sup>32</sup> For detailed information on the variable specification, cf. Chapter 4, p. 140.

The variable climate was created on the basis of the widely used Köppen-Geiger climate classification system. Figure 5.4 depicts the World Map of the Köppen-Geiger Climate Classification generated by Kottek et al. (2006). While the climate changes perpetually, these changes take place over very long periods of time. Consequently, the categorical variable was treated as time-invariant. Table 5.1 displays each country by primary climatic traits and the coding scheme utilized in the analysis.

# World Map of Köppen–Geiger Climate Classification

updated with CRU TS 2.1 temperature and VASCLimO v1.1 precipitation data 1951 to 2000



## Main climates

- A: equatorial
- B: arid
- C: warm temperate
- D: snow
- E: polar

## Precipitation

- W: desert
- S: steppe
- f: fully humid
- s: summer dry
- w: winter dry
- m: monsoonal

## Temperature

- h: hot arid
- k: cold arid
- a: hot summer
- b: warm summer
- c: cool summer
- d: extremely continental
- F: polar frost
- T: polar tundra

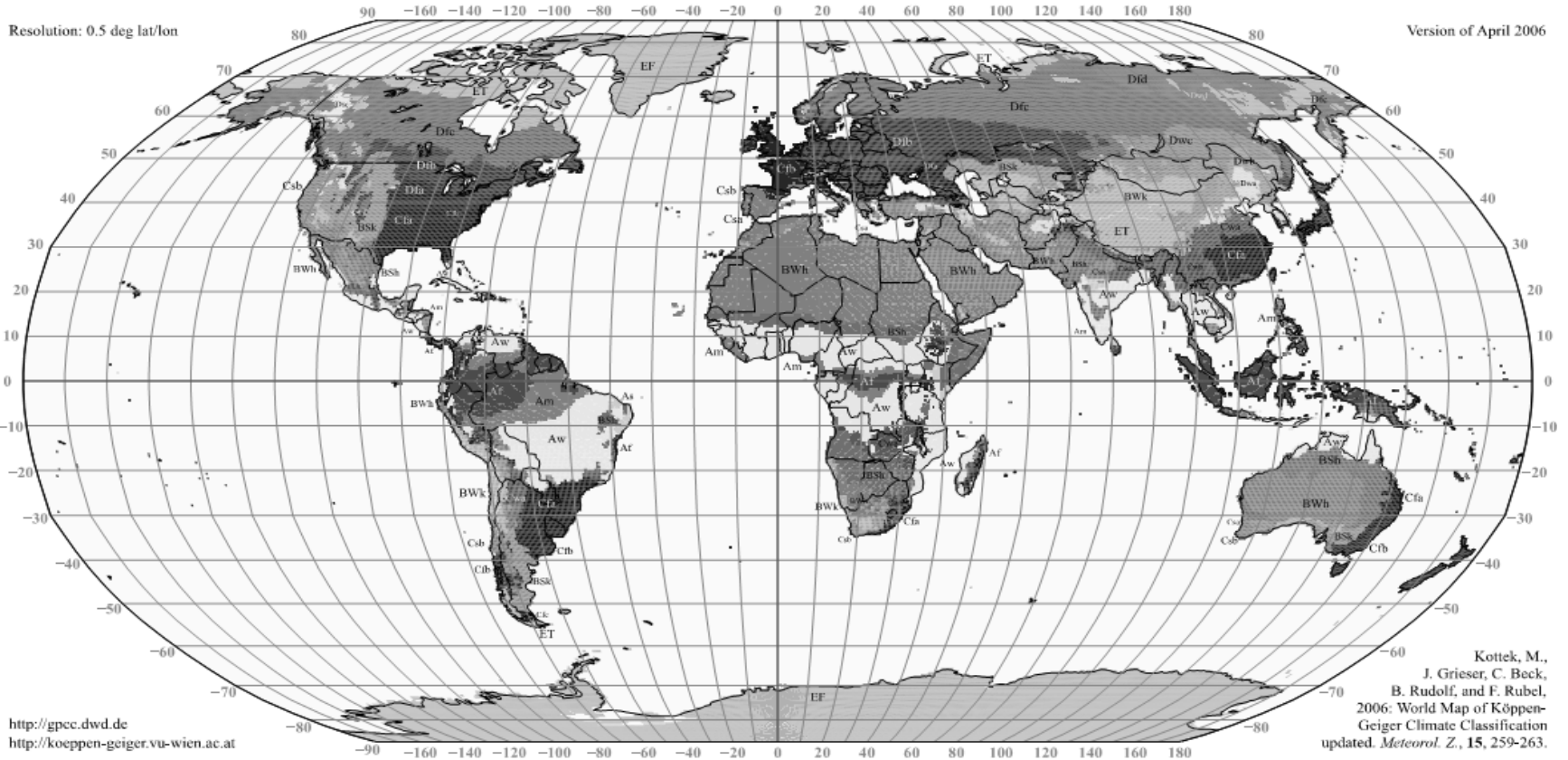


Figure 5.4: World Map of Köppen-Geiger climate classification generated by Kottek et al. (2006)



Table 5.1: Primary climatic traits of all 21 countries under observation

Country	Köppen-Geiger climate classification*			K-G Class**	Cat.
	Main Climate	Precipitation	Temperature		
Greece	Warm temperate	Summer dry	Hot summer	Csa	
Australia	Warm temperate	Fully humid Summer dry	Warm summer Hot summer Hot summer	Cfb, Cfa, Csa	
Italy	Warm temperate	Summer dry Fully humid	Hot summer	Csa, Cfa	1
Portugal	Warm temperate	Summer dry	Hot Summer Warm summer	Csa, Csb	
Spain	Arid Warm Temperate	Steppe Summer dry Fully humid	Cold arid Hot summer Cool Summer	BSk, Csa, Cfc	
France (metropolitan)	Warm temperate	Fully humid Summer dry	Cool summer Warm summer	Cfc, Csb	
Japan	Warm temperate Snow	Fully Humid	Hot summer	Cfa, Dfa	
New Zealand	Warm temperate	Fully Humid	Warm summer	Cfb	2
United States	Warm temperate Snow	Fully Humid Summer Dry Fully Humid	Hot summer Cool summer Warm summer Warm summer Hot summer	Cfa, Cfc, Csb, Dfb, Dfa	
Belgium	Warm temperate	Fully Humid	Cool summer		
Ireland	Warm temperate	Fully Humid	Cool summer	Cfc	
Netherlands	Warm temperate	Fully Humid	Cool summer		
Untd. Kingdom	Warm temperate	Fully Humid	Cool summer		3
Denmark	Warm temperate Snow	Fully Humid	Cool summer Warm summer	Cfc, Dfb	
Germany	Warm temperate Snow	Fully Humid	Cool summer Warm summer		
Austria	Snow	Winter dry Summer dry	Warm summer Extremely continental	Dwb, Dsd	4
Switzerland	Snow	Winter dry Summer dry	Warm summer Extremely continental		
Canada	Snow	Fully humid	Warm summer Extremely continental		
Finland	Snow	Fully humid	Warm summer Extremely continental	Dfb, Dfd	5
Norway	Snow	Fully humid	Warm summer Extremely continental		
Sweden	Snow	Fully humid	Warm summer Extremely continental		

\*Source: Kotték, Grieser, Beck, Rudolf, and Rubel, 2006: World Map of Köppen-Geiger Climate Classification updated. Meteorologische Zeitschrift, 15, 259-263. The displayed characteristics refer to the most densely populated regions of each country (in descending order).

\*\*The abbreviations delineate the Main Climate, Precipitation, and Temperature characteristics, for further information cf. legend of Figure 5.4, p.188.

### *GDP per capita*

Economists generally consider productivity and per capita income the most important determinants of cross-country differences in CO<sub>2</sub> emissions (Esty and Porter 2005; Dietz and Rosa 1997). Utilizing the Environmental Kuznets Curve many observers predict that the rise in emissions that coincides with increases in income will gradually decrease and eventually fall (Cole and Neumayer 2005). However, the estimated turning point is considered to lie far beyond the highest current income levels, implying that emissions in higher income countries merely rise at a consistently decreasing rate (Neumayer 2004). Ceteris paribus, it is therefore reasonable to assume that higher economic activity and productivity, evident in a higher GDP per capita, translates into higher CO<sub>2</sub> emissions per capita (Bengochea-Moancho and Higón-Tamarit 2001). At the same time a higher GDP per capita is likely to be related to lower CO<sub>2</sub> emissions per GDP due to efficiency improvements that coincide with increases in productivity. As in the previous models, the measure of GDP was logged before inclusion in the model.

### *Population size (log)*

This variable controls for the possibility that the volume of a country's CO<sub>2</sub> emissions is a function of its population size. Politics in general (Katzenstein 1985) and environmental policies in particular are frequently considered to be affected by a country's population size.<sup>33</sup>

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<sup>33</sup> For detailed information on how the variable is specified, cf. Chapter 4, p.148.

### *Population density*

A number of studies have established links between population density and environmental performance (cf. Dasgupta et al. 2001; Dietz and Rosa 1997). While the former can have a number of detrimental effects on the environment (Trombulak and Frissell 2000) it can at the same time have positive effects on production and distribution systems of an economy and the ability of governments to enact conservationist policies (Strom and Swindle 1993). For instance, environmental health issues resulting from overcrowding can prompt governmental action (Yassi et al. 1999). Conversely, sparsely populated countries might generate higher CO<sub>2</sub> emissions per capita and per dollar of GDP due to longer transportation routes and the absence of other advantages of economies of scale. The variable *population density* is created by dividing a country's annual population size<sup>34</sup> by the size of its territory (measured in square kilometers)<sup>35</sup>. Figure 5.5 displays the 21 countries under observation by institutional system (H&S specification) and population density in 2008.

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<sup>34</sup> Population data were derived from the OECD Statistics Portal, accessible on the internet at: [http://www.oecd.org/topicstatsportal/0,3398,en\\_2825\\_494553\\_1\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/topicstatsportal/0,3398,en_2825_494553_1_1_1_1_1,00.html).

<sup>35</sup> Measured according to ISO 3166-1, published by the International Organization for Standardization.

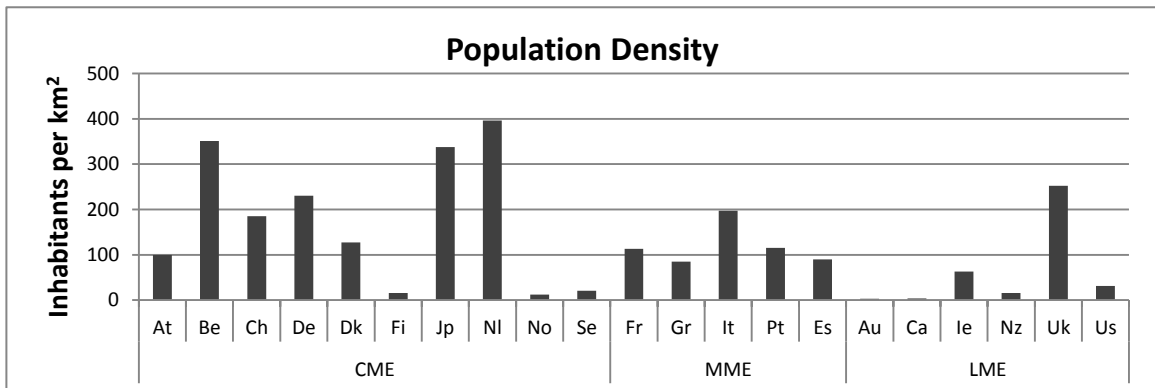


Figure 5.5: Population density in 2008 of all 21 countries, by institutional system (H&S)

### *Membership in the European Union*

The time-varying variable *EU membership* aims at controlling for the potential confounding influence of supranational political institutions on a country's CO<sub>2</sub> emissions. Environmental performance between members and non-members might differ as the European Union's influence on national environmental policy making arguably creates upward policy convergence among its member countries (Scruggs 2001).<sup>36</sup>

## METHODOLOGY AND STATISTICAL MODELS

Representing repeated observations within countries, the observations included in this study violate the basic assumption of independence. The longitudinal nature of the data – time correlation within countries - was dealt with by treating *country* as a panel, and *year* as a time variable. The observations are balanced, as data were collected for all variables,

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<sup>36</sup> For detailed information on how the variable is specified, cf. Chapter 4, p.153-154.

in every year, and for all countries. The data were fit to mixed-effects linear regression models with random-effects per panel. Equation 2 informs the model specifications:

$$Y_{ij} = \beta_0 + \sum_{s=1}^4 \beta_s X_{sij} + \dots + \beta_n X_n + u_j + \varepsilon_{ij} \quad (2)$$

Where:

$Y_{ij}$  = CO<sub>2</sub> per capita (or per GDP) for country  $j$  in year  $i$

$s$  = *Institutional System*, represented by 2-4 indicator variables to represent the 3-5 categories for this variable

(other explanatory variables omitted)

$u_j$  = random  $j^{\text{th}}$  country effect

$\varepsilon_{ij}$  = error term

In order to determine their significance in predicting the outcome (in the absence of other variables), all predictors were evaluated using univariable analysis. Variables significant with at least 90% confidence are included in subsequent multivariable analyses.

For each of the two dependent variable specifications, CO<sub>2</sub> per Capita and CO<sub>2</sub> per GDP, six model specifications are tested. These models evaluate the alternative system classification typologies introduced in the previous chapter. Removing the problematic cases France, Japan and Switzerland from the analysis (models Capita:H&S/Pryor3-FrJpCh, Capita:Pryor4/5-FrJpCh, GDP:H&S/Pryor3-FrJpCh, and GDP:Pryor4/5-FrJpCh reduces the number of observations from 609 to 522 and the number of groups from 21 to 18. Variables with p-values exceeding 0.05 were sequentially dropped from the full models (however, variables that reached statistical significance at the 95% confidence level in any of the models were retained in all models of the respective group for comparative purposes). Coefficient changes were evaluated

after dropping each variable. No potential confounders (changes greater than 20%) were detected. This process was repeated until a final model for each institutional system categorization was specified. All final models are depicted in Table 5.2. Results, model fit, and diagnostics are shown and discussed in the next section.

Table 5.2: Twelve models estimating countries' CO<sub>2</sub> emissions per capita and per GDP

DV	Model	Institutional System Classification	Countries	Obs.
CO <sub>2</sub> per Capita	Capita:H&S	Hall and Soskice's (2001) original categorization	All 21	609
	Capita:Pryor3	Pryor's (2005) three clusters		
	Capita:Pryor4	Pryor's (2005) four clusters		
	Capita:Pryor5	Pryor's (2005) five clusters		
	Capita:H&S/Pryor3 -FrJpCh	Removing France, Japan, and Switzerland from the estimation results in a convergence of the H&S and Pryor3 categorizations and the Pryor4 and Pryor5 categorizations	All, - Fr, Jp, Ch	522
	Capita:Pryor4/5 -FrJpCh			
CO <sub>2</sub> per GDP	GDP:H&S	Hall and Soskice's (2001) original categorization	All 21	609
	GDP:Pryor3	Pryor's (2005) three clusters		
	GDP:Pryor4	Pryor's (2005) four clusters		
	GDP:Pryor5	Pryor's (2005) five clusters		
	GDP:H&S/Pryor3 -FrJpCh	Removing France, Japan, and Switzerland from the estimation results in a convergence of the H&S and Pryor3 categorizations and the Pryor4 and Pryor5 categorizations	All, - Fr, Jp, Ch	522
	GDP:Pryor4/5 -FrJpCh			

## STATISTICAL RESULTS AND DISCUSSION

This subsection presents and discusses the results of the 6 models testing the influence of national institutional systems on CO<sub>2</sub> emissions per capita as well as the 6 models testing the influence of national institutional systems on CO<sub>2</sub> emissions per dollar of GDP.

### STATISTICAL RESULTS

The two sets of models, using random-effects to account for temporal correlation among observations from the same country when estimating the effect of institutional systems on countries' CO<sub>2</sub> emissions are displayed in Table 5.3 and Table 5.4 respectively. The variable *climate system*<sup>37</sup> failed to reach statistical significance at the 10% significance level in preliminary univariable analyses for both dependent variable specifications. It was consequently excluded from all models. The variable *population density* failed to reach statistical significance at the 10% confidence level for the first dependent variable specification and was therefore not included in any of the 6 models analyzing the determinants of national CO<sub>2</sub> emissions per capita. The remaining explanatory variables were found in preliminary univariable analysis to be significantly related to both CO<sub>2</sub> emissions per capita and per GDP and were included in the full models. Model diagnostics, including analysis of residuals' normality and affirmation of homoscedasticity showed no reason to suspect of lack of fit.

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<sup>37</sup> In addition to the *climate system* variable specification described above, several alternative groupings were tested, none of which proved to be significant at the 10% significance level in univariable analysis.

Table 5.3: Random-effects linear regression models evaluating the relationship between countries' institutional systems and their CO<sub>2</sub> emission per capita, 1980 to 2008

	Capita H&S	Capita Pryor3	Capita Pryor4	Capita Pryor5	Capita HS/P3 -FrChJp	Capita P4/5 -FrChJp
Variables:	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>
<i>inst. system</i>	**	*	*	**	**	**
<i>system 1</i>	5.81** (1.6274)	6.56* (2.2000)	9.14** (2.7400)	9.14** (2.1641)	7.61** (1.8524)	9.32** (2.3267)
<i>system 2</i>	Reference	Reference	4.96* (2.4541)	6.31** (1.8778)	Reference	6.49* (2.1564)
<i>system 3</i>	7.45** (1.7485)	6.09* (2.2110)	Reference	Reference	7.62** (1.8887)	Reference
<i>system 4</i>	N/A	N/A	6.08* (2.2424)	-2.22 (3.3184)	N/A	7.65** 1.9664
<i>system 5</i>	N/A	N/A	N/A	7.80** (1.7736)	N/A	N/A
<i>year</i>	0.02 (0.0149)	0.05** (0.0157)	0.05** (0.0157)	0.01 (0.0145)	0.06** (0.0173)	0.05* (0.0173)
<i>system*year</i>	**	**	**	**	**	**
<i>sys.1*year</i>	-0.08** (0.0109)	-0.12** (0.0115)	-0.11** (0.0134)	-0.08** (0.0129)	-0.12** (0.0121)	-0.11** (0.0140)
<i>sys.2*year</i>	Reference	Reference	-0.13** (0.0128)	-0.09** (0.0121)	Reference	-0.13** (0.0139)
<i>sys.3*year</i>	0.01 (0.0125)	-0.03* (0.0123)	Reference	Reference	-0.02 (0.0135)	Reference
<i>sys.4*year</i>	N/A	N/A	-0.03* (0.0123)	0.04 (0.0209)	N/A	-0.02 (0.0135)
<i>sys.5*year</i>	N/A	N/A	N/A	0.01 (0.0122)	N/A	N/A
<i>EU member</i>	0.86** (0.1755)	0.87** (0.1715)	0.83** (0.1751)	0.99** (0.1751)	0.83** (0.1801)	0.81** (0.1825)
<i>pop.size(log)</i>	2.14** (0.5063)	2.79** (0.6044)	3.23** (0.6516)	3.11** (0.5895)	2.95** (0.5807)	3.33** (0.6362)
<i>GDPpC(log)</i>	0.64** (0.1890)	0.55** (0.1819)	0.55** (0.1813)	0.66** (0.1822)	0.50* (0.2088)	0.50* (0.2084)
constant	-36.97** (8.8970)	-47.35** (10.4839)	-54.71** (11.2585)	-53.84** (10.2789)	-49.49** (10.0955)	-55.98** (11.0124)
sigma_u	2.7767	3.4755	3.5320	2.7990	2.7680	2.8900
sigma_e	0.8592	0.8146	0.8138	0.8230	0.8329	0.8328
rho	0.9126	0.9479	0.9496	0.9204	0.9170	0.9233
# of obs.	609	609	609	609	522	522
# of groups	21	21	21	21	18	18
obs per group	29	29	29	29	29	29

<sup>a</sup>Standard errors in parentheses

<sup>b</sup>\*p≤0.05; \*\* p≤0.001



Table 5.4: Random-effects linear regression models evaluating the relationship between countries' institutional systems and their CO<sub>2</sub> emission per dollar of GDP, 1980 to 2008

	GDP H&S	GDP Pryor3	GDP Pryor4	GDP Pryor 5	GDP HS/P3 -FrChJp	GDP P4/5 -FrChJp
Variables:	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>	Coefficient <sup>ab</sup>
<i>inst. system</i>	**	**	**	**	**	**
<i>system1</i>	0.40** (0.0800)	0.38** (0.1034)	0.37* (0.1348)	0.40** (0.1079)	0.48** (0.0931)	0.41** (0.1151)
<i>system2</i>	Reference	Reference	0.36* (0.1234)	0.43** (0.1040)	Reference	0.50** (0.1167)
<i>system3</i>	0.54** (0.0818)	0.47** (0.1028)	Reference	Reference	0.55** (0.0933)	Reference
<i>system4</i>	N/A	N/A	0.47** (0.1081)	0.04 (0.1761)	N/A	0.57** (0.0967)
<i>system5</i>	N/A	N/A	N/A	0.56** (0.0884)	N/A	N/A
<i>year</i>	0.01** (0.0016)	0.01** (0.0018)	0.01** (0.0018)	0.01** (0.0016)	0.01** (0.0019)	0.01** (0.0019)
<i>system*year</i>	**	**	**	**	**	**
<i>sys.1*year</i>	0.00* (0.0012)	-0.01** (0.0014)	0.00 (0.0016)	0.00 (0.0014)	-0.01* (0.0138)	0.00 (0.0015)
<i>sys.2*year</i>	Reference	Reference	-0.01** (0.0015)	-0.01** (0.0014)	Reference	-0.01** (0.0016)
<i>sys.3*year</i>	-0.01** (0.0014)	-0.01** (0.0014)	Reference	Reference	-0.01** (0.0015)	Reference
<i>sys.4*year</i>	N/A	N/A	-0.01** (0.0014)	0.00 (0.0024)	N/A	-0.01** (0.0015)
<i>sys.5*year</i>	N/A	N/A	N/A	-0.01** 0.0013	N/A	N/A
<i>EU member</i>	0.03 (0.0189)	0.04* (0.0201)	0.02 (0.0201)	0.02 (0.0193)	0.05* (0.0202)	0.03 (0.0199)
<i>pop. density</i>	0.00 (0.0003)	0.00 (0.0003)	0.00 (0.0004)	0.00 (0.0004)	0.00* (0.0003)	0.00 (0.0004)
<i>pop.size(log)</i>	0.10** (0.0262)	0.06* (0.0313)	0.06 (0.0340)	0.11** (0.0300)	0.12** (0.0305)	0.11** (0.0316)
<i>GDPpC(log)</i>	-0.53** (0.0207)	-0.54** (0.0215)	-0.54** (0.0210)	-0.53** (0.0203)	-0.54** (0.0237)	-0.54** (0.0229)
constant	3.84** (0.4630)	4.51** (0.5506)	4.52** (0.5958)	3.55** (0.5280)	3.62** (0.5370)	3.72** (0.5558)
sigma_u	0.1228	0.1604	0.1666	0.1311	0.1318	0.1358
sigma_e	0.0952	0.1001	0.0956	0.0927	0.0977	0.0943
Rho	0.6246	0.7197	0.7524	0.6666	0.6455	0.6746
# of obs.	609	609	609	609	522	522
# of groups	21	21	21	21	18	18
obs per group	29	29	29	29	29	29

<sup>a</sup>Standard errors in parentheses

<sup>b</sup>\*p≤0.05; \*\* p≤0.001

## DISCUSSION

The key explanatory variable - *institutional system* - is discussed first, followed by a discussion of the remaining time-invariant and time-varying variables.

### *Institutional system*

The results presented above provide strong support for the third hypothesis, stating that coordinated market economies, emphasizing cooperation, coordination, and governmental involvement in the market, outperform liberal market economies that rely more heavily on market mechanisms with regard to environmental outcomes. For both dependent variable specifications and across all 12 model specifications, the coefficients of the variable *institutional system* are statistically significant at the 95% confidence level and their effects are generally in the predicted direction. Due to the interaction with time (represented by the variable *year*), the coefficients for *institutional system* shown in Tables 5.3 and 5.4 can only be interpreted in light of the predicted trend over time.

Consequently, the coefficient for any system in a given model only reflects the final expected effect of the variable on CO<sub>2</sub> emissions (per capita and per GDP) in a hypothetical year 0, with all other variables held constant. For any additional year, the former needs to be added to the product of year and the model coefficient for year. For all other systems except the reference, the product of year and the appropriate interaction term between the respective system and year are also added. Equation 3 illustrates this relationship using as example the model Capita H&S:

$$S_{i1} = 5.81 + (\textit{year} * 0.02) + (\textit{year} * -0.08) \quad (3a)$$

$$S_{i2 (\textit{reference})} = 0 + (\textit{year} * 0.02) \quad (3b)$$

$$S_{i3} = 7.45 + (\textit{year} * 0.02) + (\textit{year} * 0.01) \quad (3c)$$

Where:

$S_{ij}$  = expected effect of system  $j$  on CO<sub>2</sub> per capita in year  $i$ , in the model *Capita H&S* (additive effect to the effect of all other independent variables – EU membership, Population Size, GDP per capita – as well as the linear constant).

year = year measured from 1 to 29, that is, 1980 = year 1, and 2008 = year 29 (for any given year, the variable year = actual year – 1979)

The system-year interaction has an important effect on CO<sub>2</sub> emissions. For instance, the model *Capita H&S* predicts that CO<sub>2</sub> emissions per capita in a hypothetical LME in the year zero (the hypothetical start of the line) are around 1.6 metric tons higher than in a hypothetical CME with an identical GDP per capita, population size, and non-membership in the EU. However, the magnitude of this difference increases over time, as year has a negative effect on CO<sub>2</sub> emissions per capita in CMEs, and possibly a positive effect in LMEs (even though the latter cannot be stated with 95% confidence, due to the p-value for the interaction between the system and year). MMEs CO<sub>2</sub> emissions per capita are expected to be lowest, and a slow trend upwards is indicated by the coefficient of year in the model (which is not statistically significant at the 95% confidence level).

The use of Pryor's alternative five cluster categorization (*Capita Pryor5*) results in a coefficient for the effect of *institutional system* on CO<sub>2</sub> emissions per capita of 7.8 for a hypothetical *Anglo-Saxon* (system 5) country and 6.3 for a hypothetical *Continental European* (system 2) country with identical characteristics. Removing the problematic cases of France, Japan, and Switzerland from the analysis results in a convergence of Hall

and Soskice's and Pryor's three cluster categorizations (Model Capita H&S/Pryor3-FrJpCh). The new model, *ceteris paribus*, predicts coefficients for CMEs and LMEs that are identical to the first decimal in the hypothetical start of the line (year 0). However, a statistically significant downwards trend in time is observed for CMEs, causing the latter to outperform LMEs rapidly. The *Mediterranean* countries again have the lowest predicted CO<sub>2</sub> emissions per capita.

Interestingly, a different picture emerges with regard to the predicted CO<sub>2</sub> emissions per GDP. The model GDP H&S predicts that a hypothetical LME and a hypothetical CME (with otherwise identical characteristics) perform very similarly (in fact their confidence intervals overlap), while MMEs produce significantly lower CO<sub>2</sub> emissions per unit of GDP. The use of Pryor's five cluster categorization (GDP Pryor5) results in a CO<sub>2</sub> emissions per capita coefficient of 0.56 for the hypothetical *Anglo-Saxon* (system 5) country and 0.43 for a hypothetical *Continental European* (system 2) country with identical characteristics. Again these coefficients are not significantly different.

Removing the three problematic cases from the analysis results in a convergence of Hall and Soskice's and Pryor's three cluster categorizations (Model GDP H&S/Pryor3-FrJpCh). The new model, *ceteris paribus*, predicts that CMEs outperform LMEs with regard to CO<sub>2</sub> emissions per capita by 0.07 metric tons per dollar of GDP, but this difference is smaller than the standard deviation for both coefficients, and their behavior along time is very similar. The *Mediterranean* countries again have the lowest predicted CO<sub>2</sub> emissions. The effect of system on CO<sub>2</sub> emissions per capita is evidently higher than on CO<sub>2</sub> emissions per GDP. Figure 5.6 illustrates the linear effects of the interaction term on CO<sub>2</sub> emissions per capita which was detailed in Equation 3.

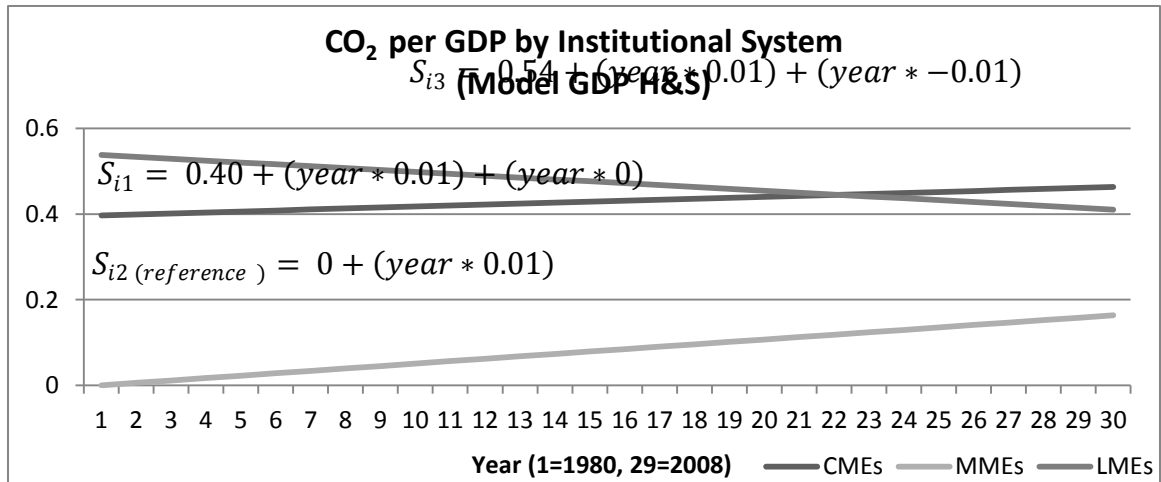
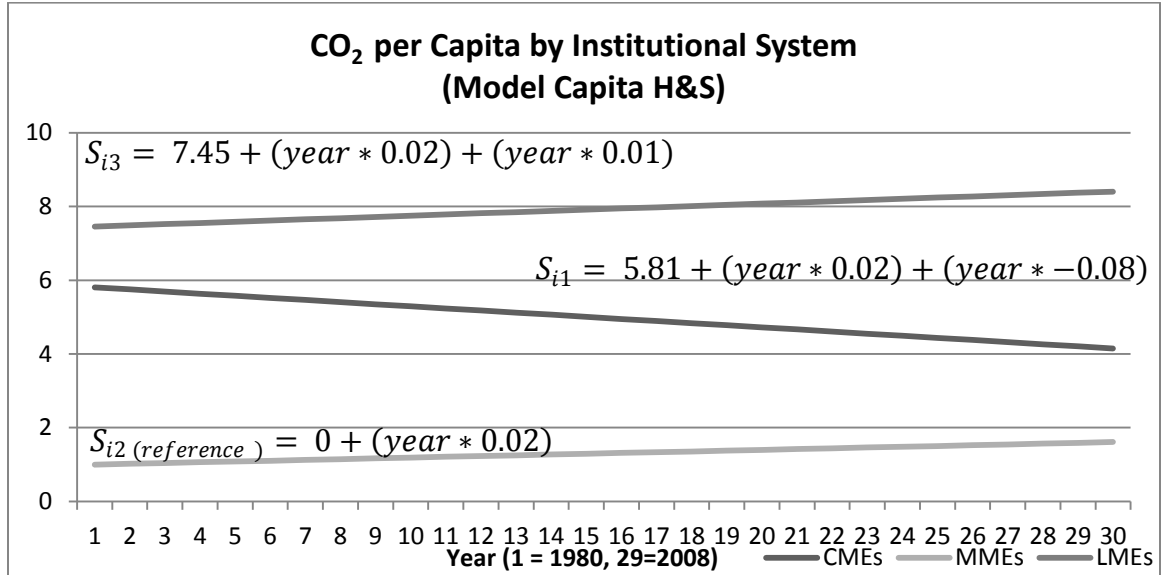


Figure 5.6: Estimated effect of institutional system (H&S) on CO<sub>2</sub> emissions per capita (top panel) and per dollar of GDP (bottom panel), which is additive to the effect of all other independent variables as well as the linear constant

### *Climate system*

Somewhat surprisingly, the categorical variable *climate system* did not reach statistical significance in preliminary univariable analyses and was not included in any of the models. While part of the reason why the *Nordic* CMEs perform less well than the *Continental* CMEs is arguably due to their increased demand for heating energy, their superior performance in comparison to Canada indicates that the particular challenges posed by extreme climates can be ameliorated through environmental strategies. At the same time, *Mediterranean* countries which arguably benefit from mild winter climates show the expected low CO<sub>2</sub> emissions. Together, these observations suggest that while potential climate effects might be offset by other more powerful country specific influences, climate effects might as well be picked up by the MME/*Mediterranean* categories in the respective models.

### *GDP per capita*

In line with the economics literature this study finds further evidence for the existence of the Environmental Kuznets Curve. *Ceteris paribus*, higher economic activity and productivity, evident in a higher GDP per capita, translates into higher CO<sub>2</sub> emissions per capita. At the same time a higher GDP per capita is related to lower CO<sub>2</sub> emissions per dollar of GDP. For instance, a one log (ten-fold) increase in GDP in model Capita H&S results in a 0.64 tons per capita increase in CO<sub>2</sub>. As this increase was significant on a logarithm level, on an additive level, increases in GDP correspond to progressively slower rise in emissions per unit of GDP. These results indicate that, while the countries under observation have made progress in decoupling their CO<sub>2</sub> emissions from GDP growth, their emissions continue to increase with productivity.

### *Population size*

Across all models, population size was found to be positively correlated with CO<sub>2</sub> emissions. However, the effect is much larger on emissions per dollar of GDP than per capita. For instance, a 10-fold increase in population size results in a 2.1 ton increase in CO<sub>2</sub> emissions per capita in model Capita H&S. In contrast the same increase results only in a 0.1 ton increase in carbon dioxide emissions per dollar of GDP in model GDP H&S.

### *Population density*

Population density failed to reach significance at the 10% level in univariable analysis for the CO<sub>2</sub> per capita model specifications and turned out to be significantly related to the dependent variable only in one of the CO<sub>2</sub> per GDP model specifications (H&S/Pryor3-FrChJp). An increase by one person per square kilometer decreased CO<sub>2</sub> emissions per GDP by 0.0006 tons. While high population density generates special challenges, it appears not to be an insurmountable barrier. Many of the highly ranked countries in the 2012 EPI (cf. section 5.2) are densely populated (e.g. the Netherlands), while a number of low ranked countries (e.g. Australia) are among the least densely populated countries.

### *Membership in the European Union*

*EU membership* turned out to be statistically correlated to CO<sub>2</sub> emissions across all 6 per capita models and two of the GDP models (GDP Pryor3, GDP H&S/Pryor3-FrJpCh). Across the former, membership in the European Union is correlated with an increase in CO<sub>2</sub> emissions per capita by 0.81 to 0.99 tons. This result can be partly explained by the substantial agricultural subsidies of the EU through the Common Agricultural Policy (CAP) program, which is further elaborated upon in the second section of this chapter.

## IMPLICATIONS

The above analysis of the relationship between a country's institutional system and its CO<sub>2</sub> emissions per capita and per GDP over time provide evidence for the third hypothesis. Differences among countries with regard to CO<sub>2</sub> emissions were shown to be systematically related to their institutional systems. Upwards trends in CO<sub>2</sub> emissions per capita in LMEs and MMEs were not always statistically significant across the models tested, but a downward trend in CO<sub>2</sub> emissions per capita in CME countries was statistically significant in all model specifications. The finding that the MMEs outperform both CMEs and LMEs with regard to CO<sub>2</sub> emissions (per capita and per GDP) provides further support for the generally accepted notion that emissions in above-average income countries are higher than emissions in below-average income countries independent of their income level (Bengochea-Moancho and Higón-Tamarit 2001).

The McKinsey Global Institute for instance predicts a rise in carbon dioxide emissions (from the base year of 2003 to 2020) in Northwestern Europe from 8.3 to 8.9 metric tons, in Southern Europe from 7.1 to 8.5 metric tons, and in the United States from 19.0 to 19.8 metric tons (Hartmann et al. 2008).<sup>38</sup> Moreover, it is plausible that the MME system specification picked up some climatic effects, given that all of countries in the category (with the exception of France) have remarkably similar climates. In this respect, previous research has found that the mild Mediterranean climate substantially reduces the amount of energy needed for residential heating, a major item on the *Nordic* countries'

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<sup>38</sup> In this study the Northwestern Europe grouping comprises Belgium, France, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Switzerland, and the United Kingdom; the Southern Europe grouping comprises Albania, Austria, Bosnia & Herzegovina, Croatia, Cyprus, Gibraltar, Greece, Italy, FYR of Macedonia, Malta, Montenegro, Portugal, Serbia, Slovenia, and Spain.



energy balance sheet. However, the fact that the variable *climate system* did not reach statistical significance indicates that climate effects might impact CO<sub>2</sub> emissions in ways not captured by this analysis. These findings are further supported by the results of the 2012 Trend Environmental Performance Index<sup>39</sup>, depicted in Figure 5.7, showing an average increase in CO<sub>2</sub> emissions per capita for LMEs by 9.3% over the last 10 years, 8.9% for CMEs, and 8.8% for MMEs.

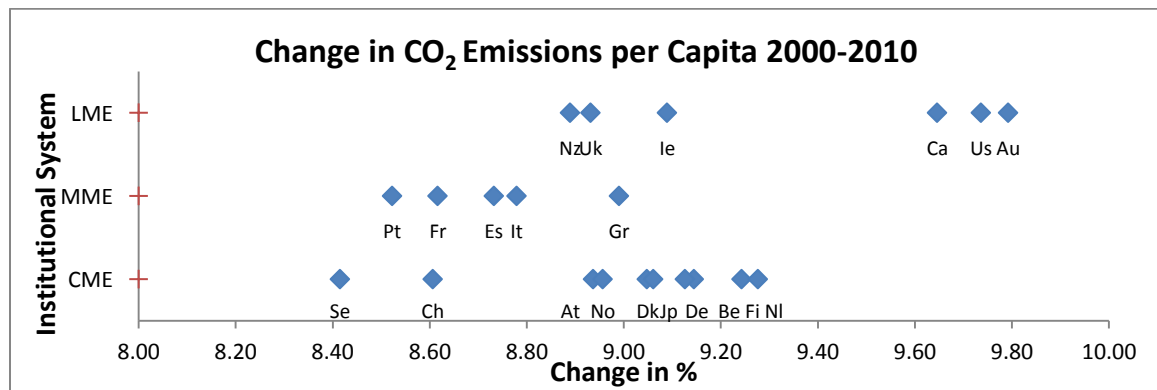


Figure 5.7: Percent changes in CO<sub>2</sub> emissions per capita (2000-2010), by country and institutional system (H&S) according to 2012 Trend EPI

However, in addition to general developments, the 2012 Trend EPI results reveal significant variance within each category, illustrated in Figure 5.8. For instance, the LME Australia not only experienced the highest increase in CO<sub>2</sub> emissions per capita (9.79%) over the decade from 2000 to 2010 but also the lowest reduction in CO<sub>2</sub> emissions per

<sup>39</sup> For further information on the 2012 Environmental Performance Index (EPI) and Trend EPI, see section 5.2, p.208.

dollar of GDP (0.49%). In contrast, its neighboring LME, New Zealand, experienced the lowest increase in CO<sub>2</sub> emissions per capita (8.89%) of all 6 LMEs and achieved a significantly greater reduction in CO<sub>2</sub> emissions per dollar of GDP (1.03%).

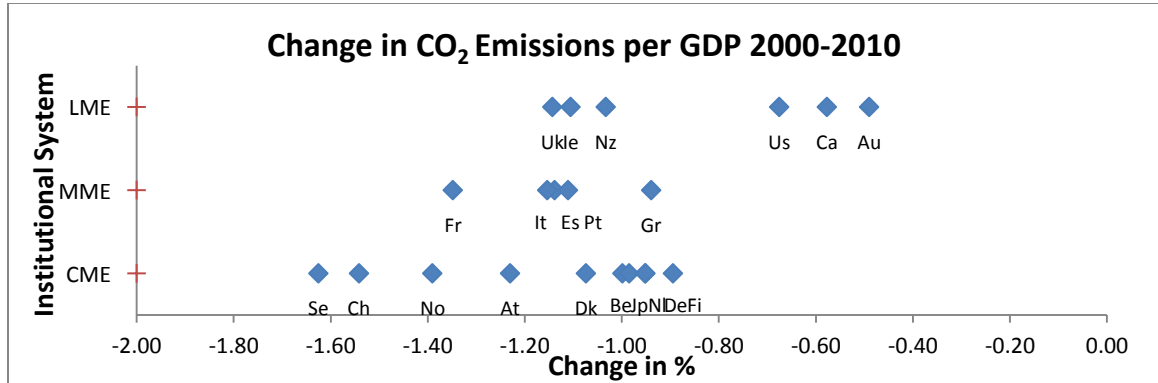


Figure 5.8: Percent changes in CO<sub>2</sub> emissions per dollar of GDP (2000-2010) by country and institutional system (H&S) according to 2012 Trend EPI

The observed variation within systems warrants a further exploration of country-specific determinants of environmental performance. Moreover, it is important to understand that while CO<sub>2</sub> (and CO<sub>2</sub> equivalent) emissions are the best known and most widely used measurement of environmental performance, a great number of supplemental and alternative indicators exist. In order to obtain a more complete picture of countries' overall environmental performance, a number of additional performance indicators, derived from the 2012 Environmental Performance Index and the Trend Environmental Performance Index will be presented, assessed, and discussed in the following section.

## 5.2 ALTERNATIVE PERFORMANCE INDICATORS: 2012 EPI AND TREND EPI

Unfortunately, for many important environmental performance indicators, data availability and quality did not suffice to include them in the longitudinal analyses - a problem that all too frequently constrains research in comparative political economy in general and in comparative environmental politics in particular. Among the most extensive and comprehensive recent attempts to provide a quantitative basis for a comparison of countries' overall as well as disaggregate environmental performance are the 2012 Environmental Performance Index (EPI) and the Pilot Trend Environmental Performance Index (Trend EPI).<sup>40</sup> The two indices rank 149 countries according to their performance with regard to 22 weighted indicators (based on best available data in core policy categories) collected for the most recent year of data available (EPI) as well as for their respective performance over the last decade (Trend EPI).

The indices, whose underlying indicator framework is displayed in Table 5.5, build on a short historical time series that for the first time allows the tracking of several indicators of countries' environmental performance over several years. In order to obtain a more comprehensive picture of the actual environmental performance of the 21 OECD countries under observation, and to further explore the relationship between a country's institutional system and its environmental policies, the objectives, policy categories, and indicators highlighted in gray are analyzed in greater detail in the following subsections.

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<sup>40</sup> The two indices were created by Yale University's Center for Environmental Law and Policy and Columbia University's Center for International Earth Science Information Network, in collaboration with the World Economic Forum in Geneva and the Joint Research Centre of the European Commission in Ispra. Methodology, full results, and a comprehensive report of key findings of the 2012 Environmental Performance Index and the Pilot Trend Environmental Performance Index can be accessed online at: [www.epi.yale.edu](http://www.epi.yale.edu).

As the focus of this study is the exploration of the relationship between institutional systems, ecosystem vitality and natural resource management, not human health, the objective *Environmental Health* was excluded from the analysis. Moreover, the policy category *Fisheries* and the indicator *Marine Protected Areas* are not further discussed as there are no data available for the two landlocked countries Austria and Switzerland. Finally, the indicators *Forest Growing Stock* and *Critical Habitat Protection* are excluded because no data is available for Australia and Switzerland for the former and Belgium, Denmark, Finland, France, Germany, Greece, Ireland, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom for the latter.

Table 5.5: Indicator framework of the 2012 Environmental Performance Index\*

Index	Objectives	Aggregation Weighting	Policy Categories	Aggregation Weighting	Indicators	Aggregation Weighting
EPI 2012	Environmental Health	30%	Environmental Health	15%	Child Mortality	15%
			Air (Effects on Human Health)	7.5%	Particulate Matter	3.75%
	Ecosystem Vitality	70%	Water (Effects on Human Health)	7.5%	Indoor Air Pollution	3.75%
			Air (Ecosystem Effects)	8.75%	Access to Sanitation	3.75%
			Water (Ecosystem Effects)	8.75%	Access to Drinking Water	3.75%
			Biodiversity and Habitat	17.5%	SO <sub>2</sub> per Capita	4.38%
			Agriculture	5.83%	SO <sub>2</sub> per \$ Capita	4.38%
				Forests	5.83%	Change in Water Quantity
			Fisheries	5.83%	Critical Habitat Protection	4.38%
				Climate Change and Energy	17.5%	Biome Protection
						Marine Protected Areas
					Agricultural Subsidies	3.89%
			Pesticide Regulation	1.94%		
			Forest Growing Stock	1.94%		
		Change in Forest Cover	1.94%			
		Forest Loss	1.94%			
		Coastal Shelf Fishing Pr.	2.92%			
		Fish Stocks Overexploited	2.92%			
		CO <sub>2</sub> per Capita	6.13%			
		CO <sub>2</sub> per \$ GDP	6.13%			
		CO <sub>2</sub> per kWh	2.63%			
		Renewable Energy	2.63%			

Source: 2012 Environmental Performance Index; Full Report accessible online at: <http://epi.yale.edu/sites/default/files/downloads/2012-epi-full-report.pdf>

\* Objective, policy categories, and indicators highlighted in gray are further analyzed below.

## 2012 EPI AND TREND EPI RANKINGS

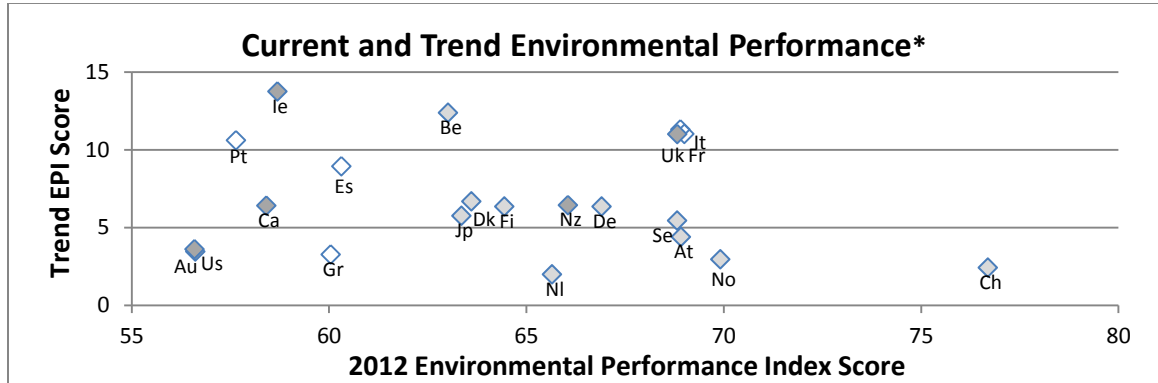
While the authors of the indices assign weights to the indicators, policy categories, and objectives in order to create the countries' final scores (cf. Table 5.6), they explicitly acknowledge that “there is no clear consensus among the expert community on composite index construction as to how to best determine a methodological strategy for combining diverse issues, such as those represented in the EPI” (Emerson et al. 2012). Table 5.6 shows the 21 OECD countries under observation, their EPI and Trend EPI rankings and aggregate scores as well as their respective institutional systems (H&S classification).

Table 5.6: 2012 EPI and Trend EPI rankings of all 21 OEC countries under observation, by aggregate score and institutional system (H&S)

2012 Environmental Performance Index				Trend Environmental Performance Index			
Country	System*	Rank	Score	Country	System*	Rank	Score
Switzerland	CME	1	76.69	Ireland	LME	8	13.75
Norway	CME	3	69.92	Belgium	CME	9	12.36
France	MME	6	69.00	Italy	MME	12	11.31
Austria	CME	7	68.92	France	MME	19	11.02
Italy	MME	8	68.90	Untd. Kingdom	LME	20	11.01
Untd. Kingdom	LME	9	68.82	Portugal	MME	24	10.61
Sweden	CME	9	68.82	Spain	MME	30	8.94
Germany	CME	11	66.91	Denmark	CME	45	6.67
New Zealand	LME	14	66.05	New Zealand	LME	50	6.44
Netherlands	CME	16	65.65	Canada	LME	52	6.41
Finland	CME	19	64.44	Finland	CME	54	6.35
Denmark	CME	21	63.61	Germany	CME	56	6.34
Japan	CME	23	63.36	Japan	CME	60	5.74
Belgium	CME	24	63.02	Sweden	CME	63	5.44
Spain	MME	32	60.31	Austria	CME	71	4.38
Greece	MME	33	60.04	United States	LME	77	3.61
Ireland	LME	36	58.69	Australia	LME	79	3.46
Canada	LME	37	58.41	Greece	MME	81	3.27
Portugal	MME	41	57.64	Norway	CME	84	2.95
Australia	LME	48	56.61	Switzerland	CME	89	2.42
United States	LME	49	56.59	Netherlands	CME	92	1.98

\*Liberal market economies highlighted in dark gray, coordinated market economies highlighted in light gray

While most 2012 EPI data date from 2010, the Trend EPI data cover the time period from 2000 to 2010. Figure 5.9 graphically displays the comparative performance of the 21 countries by current EPI values and EPI trend values.



\*Liberal market economies highlighted in dark gray, coordinated market economies highlighted in light gray

Figure 5.9: Twenty-one countries by 2012 EPI (x-axis) and Trend EPI (y-axis) scores

The 2012 EPI results displayed in Table 5.6 and Figure 5.9 support the findings of the longitudinal regression conducted in the previous section. All 10 coordinated market economies under observation are ranked in the top 30 of the 132 countries ranked by the 2012 EPI, with 4 of them (Switzerland, Norway, Austria, and Sweden) achieving top 10 positions. In contrast, only 2 (the United Kingdom and New Zealand) of the 6 liberal Market Economies make it into the top 30. The environmental performance of the Mixed Market Economies varies significantly, with two members (France and Italy) of the group scoring in the top 10 and the other 3 not making the top 30. The average 2012 EPI score

for CMEs is 67.13, for MMEs 63.14, and for LMEs 60.86, suggesting that CMEs outperform MMEs and LMEs with regard to overall environmental performance.

The results for the Trend EPI are more mixed, with only one CME and two LMEs in the top 30. Three of the former, Switzerland, Norway (the top performers in the 2012 EPI), and the Netherlands (ranked 84th, 89th, and 92nd respectively) bring up the rear of the 21 observed countries. While these results might appear counterintuitive, the 2012 EPI report cautions that “[f]or countries near the top of the EPI rankings, the Trend EPI results may not be particularly meaningful because many of the longtime leaders have limited room for improvement” (Emerson et al. 2012, 28). It is noteworthy that four of the five MMEs make it into the top 30, indicating that they have made most progress in comparison to their peers. The performance of the liberal market economies illustrated in Figure 5.9 reveals an interesting development: The two LMEs that are members of the European Union, Ireland and the United Kingdom, show the greatest overall improvement in their peer group. New Zealand’s remarkable performance is a particularly interesting case. It is arguably largely due to its substantial country-wide effort to establish itself as a green tourism destination (Morgan, Pritchard, and Piggott 2002). With tourism being its biggest industry, New Zealand formulated a comprehensive niche-market “clean and green” policy strategy (Bührs and Bartlett 1993) and implemented a global marketing campaign – “100% pure New Zealand” – as early as 1999. Over the past decade, the realization of the substantial potential of the “100% pure” brand to provide a long-term competitive advantage led to strong political and business incentives to establish New Zealand as a leader in environmental and climate protection, green technology development, and sustainable tourism and agriculture (Bibbee 2011).



Country rankings provide an important overview of the observed countries' comparative environmental performance. However, the 2012 EPI and Trend EPI rankings by themselves should be understood only as indicative as they tend to gloss over country-specific circumstances, such as climatic, socioeconomic, topographic, or even cultural conditions (Murota 1985), that might impact if not determine countries' ecological footprint. In an attempt to further explore these potential confounders, the following subsections assess the comparative performance of the 21 countries under investigation with regard to 6 policy categories and 12 respective performance indicators (cf. Table 5.6). Particular attention is given to leaders, laggards, and outliers - countries that rank significantly higher or lower than their peers' rankings suggest.

### *Air Quality*

The first component of the 2012 EPI's *Ecosystem Vitality* objective is the policy category *Air Quality* (effects on ecosystems). The evaluation of each country's air quality is based on a proximity-to-target methodology whereby performance is measured based on a country's position within a range established by the lowest performing country (equivalent to 0 on a 0-100 scale) and the target (equivalent to 100)<sup>41</sup>. Figure 5.10 displays the policy category's scores for all 21 countries under observation by institutional system.<sup>42</sup>

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<sup>41</sup> The proximity-to-target methodology was applied in calculating the scores for all discussed policy categories and indicators unless the use of an alternative measurement is explicitly stated. Targets are derived from international treaties, scientific criteria, and expert judgment. Achieving or exceeding the target is always equivalent to a score of 100 on the 0-100 scale. For further information on the proximity-to-target measure, see: <http://epi.yale.edu/sites/default/files/downloads/2012-epi-full-report.pdf>, p.17.

<sup>42</sup> Hall and Soskice's (2001) institutional system classification, categorizing the 21 countries under observation into the three groups Liberal Market Economies, Mixed Market Economies, and Coordinated Market Economies is used throughout this section.

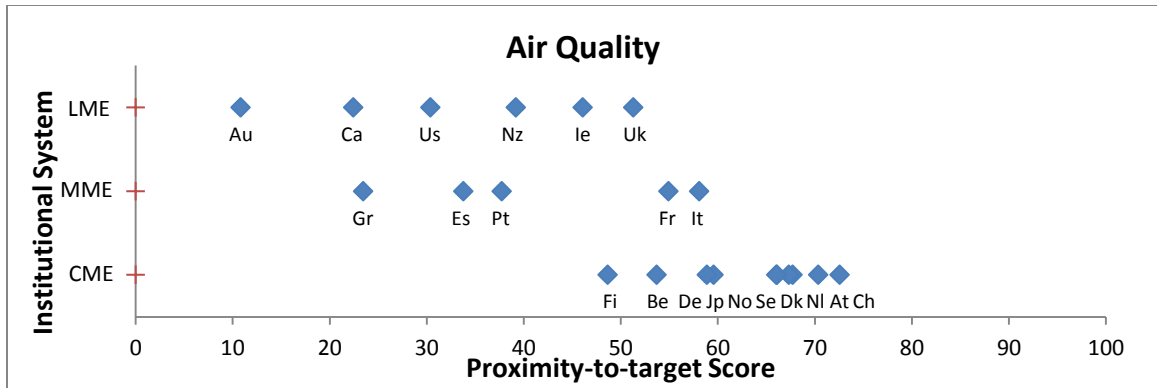


Figure 5.10: Air quality in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

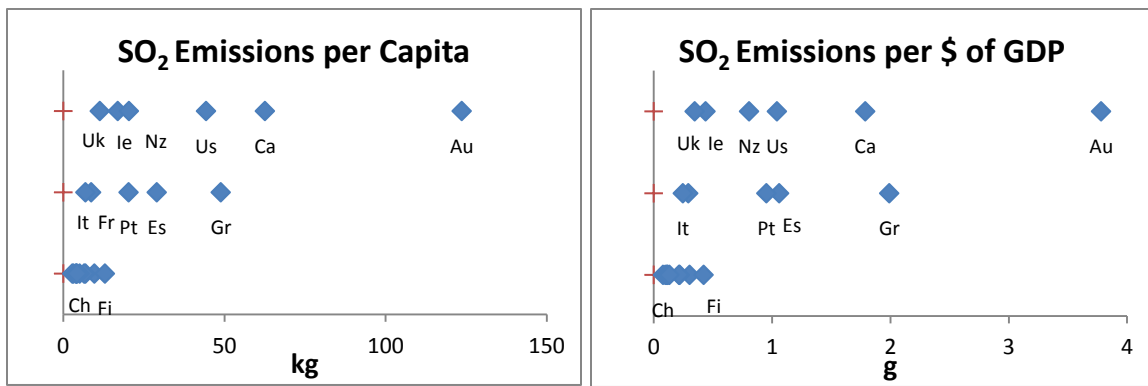


Figure 5.11: SO<sub>2</sub> emissions of 21 countries in 2010, measured in kg per capita (left panel) and kg per dollar of GDP (right panel), by institutional system (H&S)

The 2012 EPI results for the policy category *Air* (effects on ecosystems) and its underlying indicators *SO<sub>2</sub> per capita* and *SO<sub>2</sub> per dollar of GDP* presented in Figure 5.11 provide further support for hypothesis three. Eight of the 10 top performing countries in the sample are CMEs and two are MMEs, while all 6 LMEs are among the 10 worst performing economies. Finland has the highest SO<sub>2</sub> emissions per capita and per dollar of GDP in the CME category (while still outperforming all but one LME). The country's sub-par performance with regard to this set of indicators is largely due to specific features

of the Finnish energy production system (including the combustion of peat (11%) and biomass (8%) and the extensive use of fluidised bed boilers) and to the importance of the pulp and paper industry for the economy. This sector is responsible for about 12% of the country's annual SO<sub>2</sub> emissions (Karvosenoja and Johansson 2003).

Ireland and the United Kingdom perform best in the LME category, which is likely related to their EU membership. For instance, the *Directive 2001/81/EC of the European Parliament and the Council on National Emission Ceilings* set explicit upper limits for each member state for total annual emissions of SO<sub>2</sub> which had to be reached by 2010 (European Parliament and Council of the European Union 2001). The Trend EPI results for both countries support this assessment: Irish SO<sub>2</sub> emissions declined from 2000 to 2010 by 6.7% while the United Kingdom succeeded in reducing its emissions by 8.6%. Of all 21 countries under observation, Australia performs worst with regard to the policy category Air (effects on ecosystems) as well as both of its underlying indicators by a wide margin. Although parts of the country's SO<sub>2</sub> emissions originate from bushfires, the vast majority are anthropogenic, stemming predominantly from fossil fuel combustion. For instance, over 90% of the country's electricity is generated by burning black and brown coal as well as natural gas (ESAA 1997). In contrast, Switzerland's top ranking in the 2012 EPI is in large part due to its effective air pollution control, ranking first in the category *Air Quality* (effects on ecosystems) as well as *Air Quality* (effects on human health, not shown). Unlike Australia, the Alpine country derives most of its energy from hydro (56.1%) and nuclear power plants (39.0%) (Swiss Federal Office of Energy 2008)<sup>43</sup>, both of which produce negligible SO<sub>2</sub> emissions.

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<sup>43</sup> For further information, see the discussion of the policy category Energy and Climate below.

## Water Quantity

The second component of the *Ecosystem Vitality* objective is the category *Water Quantity* (effects on ecosystems). Change in *Water Quantity*, measuring the average change in river runoff from natural (pre-human) conditions is the only indicator contained in the 2012 EPI that addresses the issue of stress on aquatic ecosystems. Figure 5.12 displays the proximity-to-target score for all 21 countries under observation by institutional system and Figure 5.13 shows the percent change in river flow from a pre-industrial state.

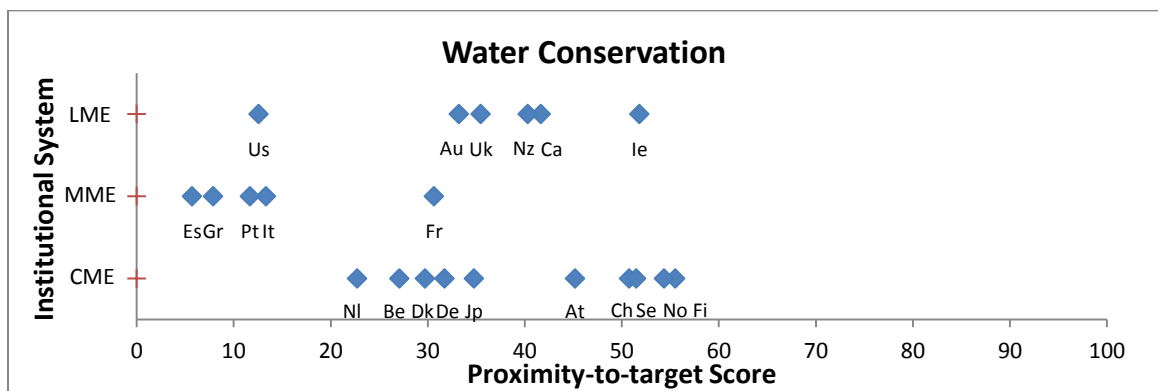


Figure 5.12: Water conservation in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

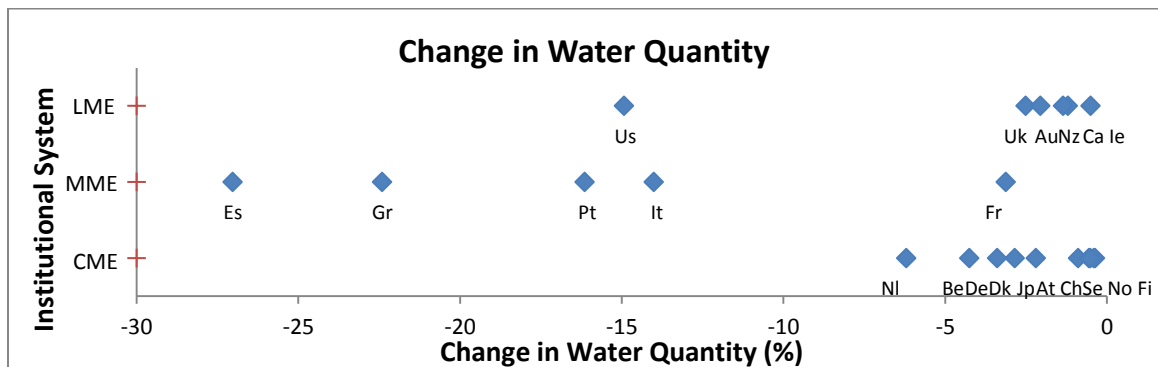


Figure 5.13: Change in river flow from pre-industrial natural state for 21 countries in 2010, measured in %, by institutional system (H&S)

The MMEs Spain, Greece, Portugal, and Italy have experienced the largest decline in water quantity over the years. However, these developments are arguably primarily driven by the precipitation patterns and climatic circumstances of the Mediterranean region combined with extensive agricultural water use. The United States' decline in water quantity is equally driven by extensive agricultural activities as well as the growth of urban centers in the Southern and Western parts of the country (Zektser, Loáiciga, and Wolf 2005). Explicit correlations between countries' institutional systems and their performance with regard to this category are not evident and the differences among the remaining countries are comparatively minor. Not surprisingly, the sparsely populated and precipitation rich *Nordic* European countries, as well as Ireland, Canada, and Switzerland are the top performers with regard to water quantity preservation.

#### *Biodiversity and Habitat Protection*

The policy category *Biodiversity and Habitat Protection* is based on the indicators *Biome Protection*, *Marine Protected Areas* and *Critical Habitat Protection*. The latter two are not discussed due to the fact that they do not apply to all 21 countries in the sample. Figure 5.14 displays the proximity-to-target score for all 21 countries under observation by institutional system. Figure 5.15 shows the proximity-to-target score for each country with regard to the indicator *Biome Protection*.

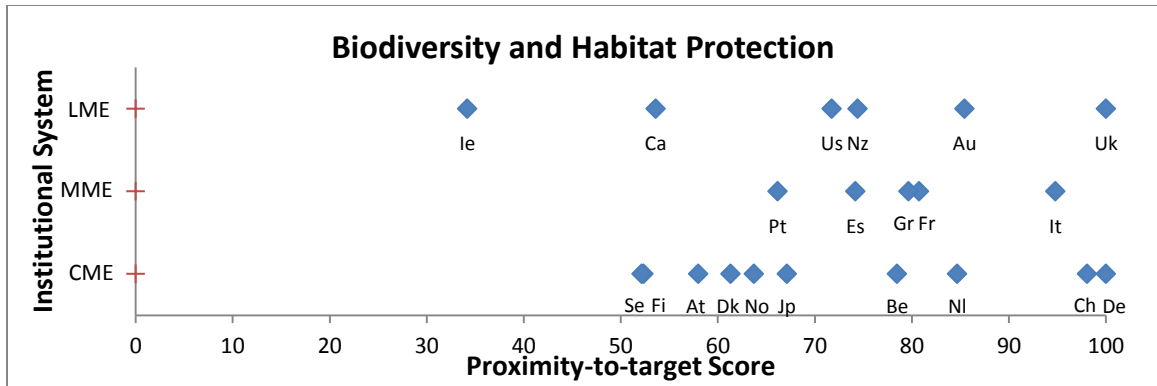


Figure 5.14: Biodiversity and habitat protection in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

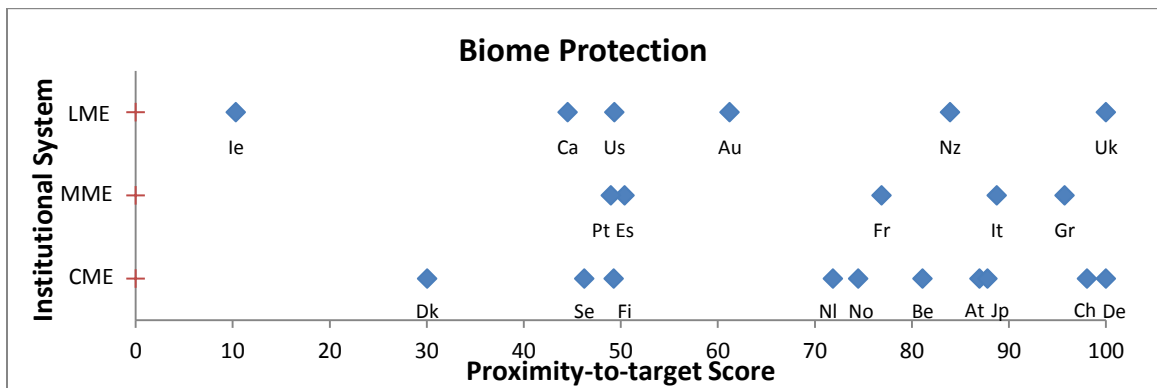


Figure 5.15: Biome protection in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

Countries' performance with regard to the policy category *Biodiversity and Habitat Protection* reveals an interesting pattern in the CME category: Led by Germany, the *Continental European* countries (with the exception of Austria) outperform the *Nordic* countries Denmark, Sweden, Finland, and Norway. The lowest performance with regard to this policy category is reported for Ireland. Assessing the conservation status of habitats and species of the country in 2008, the Irish National Parks and Wildlife Service

Department's report on the Status of EU Protected Habitats and Species in Ireland finds that only 7% of the habitats examined were in good status, with 46% in an inadequate and 47% in a bad condition. Habitats associated with water were particularly affected as even moderate declines in water quality due to recreation and development pressure rendered rivers and lakes unsuitable for many fish and invertebrate species. It concludes that "after nearly a century of afforestation, some 40 years of agricultural intensification and a decade of economic boom, it should come as no surprise to find that these habitats are under significant pressure (National Parks and Wildlife Service Department 2008). At the high of the economic boom of the 'Celtic Tiger', The Irish Times already cautioned that "Ireland's record rate of economic development is causing an acceleration of pressures on the environment" (The Irish Times 2000). Among the most severe threats to the environment listed in the article are the doubling of both housing completions and industrial production since the beginning of the economic boom, the increase of the number of vehicles by more than 50%, changes on the land surface resulting from road building, intensifying agriculture, afforestation, quarrying, mineral exploitation, rapid recreational and tourism developments, as well as the continuing deterioration of water quality in one-third of the river system.

### *Agriculture*

The fourth policy category, *Agriculture*, comprises the indicators *Agricultural Subsidies* and *Pesticide Regulation*. The latter is not included in the analysis due to missing data for Australia and Spain. Figure 5.16 displays the proximity-to-target score for all 21 countries under observation by institutional system for the policy category and Figure 5.17 shows the proximity-to-target score for the indicator.

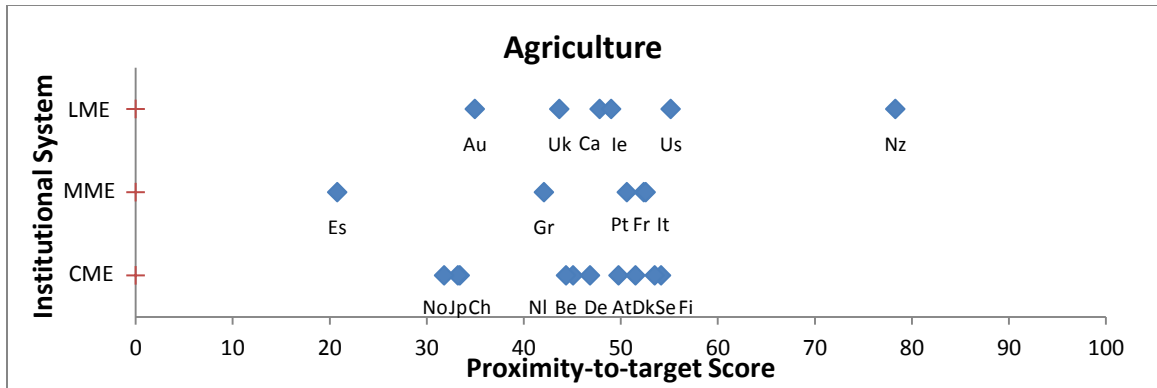


Figure 5.16: Environmental performance of the agricultural sector in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

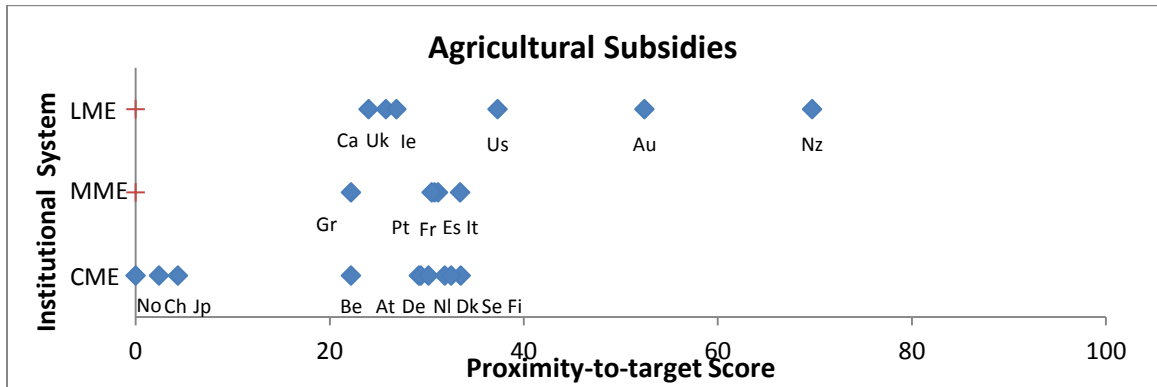


Figure 5.17: Agricultural subsidies in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

Due to the fact that subsidies for agricultural protection and agrochemical inputs generally exacerbate environmental pressures (OECD Working Group on Environmental Information and Outlook 2004), the 2012 EPI's measure of the magnitude of Agricultural Subsidies specifies a target of zero. Not surprisingly, the country scores for the *Agricultural Subsidies* indicator clearly reflect the influence of the European Union's Common Agricultural Policy (CAP). The low proximity-to-target scores of all member



states of the European Union, ranging from 22.22 (Belgium) to 33.51 (Finland) penalize the countries for the existence of the massive program which at €43.8bn consumed 31% of the total budget of the European Union in 2010. These empirical findings of the 2012 EPI are in line with Winter's (2000) and Jokinen's (2000) conclusions that the European CAP has a retarding or even inimical effect on the implementation of sustainable agricultural practices.

Similarly, Switzerland, which scores a perfect 100 in eight environmental indicators, including *Pesticide Regulation*, and Norway, the countries with the highest overall 2012 EPI scores, as well as Japan maintain extensive subsidy programs for their agricultural sectors. The same holds true for the *Fisheries Policy* category (not discussed here), where cultural and topographical factors significantly reduce Japan's score. In contrast, New Zealand's top ranking reflects that it eliminated virtually all agricultural subsidies as early as 1984 (Clemens and Babcock 2004). Accompanied by extensive trade liberalization agreements, this step, considered by "about every other government in an advanced industrial nation [...] both politically and economically impossible" turned New Zealand into one of the most open agricultural markets in the world (Arnold 2007).

### *Forests*

The *Forests* policy category contains the three alternative indicators *Forest Growing Stock*, *Change in Forest Cover* and *Forest Loss* which represent alternative measurements of forest loss. The former is not included in the analysis due to missing data for Australia and New Zealand. Figure 5.18 displays the proximity-to-target score for all 21 countries under observation by institutional system for the policy category and Figure 5.19 shows the proximity-to-target score for the two indicators.

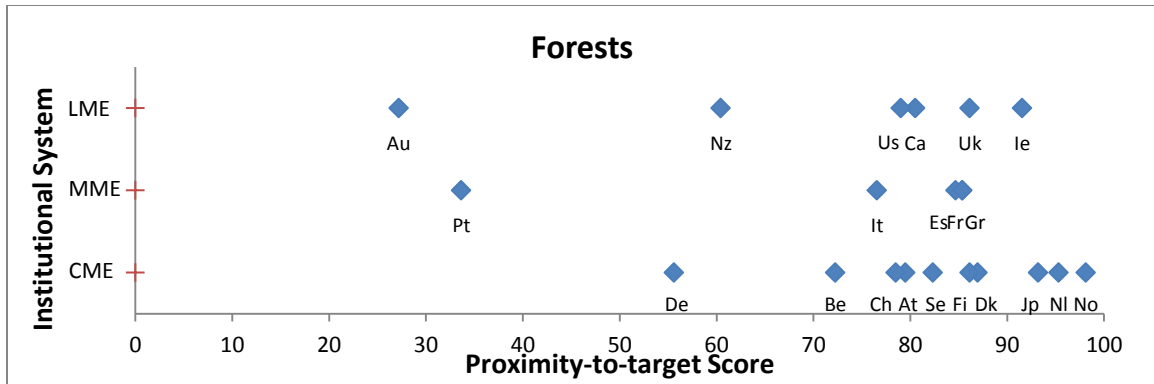


Figure 5.18: Environmental performance of the Forestry sector in 21 countries in 2010, measured as proximity-to-target score, by Institutional System

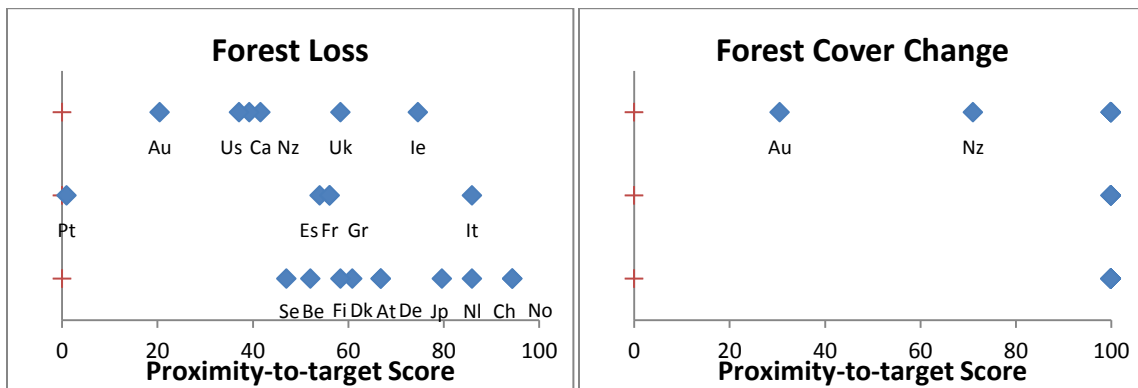


Figure 5.19: Forest loss (left panel) and cover change (right panel) in 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S specification)

The LMEs (with the exception of the two European members of the group) reached the lowest proximity-to-target scores for the indicator *Forest Loss*. A recent study on global forest development found that forests continue to decline due to natural and anthropogenic causes (Hansen, Stehman, and Potapov 2009). Australia experienced the highest gross forest loss of any country outside South America in the dry tropics biome.

In nearly every Australian state, severe drought and fire were the principal causes of forest loss (Food and Agriculture Organization of the United Nations 2012).

Thirty percent of total global forest loss occurred in North America alone. Canada lost 61,776 square miles (5.2%) and the United States lost 46,332 square miles (6%) of their forests in just half a decade. Although wildfires and beetle infestation in Alaska and the western US contributed to the development, large-scale logging activities in the southeast, along the western coast, and in the Midwest play a major role in the nation's forest loss. The Portuguese score appears to be a data entry error in the original dataset as the country's forest cover expanded from 12,845 square miles in 2000 to 13,343 square miles in 2010, an increase of 3.9%. This interpretation is supported by Portugal's performance with regard to the *Forest Cover Change* indicator (Figure 5.19).

Moreover, discrepancy with regard to the *Forest Loss* indicator might be due to the fact that the satellite supplied data is only available in five-year increments. Nineteen of the 21 countries under observation achieve a perfect proximity-to-target-score of 100 for the latter indicator. The scores reflect the encouraging fact that forest areas are currently expanding across most of the developing world.

### *Energy and Climate*

Finally, the countries' scores for the *Energy and Climate* policy category are based on their performance with regard to four indicators: *Carbon Dioxide Emissions per Capita*, *Carbon Dioxide Emissions per GDP*, *Carbon Dioxide Emissions per Kilowatt Hour* and *Renewable Electricity*. Figure 5.20 displays the proximity-to-target score for all 21 countries under observation by institutional system for the policy category and Figure 5.21 shows the proximity-to-target score for the four indicators.

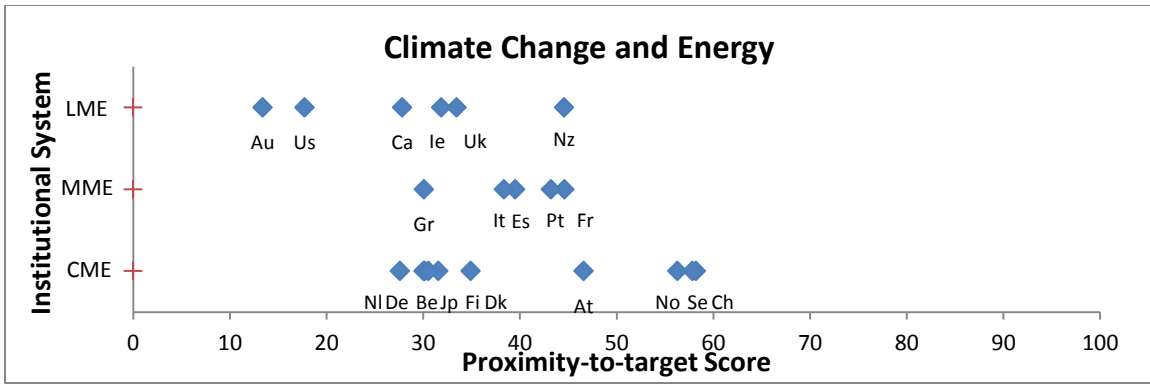


Figure 5.20: Climate change and energy performance of 21 countries in 2010, measured as proximity-to-target score, by institutional system (H&S)

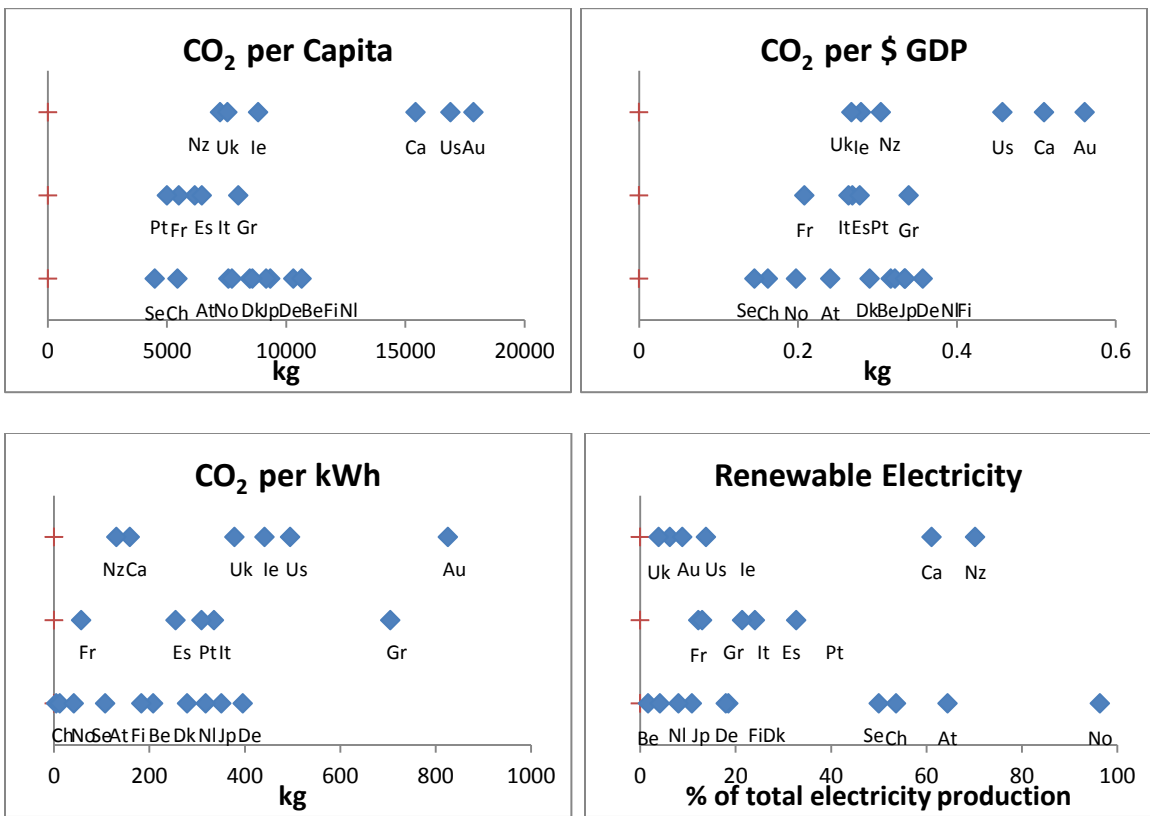


Figure 5.21: CO<sub>2</sub> emissions per capita (upper left panel), per GDP (upper right panel), and per kWh (lower left panel), measured in kg; share of renewable electricity in total electricity production (lower right panel), measured in percent, in 21 countries in 2010, by institutional system (H&S)

The countries' scores for the indicators *Carbon Dioxide Emissions per Capita* and *Carbon Dioxide Emissions per GDP* reflect the results of the panel data analysis conducted in the previous section. Three CMEs, Switzerland, Sweden, and Norway, lead with regard to the policy category *Energy and Climate*. Even though all three countries generate large amounts of their energy from renewable resources (Switzerland receives 56% of its electricity from hydropower plants (Swiss Federal Office of Energy 2008), Sweden 53% (Energy Ministry Sweden 2010) and Norway 99% (Norwegian Water Resources and Energy Directorate 2012) they maintain large governmental programs to further reduce CO<sub>2</sub> emissions. The Norwegian government, for instance, plans to achieve carbon neutrality as early as 2030 (Rosenthal 2008) This is particularly remarkable in light of its economic dependence on its offshore oil rigs which generate substantial greenhouses gases.

In contrast, no such policy objectives are present in the LMEs Canada, Australia, and the United States. Their reluctance to commit to international agreements with regard to climate change is further evident in their treatment of the Kyoto Protocol, the first globally negotiated and widely adopted set of ecological protection guidelines. While Australia eventually ratified the agreement in 2007, the United States never took this step, and Canada formally withdrew from the accord in 2011.

The scores of Ireland and the United Kingdom reflect those of the continental European EU members, while New Zealand's impressive results reflect its green growth strategy (cf. above). The country scores highest among the LMEs with regard to overall performance as well as 3 out of the 4 underlying indicators and outperforms most other countries as well. For comparative purposes, Figure 5.22 depicts the total greenhouse

gas<sup>44</sup> emissions per capita of all 21 countries under observation for the years 1990, 2000, and 2008. The data were not derived from the EPI database but from the Emission Database for Global Atmospheric Research (EDGAR).

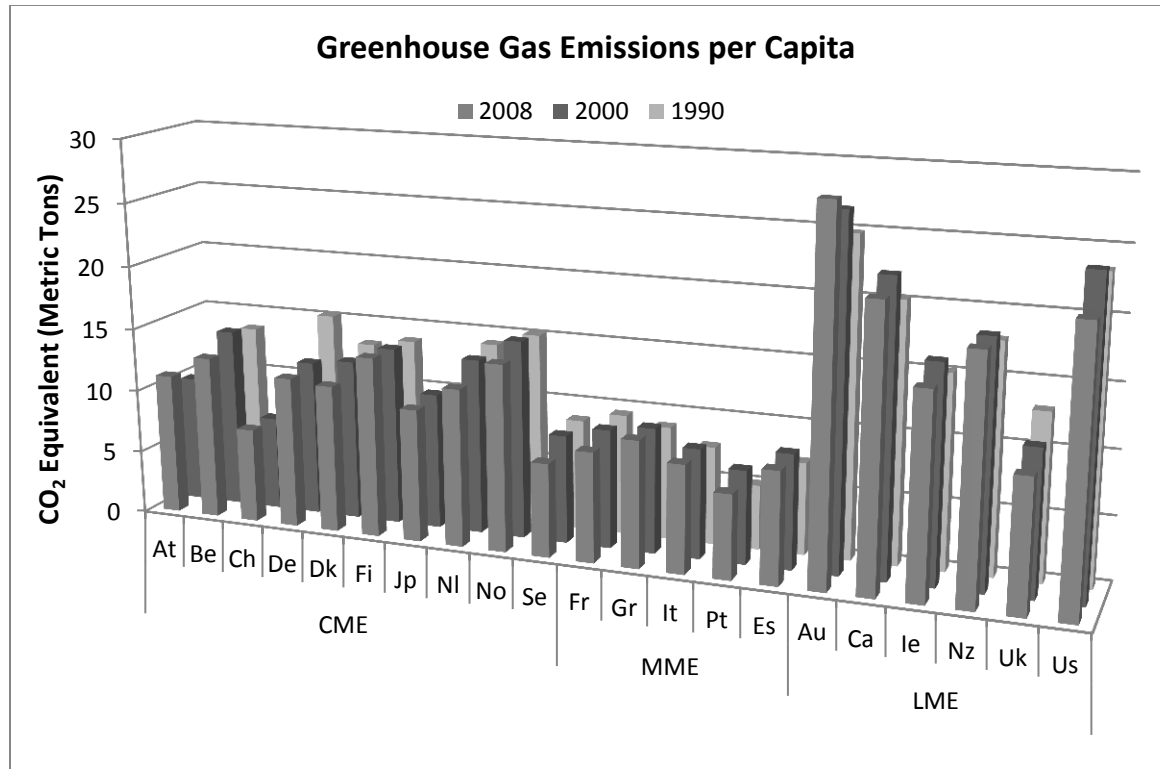


Figure 5.22: Greenhouse gas emissions per capita for all 21 countries under observation (grouped by institutional system) in the years 1990, 2000, and 2008. Source: Emission Database for Global Atmospheric Research (EDGAR).

<sup>44</sup> Including: CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, SF<sub>6</sub>.

### 5.3 CONCLUSION

In their efforts to address the environmental concerns of their populations, some countries are more receptive to the promises of individual private incentives while others favor collectivist government-backed regulatory regimes. The principal aims of this chapter were to investigate whether different institutional systems lead to differences in environmental outcomes and to uncover the structural conditions that promote or inhibit sound environmental management. It was furthermore intended to inform the broader debate on the efficiency of governmental environmental regulation vis-à-vis market forces and private regulatory regimes. Due to superior performance with regard to public accountability, implementation, and enforcement, countries emphasizing coordinated, government-backed strategies and regulatory regimes were expected to outperform those countries currently focusing on individualistic self-regulation. The findings of the analyses conducted above seem to support this premise. Confirming the importance of a number of other determinants, the results indicate that institutional frameworks appear to play a crucial role in determining countries' environmental performance. The observed trend lends support to hypothesis three, stating that coordinated market economies outperform liberal market economies with regard to environmental outcomes.

National environmental performances were assessed and compared by applying a two-pronged approach. First, a longitudinal analysis of the CO<sub>2</sub> emissions (per capita and per GDP) of each of the 21 countries under observation was conducted. In a second step, the current performance of the countries with regard to the policy categories Air, Water, Biodiversity and Habitat Protection, Agriculture, Forests, and Energy and Climate and their respective indicators, as defined by the widely used 2012 Environmental

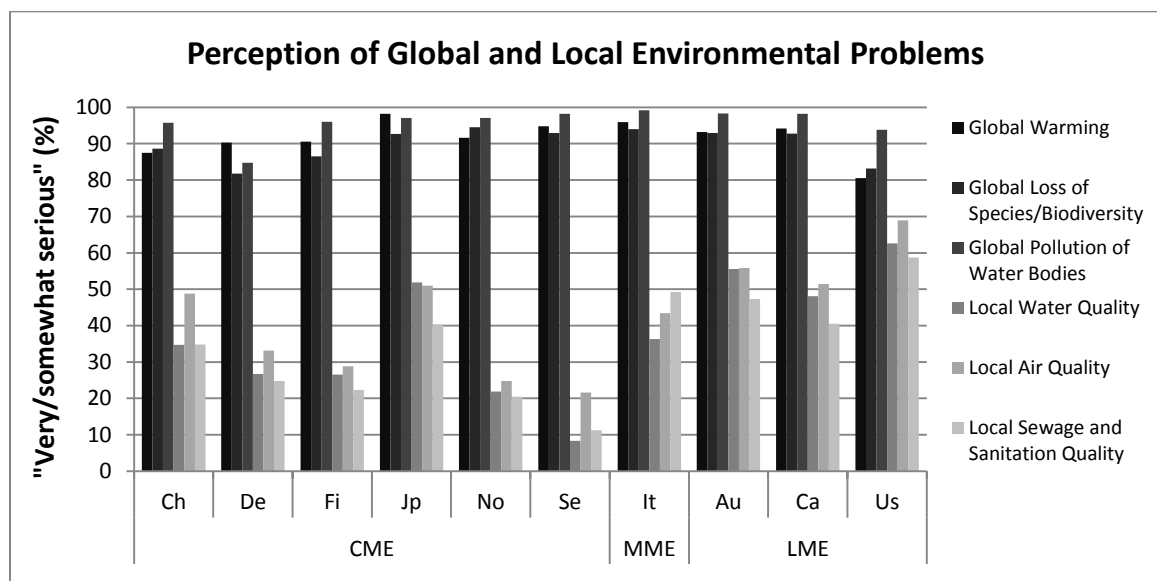
Performance Index, was compared. It was found that substantial environmental protection efforts are not limited to those countries experiencing the most serious environmental problems. Instead, they are significantly shaped by countries' institutional frameworks. While it is important to note that the results of the longitudinal analysis need to be interpreted in a probabilistic rather than a deterministic manner, they nevertheless suggest that for now coordinated market economies, in which governments have strong regulatory capacities, outperform liberal market economies, in which regulation is more limited with regard to reducing national CO<sub>2</sub> emissions. Reflecting the results of previous studies that highlight their advantageous climatic circumstances and their comparatively lower economic development, the *Mediterranean* countries were found to have the lowest CO<sub>2</sub> emissions per capita and per GDP.

The analysis of the 2012 EPI and Trend EPI complemented the longitudinal study and substantiated its findings. The *Nordic* CMEs, for instance, achieve high scores with regard to most environmental performance indicators (and their populations show remarkably strong support for environmental regulation (Inglehart 1995; Maxwell, Lyon, and Hackett 1998) despite their large 'barren' land areas and low population densities).

Interpreting the remarkable success of Denmark, Finland, Norway, and Sweden as a function of concerted policy efforts and strong commitments to environmental values across their publics and business communities, Christiansen and Lundqvist (1996) speak of a unique 'Nordic Environmental Policy Model'. In contrast the LMEs Australia, the United States, and Canada, frequently score lowest with regard to the analyzed environmental performance as well as trend performance indicators. These findings are not only in line with previous studies, but also correspond remarkably well to citizens'



perception of the state of the environment in their respective countries: The fifth wave of the World Values Survey (2005 to 2008) contains six questions that were explicitly designed to capture respondents' assessment of the seriousness of global and local environmental problems. Interviewees were asked to rate the seriousness of three global environmental problems (global warming, loss of plant or animal species or biodiversity, and pollution of rivers, lakes and oceans) for the world as a whole as well as the seriousness of three local environmental problems (poor water quality, poor air quality, and poor sewage and sanitation) for their own communities. All six of these questions were posed to respondents in 10 of the 21 OECD countries under observation<sup>45</sup>. Figure 5.23 displays the results by country.



\*Data Source: World Values Survey Association, accessible online at: <http://www.worldvaluessurvey.org/>.

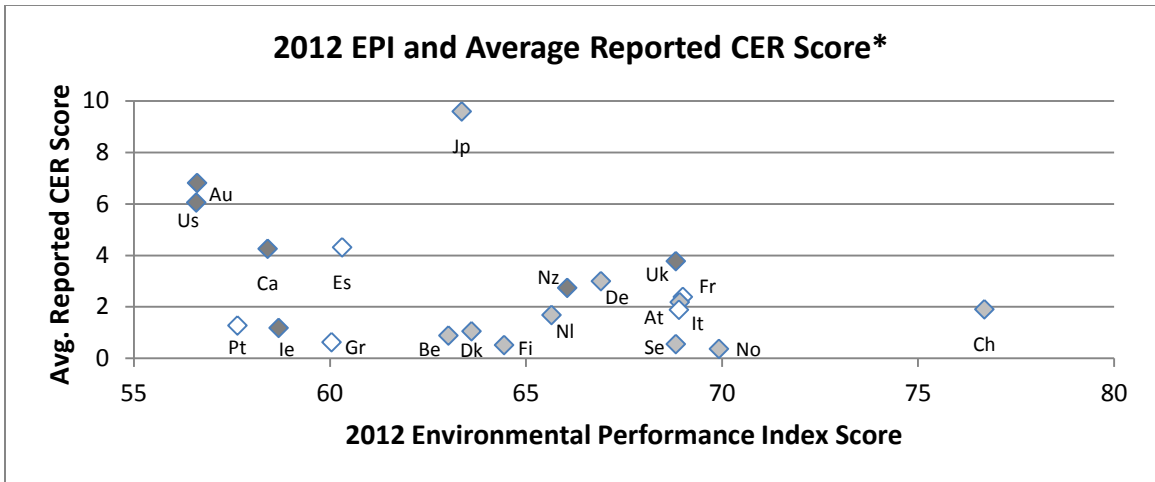
Figure 5.23: Percentage of 10 countries' populations considering 3 global and 3 local environmental problems to be somewhat or very serious, by institutional system (H&S)

<sup>45</sup> The 10 countries in which all six questions were posed to the respondents include: Australia, Canada, Finland, Germany, Italy, Japan, Norway, Sweden, Switzerland, United States. Data and methodology of the WVS can be assessed online at: <http://www.wvsevsdb.com/wvs/WVSAanalyzeStudy.jsp>.

Interestingly, concern levels with regard to the three global environmental issues are reported to be very high across all ten countries. For instance, 80.5% of Americans consider global warming a somewhat or very serious global environmental problem, while 98.2% of the Japanese respondents share this assessment.

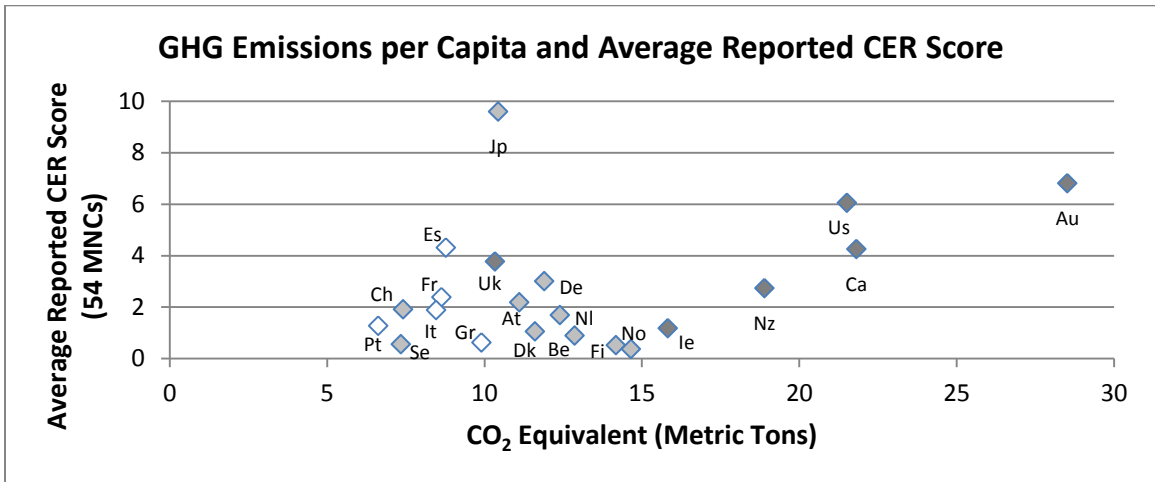
However, there are important discrepancies in the reported assessments of local environmental issues. For instance, in the *Nordic* CMEs only a minority of respondents consider water quality a somewhat or very serious environmental problem, ranging from 26.5% in Finland to only 8.3% in Sweden. In contrast, large numbers of respondents in all three LMEs in the sample express concern about the water quality in their communities, ranging from 48.1% in Canada to 62.6% in the United States. Japan is the only CME that reaches comparable levels of concern across all three indicators of local environmental problems. Overall, the results from the World Values Survey suggest that while people across systems express similarly high levels of concern with regard to global environmental issues, respondents from LMEs appear to experience significantly higher environmental problems at the local level.

A combination of the results of this chapter with those of the previous one suggests that the institutional environment of liberal market economies is more conducive to companies' individualized CER efforts while that of coordinated market economies facilitates a better overall ecological performance. Figures 5.24 and 5.25 illustrate these relationships by plotting the average nationally reported CER efforts of the 54 corporations under observation against the host countries' 2012 EPI Scores and overall greenhouse gas emissions in 2008, respectively.



\*LMEs marked in dark gray, CMEs marked in light gray

Figure 5.24: 2012 Environmental Performance Index scores of 21 OECD countries plotted against the average nationally reported CER scores of 54 multinational corporations, by institutional system (H&S)



\*LMEs marked in dark gray, CMEs marked in light gray

Figure 5.25: Greenhouse gas emissions in 2008 of 21 OECD countries plotted against the average reported CER score of 54 multinational corporations under observation, by institutional system (H&S)

Most importantly, the two figures suggest a negative correlation between MNCs' reported CER efforts and the host countries' environmental performance. In fact, the five countries that show the highest average reported CER score, Australia, Canada, the United States, Japan and Spain, are among the 10 worst performing countries with regard to the 2012 EPI. While the latter two do perform better with regard to overall greenhouse gas emissions, the three LMEs bring up the rear in this category as well. Of course, it is problematic to extrapolate the CER performance of 54 multinational corporations to draw conclusions about the CER activity of a country's entire economy.

However, these corporations are among the largest in the world. They are generally ahead of the curve with regard to strategy development and particularly exposed to continuous scrutiny from media and NGO watchdogs (Bendell 2000). Taken together, these observations give reason to question firms' self-regulating capabilities. A comparison of these findings to the results of Esty and Porter's pioneering Environmental Regulatory Regime Index (ERRI) - developed more than a decade ago - reveals important congruencies: While the CMEs (with the exception of Norway, Japan, and Belgium) outperformed all LMEs with regard to their ERRI scores, the MMEs (with the exception of France) had the worst performance. Figure 5.26 displays this correlation by plotting the quality of the environmental regimes<sup>46</sup> of the 21 countries under observation in 2001 against their respective institutional systems.

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<sup>46</sup> The data were derived from Esty and Porter's (2001) comparative study of the environmental regulatory regimes of 71 countries. The continuous scale of the index ranges from 2.303 (Finland) to -1.743 (Paraguay).

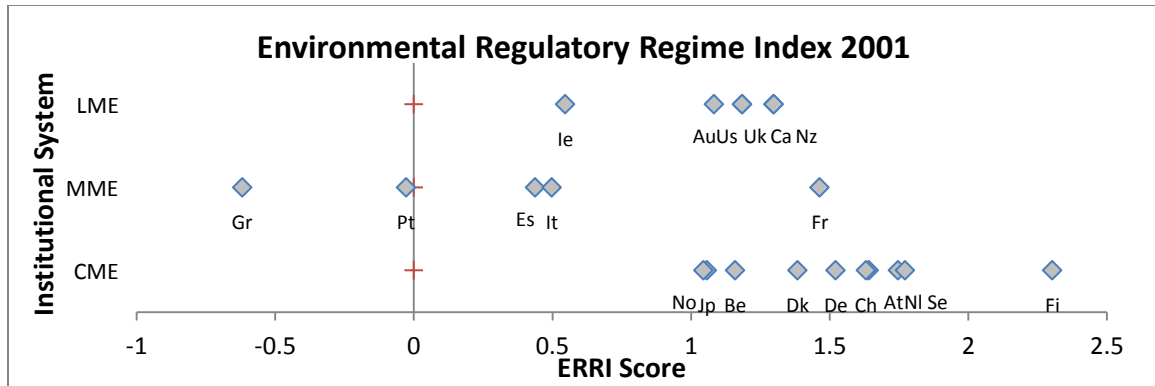


Figure 5.26: Environmental regulatory regime index scores of 21 OECD countries, by institutional system (H&S)

The patterns of results in this chapter make clear that institutional configurations are not the only determinant of environmental outcomes. The latter vary significantly with country-specific circumstances as well as the level of development. Political, geographic, resource base, and cultural characteristics were found to be important drivers of their overall performance. For instance, the fact that the United Kingdom and Ireland outperform the other liberal market economies with regard to air quality is demonstrably related to stringent EU legislation. A particularly striking example of the impact of political agency is provided by the development of New Zealand’s environmental strategy over the past decades: Realizing the limitations and opportunities of its particular geographic location, resource base, and population structure, the LME implemented a unique economic strategy that relies heavily on the preservation of the country’s natural environment. Its positive results are reflected in the high ranking of New Zealand for the vast majority of environmental performance indicators.

While the analyses of the 2012 EPI results helped in the creation of a more complete picture of each country's overall as well as disaggregate environmental performance, these 'snapshots' can only provide a crude approximation of the success of their actual environmental strategies. Consequently, the findings that differences in institutional structures result in differences in environmental performance are only one step toward a validated empirical generalization. The qualifications made in the previous chapters concerning the selection of countries, the difficulties of defining and comparing institutional frameworks adequately, and the substantial challenges with regard to the establishment of causality render the presented findings tentative in nature. It is to be hoped that increases in quality and availability of annual data will make longitudinal analyses for more indicators possible in the foreseeable future. The establishment and methodological refinement of the Environmental Performance Index promises to allow a more consistent tracking of countries' environmental performance in the future.

## CHAPTER 6

### CONCLUSION: THE FUTURE OF ENVIRONMENTAL REGULATION

Societies across the world have realized that environmental degradation is one of the greatest challenges humanity faces today. Not surprisingly, the development of viable strategies to halt the destruction of the natural environment is moving up international policy agendas. However, even in times of unprecedented globalization, efforts to create sustainable economies continue to be characterized by significant cross-national variation. While generally not an either/or question but rather a matter of emphasis, some countries rely more heavily on market mechanisms and voluntary corporate action while others favor governmental intervention in their efforts to reduce their ecological footprint.

This dissertation pursued two overarching goals: First, to uncover in what ways institutional environments shape firms' nation-specific environmental responsibility strategies, and second, to explore which institutional environments are most conducive to sustainable performance. This chapter recaps and synthesizes the central findings and discusses the utility of the varieties of capitalism approach. Based on the generated insights, it assesses the capabilities of private environmental regulatory regimes to substitute for governmental regulatory regimes. These projections are then utilized to develop recommendations for the design of effective environmental policies. The chapter concludes with a discussion of the limitations of the study and a proposal of future directions of research on the determinants of corporate environmental responsibility.

## 6.1 CORPORATIONS, INSTITUTIONS, AND THE ECOLOGICAL BOTTOM LINE

Based on the observation that multinational corporations implement diverging national CER strategies across similarly developed economies, the argument was advanced that firms' CER strategies are informed by the institutional frameworks of their host economies. In more coordinated economies (as defined by the varieties of capitalism approach), firms' rely more heavily on cooperative, frequently government-backed strategies. Organized in peak associations and having other institutionalized mechanisms at their disposal, they have strong leverage in negotiating environmental agreements with other stakeholder groups as well as with the government itself. In contrast, firms in more liberal market economies take a more adversarial position towards the government and a more competitive position towards other corporations. Instead of relying on strong business associations to influence environmental legislation, they focus on individualized CER efforts and the creation of a green image to weaken or prevent stricter environmental regulations.

The failure of Wal-Mart to establish itself in Germany is a particularly explicit example of how the unmodified export of business models developed in one type of economy to another type of economy, and the refusal to adapt these strategies to the latter's norms, institutional frameworks, and legal requirements, can have detrimental effects on corporations' economic bottom line (Knorr and Arndt 2003). While firms across all economies have a strong interest in enhancing governmental trust, the genuinely individualistic, strategic approach to environmental activity embodied in CER is a more powerful tool with a higher potential pay-off in terms of competitive advantage in LMEs than in CMEs. Based on these considerations, the hypothesis was developed



that, *ceteris paribus*, a multinational corporation operating in a coordinated market economies invests less in CER than the same firm operating in a liberal market economy. The related observation that corporations headquartered in different countries display different levels of CER efforts forms the base of a second hypothesis: While multinational corporations are assumed to be materially-driven utility maximizers, as argued by adherents of the neoclassical economic model, they are simultaneously institutionally embedded in their home countries. This embeddedness has important implications for their environmental strategies abroad.

The varieties of capitalism approach was utilized as a starting point to develop a framework to test these two hypotheses. The deployed theoretical approach explicitly acknowledges the importance of both material and normative factors and postulates that the degree to which corporations conform to the neoclassical economic model is a question of institutional embedding. A novel dataset was constructed that contains CER information gathered on the national websites of the 54 largest multinational corporations operating in all 21 OECD economies under observation. Moreover, a new measurement of CER was created based on 12 performance indicators. This measure was then utilized as the dependent variable in several statistical models. In order to test the robustness of the results, in addition to Hall and Soskice's original classification schemes these models employed Pryor's (2005) alternative institutional system specifications and accounted for the most important alternative explanations identified in the literature.

The results of the statistical tests provide empirical evidence for both the first and the second hypothesis, suggesting that the motivators for MNCs to embrace individualistic voluntary environmental activity are neither universal nor exclusively

material in nature. Instead, CER strategies are shaped by institutional frameworks in two important ways: *Ceteris paribus*, a firm operating in a liberal market economy invests substantially more in such efforts than the same firm operating in a coordinated market economy. Likewise, companies headquartered in LMEs make considerably more use of CER in their global operations than firms headquartered in CMEs.

Providing significant evidence against the two popular hypotheses that corporate responsibility efforts represent attempts to ‘re-embed’ the economy in a wider societal context or, alternatively, that they are purely business-driven strategies that are detached from any political initiative, these findings reflect Haufler’s observation that “corporate management obviously responds to market signals, as in the neoclassical model, but the character of that response is not equally obvious [because] corporate preferences are driven in part by norms about the appropriate approaches to business” (1999, 201). While both material and institutional factors matter, the former are shown to be conditional on the latter. On a more general level, the results echo March and Olsen’s (1998) assessment that actors are “constituted both by their interests, by which they evaluate their expected consequences, and by the rules embedded in their identities and political institutions. They calculate consequences and follow rules, and the relationship between the two is often subtle” (952).

Having provided evidence that economic actors’ environmental behavior is conditional on their institutional environment, the dissertation further evaluated the impact of institutional systems on countries’ environmental footprint. Based on the assumption that collectivist, government-backed strategies, utilizing both penalties and incentives, are better suited to motivate firms to internalize environmental externalities

than current consumer demand and market mechanisms alone, the argument was developed that coordinated market economies, emphasizing state involvement, coordination, and oversight, outperform liberal market economies, relying more heavily on self-regulatory regimes.

The hypothesized relationship between a country's institutional system and its ecological footprint was tested by deploying a two-pronged approach: The results of a longitudinal analysis of the CO<sub>2</sub> emissions (per capita and per GDP) of each of the 21 countries under observation were compared to their respective performance with regard to 12 environmental performance indicators which were derived from the 2012 Environmental Performance Index (EPI) and the Pilot Trend Environmental Performance Index (Trend EPI). Acknowledging the relevance of other factors, such as topographical, cultural, or political features, the findings suggest that institutional frameworks play an important role in determining countries' environmental performance. Lending support to hypothesis three, they show that coordinated market economies outperform liberal market economies with regard to CO<sub>2</sub> emissions per capita and per GDP, with regard to the reduction of the former, as well as with regard to the majority of performance indicators included in the 2012 EPI and Trend EPI. Reflecting the results of previous studies that highlight their advantageous climatic circumstances and their comparatively lower average economic development, the Mediterranean mixed market economies were found to have the lowest CO<sub>2</sub> emissions per capita and per GDP while lacking with regard to several 2012 EPI and Trend EPI indicators. (Maxwell, Lyon, and Hackett 1998)

## 6.2 CER: SUPPLEMENT TO OR SUBSTITUTE FOR COLLECTIVIST STRATEGIES?

Together the empirical findings that (a) MNCs report significantly more on their national CER efforts in countries that emphasize individualistic environmental efforts but that (b) these countries have generally larger ecological footprints than states that rely more heavily on governmental intervention imply that - so far - CER does not represent a viable alternative to strong governmental involvement in societies' efforts to curb environmental degradation. Three major arguments, all of which refer to the imperatives of capitalism, provide explanations for why private regulatory regimes have failed so far to develop into viable alternatives to governmental oversight in the environmental realm.

First, strong consumer demand is an essential prerequisite for genuine CER. The most frequently advanced argument for the rapid proliferation of individualistic corporate social and environmental responsibility efforts in the past few decades is that, in a climate of increasing environmental awareness, corporations "cannot be seen not to be embracing the rhetoric of CSR" (Neal 2008, 468). Firms thus are expected to internalize environmental externalities as soon as reputational and political costs of unsustainable behavior outweigh the financial benefits of not doing so. However, as the profit-maximizing imperatives of capitalism generate substantial pressure on firms to externalize the costs of pollution while simultaneously discouraging the discharging of accountabilities other than financial ones (Mauders and Burritt 1991), the threshold is very high. Until that point is reached, economic considerations are likely to incentivize firms to focus in their CER strategies on activities that contribute to a 'green image' rather than on activities that provide the best possible outcome for the environment.

Sharing this understanding Suzuki concluded in 1993 that even though “pressure by ecologically aware consumers and activists increases, [and] more and more businesses are cloaking themselves in green rhetoric [...] the ground rules of profit make it hard to be a friend to the environment” (135). However, a decade later Suzuki and Dressel (2002, 291) detected a ‘philosophical shift’ within corporate hierarchies, manifesting itself in the explicit acknowledgements of environmental responsibility by top corporate executives. In fact, a steadily growing number of high-profile examples seem to demonstrate that genuine CER efforts can significantly improve a firm’s economic bottom-line. For instance, Hewlett-Packard’s sustainability strategy has evolved from pollution control and prevention to product stewardship and sustainable design. HP’s responsibility efforts now encompass all stages of its products’ life cycle and consumers as well as NGOs recognize the firm’s commitments (Preston 2001).

However, despite these developments, consumer decisions continue to be largely dominated by more traditional considerations, such as price or performance. A recent Pew Global Attitudes study finds, for instance, that “[i]n less than a third of the countries do majorities agree that people should be willing to pay higher prices in order to address global climate change” (Wike et al. 2010). Moreover, the intensity of sentiment with regard to protecting the environment has declined notably in several countries over the last few years. The number of people who stated that they were “very worried about climate change” declined in Japan from 78% (in 2007) to 58% today, in Spain from 70% to 50%, in the United States from 47% to 37%, in the UK from 45% to 40%, and in Germany from 60% to 52%. Even more tellingly 58% of Americans, 47% of Spaniards,

46% of Britons, and 41% of Germans declared that they were unwilling to pay higher prices in order to address global climate change.

These observations mirror the conclusions of an earlier OECD (2002, 97) report on sustainability trends, which already observed growing consumer fatigue with so-called ‘green’ products. Market opportunism, ‘green washing’, and prior experience with inferior green products are identified as the main reasons for the erosion of consumer confidence and their willingness to pay premiums for environmental quality. Others find that the use of misleading environmental claims, “which play on consumer concerns about the environmental impact of products, is giving rise to consumer confusion and wariness. This, in turn, is producing an unfortunate backlash against authorized logos [...]. Unable to remember what has formal backing and what is self-proclamatory, the average consumer simply discounts all logos or labels and buys on the basis of traditional factors such as price, packaging appeal, or past experience” (Leubuscher et al. 1998, 11). As long as environmental awareness does not dominate or at least permeate the purchasing decisions of the majority of a country’s citizens, it is unlikely that consumer demand for environmental sustainability will generate enough momentum to initiate real change in corporate strategies and the internalization of environmental externalities.

Second, neutral, effective, and comprehensive third-party monitoring is required to detect attempted green-washing and to hold corporations responsible for their claims. This role is generally assumed by nongovernmental organizations and the media. Their evaluations of corporations’ environmental performance (e.g. by the NGO Carbon Disclosure Project) or rankings of corporations according to their environmental

performance (e.g. Newsweek's *Green Ranking*<sup>47</sup> of the 500 largest publicly traded companies in the US or Interbrand's annual *Best Global Green Brands*<sup>48</sup> ranking) put the spotlight on firms' comparative environmental activities, rewarding leaders and punishing laggards with publicity. Capable of negatively affecting corporate reputation and brand value, making access to capital more difficult, and worsening employee as well as public relations if corporate declarations and actions do not match, they can put a price tag on irresponsible behavior (Dudok van Heel, Elkington, and Fennel 2001). At the same time, such monitoring provides business leaders with additional justification for engaging in voluntary activities from a purely shareholder perspective (Gjølberg 2009).

In short, the risk of being named and shamed is a fundamental component of the business case for firms' voluntary environmental activities and may therefore induce firms to prioritize such activities in their risk management strategies for purely utility maximizing terms. The interesting fact that a number of corporations make it to the top of environmental indices while not extensively reporting on their CER efforts (e.g. Dell Inc. and Apple Inc.), while others that report extensively on their CER efforts fail to make the rankings (e.g. Nestlé S.A), further indicates that self-reported CER activities do not necessarily reflect the actual ecological impact of a corporation. Thus, environmental rankings and indices, provided that they are compiled by independent and neutral organizations, can provide important verification mechanisms against which self-reported CER activities can be evaluated.

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<sup>47</sup> Methodology, results, and full report can be accessed online at: <http://www.sustainalytics.com/green-rankings-2011>.

<sup>48</sup> Methodology, results, and full report can be accessed online at: <http://www.interbrand.com/en/best-global-brands/Best-Global-Green-Brands/2011-Report/BestGlobalGreenBrandsTable-2011.aspx>.

However, so far, neither individual NGOs nor media outlets have been able to establish themselves as widely respected, neutral, and comprehensive monitoring institutions. On the one hand, NGOs' assessments are frequently accused of being hampered by ideological blinders (Bell and Smith 1999). On the other hand, many observers see a severe conflict of interest in the fact that major news outlets are owned by the very same corporations they are allegedly monitoring and are uncomfortable with the amount of influence corporations have on information production. For instance, an article, published in *The Independent* in December 2011, revealed how operatives of the agency Bell Pottinger changed Wikipedia entries in a favorable way for their corporate clients (Pegg, Newman, and Wright 2011). Not surprisingly, consumers "report both a declining faith in nearly all sources of environmental information and confusion or misinformation about those actions that count the most or which environmental problems should be given priority. As a result, although consumers today live in a rich and abundant "information society", many find very little information of help in making environmentally aware decisions" (OECD 2002, 97). Together with the legitimacy deficit caused by lacking democratic authorization and control, these limitations leave current third-party watchdogs ill-equipped to serve as trusted external verification authorities.

Third, corporations' CER activities need to be coordinated in order to ensure the effective addressing of all environmental issues, independent of their 'reputational value'. While a large majority of multinational corporations have adopted environmental codes of conduct and joined industry associations and private-public partnerships intended to promote environmental sustainability (cf. Kinderman 2009), so far no effective mechanisms have been devised to integrate individual CER efforts into holistic strategies.



In the absence of substantial consumer demand for CER and effective third-party regulation, corporations, preoccupied with short-term performance and competition, employ a “piecemeal approach to environmental management” (Welford 1995, 39). Environmental issues are not mitigated and addressed according to objectively defined levels of urgency but according to the marketability of the respective alleviation scheme.

Consequently, individualistic corporate environmental responsibility efforts are ill suited to substitute for strong collectivist, government-backed strategies in societies’ efforts to ameliorate environmental degradation. However, completely discarding CER as a contemporary marketing strategy or ‘fig-leaf’ for corporate license (Neal 2008) that does not produce measurable improvements in societies’ environmental bottom lines would not do justice to the concept, as the growing number of successful implementations show. Environmental sustainability is an issue, too complex to be achieved through public regulation alone. Governmental actors frequently lack the resources, knowledge, and skills needed to independently specify and implement appropriate strategies. Therefore, issue-specific, targeted CER can provide important supplements to governmental regulatory regimes. Furnishing economic actors with moral legitimacy and allowing a more rapid response to calls for environmental protection, CER has the potential to make important contributions to the environmental turnaround. The fact that CER efforts are carefully crafted business strategies, frequently tailored towards the institutional environments and societal demands of individual countries suggests that they are susceptible to political pressure. The following section provides suggestions for how the benefits of CER could be integrated into national environmental strategies while simultaneously limiting the dangers of ‘green-washing’.

### 6.3 POLICY RECOMMENDATIONS

Building on Hall's understanding that varieties of capitalism should be understood "not as a set of institutional differences fixed over time, but as bundles of institutionalized practices that evolve along distinctive trajectories" (Hall 2007, p,40), this section provides recommendations on how to incentivize corporations to become more environmentally responsible. Recognizing that the tools at the disposal of governments vary across systems and that similar actions can result in dissimilar outcomes in different institutional (and cultural) contexts, it is not intended to identify a 'superior' institutional framework. Instead it focuses on discussing broad, universally applicable strategies that have proven to be successful in different institutional environments.

Most importantly, this dissertation has shown that - under current conditions - changing the behavior of firms to take environmental concerns into account and to establish prices for products and services that reflect the true environmental costs of their production is unlikely without effective political leadership. While this leadership needs to take on different forms across different varieties of capitalism and to delegate some responsibilities to non-governmental actors, it has to be manifested primarily in stringent environmental legislation. This recommendation is informed by Fukuyama's (2004) assessment that even in the globalizing world, "only states and states alone are able to [...] aggregate and purposefully deploy legitimate power" (120).

Across all varieties of capitalism, the improvement of rigor and structure of environmental regulation and a strong emphasis on enforcement are essential in order to enable a complete internalization of environmental externalities by economic actors. In this context, Esty and Porter (2001) remark that "the more fully a country moves to

modernize its economy, institutional structures, and regulatory system, the more quickly its environment performance appears to improve” (96).

Moreover, they emphasize that increases in environmental and economic performance do not need to be at odds. Quite the contrary, “the countries that have the most aggressive environmental policy regimes also seem to be the most competitive and economically successful” (Esty and Porter 2001, 96). Comparing the environmental as well as economic performance of Germany and Japan to that of the United States, Moore and Miller reach a similar conclusion, arguing that environmental regulation facilitates economic success (1994). Most importantly, Vogel (1998) shows that neither strong national economic interventionism and international trade liberalization nor the persistence of institutional differences and globalization are necessarily antagonistic forces. In fact, in many instances they facilitate one another.

Other research suggests that governmental coordination in fact helps produce some of the prerequisites necessary for the implementation of genuine CER strategies. For instance, Mikler (2006) finds that CME-based firms’ view on their material interests and the consequences of their actions are more heavily influenced by normative factors. “They are inclined to take a more holistic view in which their role in society occupies a more central strategic position, internal corporate strategies proactively drive environmental product initiatives, and leadership over, or partnership with, regulators is a feature of their strategic planning” (321). The fact that the most successful recent pro-environmental developments in the United States, one of the core LMEs, including the Clean Air and Clean Water Acts and the bans on asbestos, leaded gasoline, or DDT were all implemented through governmental legislation not business incentives (and frequently

against strong corporate opposition) further underlines the necessity of a substantial presence of the government in the environmental realm.

Relatedly, the acceptance of environmentally friendly means of transportation, such as passenger railways, is generally higher in countries with an active government involvement in the transportation sector, as reflected in the annual user statistics of these modes of transportation. For instance, while Switzerland and Japan report 2422 and 1995 rail kilometers per head of population respectively, the United States only reports 80 rail kilometers per head of population and these numbers are negligible for most other LMEs as well.<sup>49</sup> Another example is government-mandated support for renewable energy. Germany's substantial policy efforts have made it a world leader in the solar sector (Kirschbaum 2012). In short, by actively changing the incentive structure, governments can motivate firms to further invest in the development of environmentally sustainable products and improve their performance. In the long run these incentives might contribute to the philosophical shift described by Suzuki and increase corporate managers' sensitivity for their public responsibility for their actions. However, it is important to emphasize that governmental intervention per se does not necessarily equate superior environmental outcomes. In fact, the devastating environmental record of the former Soviet Union serves as an important reminder that all-encompassing governmental control of the economy can be as detrimental to the environment as unchecked capitalism.

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<sup>49</sup> According to data provided by the International Union of Railways, accessible online at: <http://www.uic.org/>

The success of coordination oriented environmental policies in some countries and not in others is not lastly due to differences in voting systems. While the ‘green breakthrough’ in Austria (Williams 2000), Belgium (Hooghe and Rihoux 2000), Finland (Konttinen 2000), and other countries demonstrates how proportional representation eases the inclusion of environmentalist ideas and parties in the political landscape, such currents are met with significantly higher barriers in countries following a British-style ‘first past the post’ system or the American two-party system. Consequently, these policies are more difficult to implement in liberal market economies, most of which utilize the latter modes of democratic representation. LMEs are likely to find more feasible to implement policies that, instead of putting high demands on firms to form relational contracts with competitors, rely on markets to coordinate their activities. These can include tax incentives and government subsidies for basic research.

An environmental strategy that appears to be particularly well suited for liberal market economies is the implementation of public private partnerships (PPP). These partnerships represent novel, multi-lateral non-territorial modes of regulation with private business firms as core actors (Scherer and Palazzo 2008). Summarizing the benefits of such arrangements, Slaughter (2011) remarks that “[t]he political argument for PPPs is that they stretch scarce government resources and ensure that they leverage other contributions of money, expertise and other in-kind resources [...]. And the energy, innovation and capacity in the private sector, both corporate and civic, are a vital foreign policy resource [...]. Finally, the kinds of global problems we face [...] cannot be solved by governments alone, much less governments increasingly strapped for funds.” While some remarkably successful national and international PPPs exist today, such as the

Global Clean Cookstove Alliance, such incentives face a number of important challenges. At the example of the Extractive Industry Transparency Initiative (EITI), Aaronson (2011) demonstrates how differences in the perception of the PPP's ultimate goals among partners, insufficient inclusion of stakeholders, and deficiencies in information dissemination can impede the effectiveness of such ambitious programs.

Another promising alternative is the systematic identification and support of genuine CER efforts. Around the world, business associations as well as NGOs are developing voluntary codes of conduct. While these developments have a longer history and have achieved greater acceptance in LMEs, they have become an important phenomenon across virtually all developed economies (cf. (Kinderman 2009). As Hall and Soskice observe, “[s]tates may establish agencies, but what agencies can do is limited. In many cases, effective strategic coordination depends on the presence of appropriately-organized social organizations [...] that governments can encourage but not create” (Hall and Soskice 2001, 46). While these self-regulatory regimes might have been originally intended to preempt government regulation (Lyon and Maxwell 1999), they could be more fully integrated in countries' comprehensive environmental strategies through explicit governmental acknowledgement and approval, provided they represent measurable improvements over the status quo. In times of fiscal austerity, governments could implement quality control mechanisms that help assess in what ways specific CER activities can complement governmental environmental activities. The UK's approach to CER provides a good example: For more than a decade, the country has made the promotion of such efforts an explicit policy objective (United Kingdom Department of Trade and Industry 2004). Public recognition and financial support for environmental

entrepreneurship through governmental agencies and programs not only provide a financial incentive for sustained efforts, but promise reputational gains as well.

The support of exemplary environmental performance needs to be supplemented by the implementation of strict anti-greenwashing regulation. An extensive study on the verification and control of environmental product claims in the EU-15 states, conducted in 1998 found that “several member states have systems in place—regulatory, quasi-regulatory, or voluntary—which control the use of misleading claims in print and broadcast advertising reasonably effectively.” However, “The ability of the majority of member states to control such claims is poor” (Leubuscher et al. 1998, 12). The use of “claims which are general, vague, or symbolic and evocative, such as images of pristine nature, statements of environmental friendliness or naturalness, and 'environmental' colors was found to be a particularly salient problem.” The *Nordic* CMEs were recognized as having particularly strict anti-green-washing laws, while those in the *Mediterranean* MMEs were found to be the least elaborate. Countries with strong consumer protection and environmental policies have successfully combined two requirements for controlling the explosion of green claims: A strong legal basis for control; and a system of enforcement which does not rely extensively on courts for enforcement (Leubuscher et al. 1998, 12).

Moreover, while many governments have legislation on misleading advertising in place, this frequently does not explicitly cover environmental claims. Implementing and enforcing such legislation will continue to be the most important and effective means to protect consume rights to accurate information. The fast evolving nature of environmental labeling and advertising sometimes poses a practical problem for

legislators. However “governments and business organizations can still make positive contributions in this area by providing practical guidance and monitoring the implementation of ISO standards for environmental claims, particularly the ISO 14021 standard governing ‘Type II’ self-declared claims” (OECD 2002, 98). On the international level, this means that international organizations are needed to coordinate states’ intervention. Without some cooperative mechanism states face a collective action problem where each has the incentive to opt out of regulating firms within their jurisdiction and appropriate the benefits for themselves from so doing (Elster 1989).

As a broader communication strategy, governments and third-party observers need to cut through the volume of information available in today’s ‘information society’ and better target environmental messages to consumers (OECD 2002). In this respect, the availability of accurate information is an important part of enabling consumers to make more environmentally aware decisions. An important strategy for controlling green claims is the nurturing of active learning and responsible citizenship at all levels of formal schooling and through subsidized programs carried out by NGOs or sponsored material for schools. Finally, environmental decision-making in general can and should be made more fact-based and empirical. A data-driven approach to policymaking promises to make decision making more analytically rigorous and yield systematically better results. Policymakers should initiate better data collection, methodologically consistent reporting, mechanisms for verification, and a commitment to environmental data transparency.



## 6.4 LIMITATIONS AND FUTURE DIRECTIONS

Applying a structural approach to the study of comparative environmental politics, this dissertation provides a broad assessment of multinational corporations' and countries' environmental performance patterns. As with all quantitative, generalizing studies, some caveats are in order.

First and foremost, it is important to emphasize that institutions are only one out of many aspects of a political system that influence environmental performance. A strong argument could be made that policies and human capital not institutions are critical in determining environmental performance and that institutional explanations in general, and the varieties of capitalism approach in particular are oversimplifying the causal relationships. For instance, Hall and Soskice's dualistic distinction between two ideal types of economies is frequently criticized on the grounds that actual political economies contain elements of each type. Countries' comparative economic performance can consequently only be understood by acknowledging this hybridity (e.g. Zeitlin 2003). Although Hall and Soskice (2001) explicitly caution that they are "not suggesting that all economies conform to these two types" but that their approach is "designed to advance the analysis of political economy in more general terms" and to "analyze the operation of many kinds of economies" (33), the explicit emphasis on the extremes of a suggested continuum creates the danger of concept stretching when interpreting developments in countries falling in between the two ideal types.

This dissertation addressed these criticisms by applying a three-step approach: First, the analyses conducted in the preceding chapters focused on environmental developments in a subset of 21 developed OECD countries whose institutional

frameworks allow for a comparatively straightforward categorization as either liberal, coordinated, or mixed market economy. Second, the robustness of the categorization suggested by Hall and Soskice was tested by applying Pryor's (2005) alternative, empirically derived categorization of different economies based on clusters of complementary or co-varying institutions. Third, for each statistical test, a subset of models was constructed that excludes the three controversial cases of France, Japan, and Switzerland, whose classification is the most contested in the literature.

Acknowledging that these precautionary measures cannot repudiate all criticisms, this dissertation nevertheless provides strong support for the argument that institutional arrangements have an impact "on the way in which demands are channeled into the political process, as well as on the way in which these demands are transformed into policy alternatives" (Lundqvist 1974, 732). It is shown that institutions are crucial in lending legitimacy to, implementing, and enforcing policies (Dye 1972). They determine which alternative environmental strategies are considered feasible in a given society and consequently play an important role in shaping firms' and governments' responses to environmental challenges. Future research is required to further substantiate the empirical results of the conducted analyses. In particular, qualitative assessments of critical cases in each category are likely to provide more detailed information on the diverging causal mechanisms and incentives structures in each cluster of countries. Moreover, institutional factors beyond those covered by the employed varieties of capitalism approach should be investigated.

It is furthermore important to note that the research is generalizable only to the extent that the theoretical dimensions are captured in this study. The focusing on

particular subsets of countries and companies limits the generalizability of the study. Every effort was made to establish a sample of countries that are ‘most similar’ with regard to most characteristics apart from their institutional systems. The rationale was to provide a solid empirical basis for peer group analysis, which gives policymakers a way to contextualize their policy choices in light of the performance of other countries with similar socioeconomic or geographic conditions. However, it is important to recognize that the final set of 21 developed OECD member states is still characterized by noticeable differences across several dimensions, some of which were not explicitly investigated in this research. In this respect, Alperovitz (1995) for instance cautions that “[m]any discussions of social and political theory related to sustainability, and proposals for change in the United States, utilize comparative European models: the Scandinavian countries did this, the Germans did that, the Dutch did this. The truth, however, is that all of the European geographic polities are of an order of magnitude so vastly different from our own as to make most comparisons questionable” (63) . While these limitations are inherent to the study of comparative politics it is essential to keep them in mind when interpreting the results of the empirical analyses.

In future research, it would be interesting to see how the detected linkages between corporate environmental responsibility, national institutional frameworks, and environmental performance play out under different conditions. The empirical tests were conducted among a specific set of highly developed countries and multinational corporations. There is reason to expect that the observed patterns might be different in developing countries or for small and medium sized companies. For instance, large MNCs frequently invest disproportionately more in CER than small and medium sized

firms due to their prominent position in countries economy and heightened scrutiny by NGOs and the media. Furthermore, while substantial efforts were made to control for relevant country, industry, and company effects, improved data availability is likely to allow for more precise specifications of these variables and for the inclusion of additional potential confounders. Cumulatively, the proposed research agendas will add up to a thorough test of the applicability and utility of the varieties of capitalism approach to the study of environmental politics and potentially to other non-economic fields of inquiry.

Notwithstanding the limitations outlined above, this study provides an important contribution to the ongoing discussion on the future of corporate environmental responsibility efforts. Its goal was to redirect theoretical and empirical attention back to an understanding of the importance of different national institutional frameworks even in an age where much scholarly attention is paid to trends of globalization and isomorphism. In line with other recent studies that suggest that national institutional contexts significantly impact corporate responsibility strategies (Matten and Moon 2008; Kinderman 2009; Carbone and Moatti 2010) the results presented above add to the broader discourse about extent, speed, and direction of socio-economic globalization and challenge assumptions of a corporate 'global perspective' on environmental issues. While they do not contradict globalists' perspective that markets are increasingly important and that the power of traditional state-actors is diminishing, they demonstrate that institutional systems continue to be important factors in shaping corporate behavior and country-specific outcomes. Even in a globalizing world national institutions continue to matter and governmental actors have their role to play in achieving sustainability in the young 21<sup>st</sup> century.

In the wake of the financial crisis of 2008 corporate governance is addressed increasingly in terms of a loss of faith in self-regulation. It appears incoherent to treat environmental protection in a diametrically opposed manner. Despite plenty of anecdotal evidence of effective implementation of the concept, CER in its current manifestation lacks the capacity to serve as the foundation of a grand strategy to prevent environmental deterioration. Largely exempt from democratic oversight, it does not address the core problem of collective action, underlies the logic of the market (whose very failures it is supposed to remedy), and is theoretically based on an overestimation of the power of consumer demand. In the absence of a major philosophical shift, significant increases in consumer demand for sustainably produced products and services, and corporate managers' strategic perspectives, substantial governmental and third-party involvement needs to be an essential component of countries' environmental strategies. Contrary to globalist claims of isomorphism, the character of these interventions will be shaped by the distinctive features of historically grown institutional frameworks which are likely to endure well into the future.

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## APPENDIX

List of search terms utilized to locate CER information on each national website:

- Biodiversity
- Carbon
- CER
- Clean
- Climate change
- CO<sub>2</sub>
- Community
- Corporate citizenship
- Corporate responsibility
- Corporate social responsibility
- Corporate social responsibility report
- CR
- CSR
- Emissions
- Environment
- Biodiversity
- Carbon
- CER
- Clean
- Climate change
- CO<sub>2</sub>
- Community
- Corporate citizenship
- Corporate responsibility
- Corporate social responsibility
- Corporate social responsibility report
- CR
- Emission
- Environmental audit
- Environmental responsibility
- Environmental responsibility report
- G3
- Global reporting initiative
- Global warming
- Green
- Greenhouse gas
- Nature
- Natural environment
- Packaging
- Recycling
- Renewable
- Resource
- Responsibility
- Responsible business
- Stakeholder
- Supply chain
- Sustainability
- Sustainability report
- VOC
- Waste