

EUROPE'S "REACH" FOR LEADERSHIP IN
GLOBAL GOVERNANCE:
POLITICAL STRATEGY IN ACTION

A Dissertation
Submitted To
The Temple Graduate Board

In Partial Fulfillment
of the Requirements for the Degree
DOCTOR OF PHILOSOPHY

by
Richard P. Pasquier
August 2022

Examining Committee Members:

Karl Orfeo Fioretos, Advisor Chair

Mark A. Pollack, Reviewer Chair

Sandra L. Suárez

R. Daniel Keleman, Outside Reader

ABSTRACT

The European Union enacted a comprehensive reform of its chemical safety laws, the Regulation on the Registration, Evaluation and Authorization of Chemicals (REACH) in 2006. The EU rewrote the safety rules governing the chemical industry, the fifth largest manufacturing industry in the world in terms of revenue. After REACH, the EU's rules became the most comprehensive and stringent in the world and at which point REACH became the *de facto* standard of compliance for international chemical companies and triggered *de jure* adjustments of the national laws of many of EU's leading trading partners, including the US.

The EU announced its "strategy" in 2001 with the twin aspirational goals of committing all member states to a high level of regulatory stringency and protecting Europe's role as a major hub of the chemical industry and leader in science and innovation. The EU used this appeal to gain cooperation of key stakeholders, including industry, trade unions and international environmental NGOs. The EU divided responsibility for drafting and legislating REACH among Environment and Competitiveness directorates within the Commission and analogous groupings within Council and committees within Parliament to ensure that the intended balance between reform goals and economic priorities be maintained. The strategy featured an important international component and was expressed in the unprecedented way that the EU involved international stakeholders in its drafting process and the efforts of its diplomats

to address concerns raised by trading partners, particularly in the Technical Barriers of Trade Committee of the WTO. This study will build on work of Anu Bradford, David Vogel and other institutionalist scholars to confirm that EU's success in making its REACH regulation a template for reform of chemical safety laws was due in part to the large size of the EU Single Market and feedback loops based on the economics of product markets that Vogel and Bradford have focused on in building their theories of "leveling up."

The empirical findings of this work suggest that these authors have not given sufficient consideration to the political strategies followed by global regulatory innovators. In the case of REACH, the EU's success was not assured as the reform sparked a great deal of political opposition which could have derailed the reform effort at various stages from conception through implementation. EU leadership pushed back on a US-led diplomatic campaign to prevent REACH from being enacted and led a campaign of persuasion in the WTO that was successful enough to buy enough time to allow the law to take effect and REACH implementation programs to win acceptance by industry that REACH could serve as the *de-facto* standard of chemical safety compliance globally. Eventually REACH triggered a series of *de-jure* changes in law among leading trading partners towards increasing stringency and broader coverage, including in the US where Congress surprisingly passed a bi-partisan reform of its existing TSCA law in 2016.

This study will incorporate into its theory of global regulatory politics an important place for the characteristic political strategy practiced by the main political movements that dominate the EU. This approach, which I call the Global Political

Strategy approach, builds on Vogel, Bradford and institutionalist approaches but extends it in ways that may allow researchers to make better predictions about when attempts to shift global governance in important issue areas will succeed and when they will fail. According to this Global Political Strategy approach, EU has achieved governance success with REACH for four reasons. First, it has sufficient economic power expressed in the size of its home market for chemicals. Second, the EU can deploy the regulatory capacity needed to write and enforce REACH, with such capacity understood chiefly as the power to successfully establish a universal registration requirement and exclude products and services from its home market if they are not registered or if they are deemed unreasonably dangerous and excluded from the marketplace. Third, the markets for chemical products display characteristics that make exit from the European market costly for both European and International actors and encourages “trading up” to higher standards more generally (i.e. the markets exhibit “inelasticity” and “non-divisibility”). Finally, the EU deployed an effective political strategy that overcame international opposition to its preferred policies and discouraged rivals. This last element has not yet been sufficiently explored in previous studies of the case, and is an important gap filled by this work. Through its well-thought out and flexible political strategy, EU gained first-mover advantage in chemicals policy and thereby molded of the behavior of key actors to win international acceptance of its policy preferences despite strong international resistance led by the United States. Careful examination of REACH using the tools of process tracing sheds light on mechanisms that could lead to a better understanding of

global governance and to more precise specification of boundary conditions under which assertions of state economic power over global markets succeed and when they do not.

DEDICATION

For Nancy

ACKNOWLEDGMENTS

A project as long and as multifaceted as this dissertation is not the work of a single individual. Without the help and encouragement of many, this project would not have gotten off the ground let alone reached its destination safely.

First of all, I owe a huge debt of gratitude to Orfeo Fioretos, who saw in a seminar paper early in my time at Temple a “good down-payment” on a doctoral dissertation. Without his steadfast belief that I would be able to do justice to this demanding topic using the tools of process tracing, I would have chosen a different route to complete my degree requirements. I also am grateful for the support given by Mark Pollack to this project and also to his help in completing my education in IR Theory and the literature of International Organizations. I changed my secondary concentration from political theory to international relations midstream and it is only with Mark’s generous offer to help me through the IR Core as an independent study was I able to make that switch and maintain my momentum. Sandra Suárez has been a constant source of encouragement and, at the appropriate times, skepticism about aspects of my project. It was her input that helped me set my research agenda on firm conceptual and methodological foundations. All three have served as the core of my committee and have generously given their time in reading and correcting drafts.

I also want to express my appreciation for other current and former members of the Temple political science faculty for their contributions to this project. Richard Deeg was my faculty advisor from the time I started the program in 2014 and over the years always made himself available to me at key times and always offered fantastic advice.

Hillel Soifer helped develop my interest in qualitative research methods and helped keep my thinking realistic about how to approach key aspects of my research. At Hillel's suggestion, I participated in an online forum on Bayesian techniques organized by Tasha Fairfield, whose insights and encouragement were important in refining my approach to process tracing. I also want to call attention to Hillel's giving so much of his time as graduate chair to mentor the dissertators in my cohort, a testament to his generosity and commitment as a teacher. When my life became complicated and I needed to quickly put together an independent study to stay on track, Vin Arceneaux was kind enough to supervise my reading the classics of behavioral economics and organizational behavior. I could keep my student credentials intact while dedicating myself to my responsibilities as lawyer in a time of multiple M&A transactions for the organizations I supported.

I owe a debt of gratitude to Edward Flynn and Katherine Tweel, whose loyal friendship and professionalism allowed me to hand over my responsibilities for all things alkali with a clear conscience and absolute confidence in their judgment and skills. Although my remaining time as a chemical company lawyer turned out to be short, the nine months I spent with the former parent allowed me the precious time I needed to immerse myself in chemical policy challenges on two continents and solidify relationships with key players and subject-matter experts that have turned out to be crucial for whatever success this project is able to achieve.

There are many people who offered their subject matter expertise and rolodexes who I would like to recognize. Jerry Prout offered his assistance and opened doors that allowed me to tell a more complete story of bi-partisan chemical reform in the United States. Thank you to Michael Parr, Dimitri Kerekitsos, Ben Dunham, and Julie Froelicher

for your war stories from Capitol Hill and keen insight into the politics of TSCA reform. Thank you also, Lynn Bergeson for offering your perspective drawing on your many years representing clients in the arena of chemicals regulation. I also am grateful to those who I met attending industry meetings in Brussels such as Marta Zoladz, Morris Cole, Peter Holdorf and Dr. Jeori Lanears. They showed great generosity in offering their time and recommending me to others, which played a huge role in making my field work in Europe a success. Thanks to Dr. Anna Gergely, Aaron McLaughlin and Lawrie McClaren for opening up their schedules and their offices to me at times when Covid-related restrictions had only recently been relaxed. Heartfelt thanks are also in order for Cyril Jacquet, Katja Biedenkopf and David Azoulay for being so ready to share career experiences as advocates and researchers and offer the benefits of their expertise with a lawyer and social science researcher they hadn't known previously. Their insights were very important in refining my hypotheses and focusing my empirical work. I am grateful to Jean-Francois Pasquier for his generosity in offering his wide-ranging perspective as a veteran European manager of a chemical business with substantial regulatory agenda and to Marie Zimmer and Madeleine Lafon for offering their view of the role of French trade associations molding chemicals strategy and helping members with regulatory challenges. I also want to recognize the insights offered by a friend from childhood, Frank Roubanovitch, who shed so much light on tensions between national interest and the imperatives of reaching consensus in Brussels. His insights into energy policy helped me shake off a too optimistic Brussels-centric view which I believe strengthened my political analysis and my conclusions from this project.

Finally, and especially, I want to express my gratitude for my wife and wonderful travel companion, Nancy, whose endless patience with my self-imposed deadlines and hours at the computer without obvious payoff to anyone, especially her, is a testament to her love and selflessness. I owe whatever success I have with this project primarily to her steadfast support over these many months.

TABLE OF CONTENTS

ABSTRACT -----	II
DEDICATION -----	VI
ACKNOWLEDGMENTS -----	VII
TABLE OF CONTENTS -----	XI
LIST OF TABLES -----	XIV
LIST OF FIGURES -----	XV
CHAPTER 1. INTRODUCTION: CHEMICAL SAFETY IN A GLOBAL CONTEXT -----	1
Successful EU Leadership in Chemicals is a Puzzle -----	3
Summary of the Argument; Plan of this Dissertation -----	9
Politics of Chemical Safety in Context -----	15
The “Risk Society” and Post-Materialist Politics -----	15
All Politics is Global, Especially Environmental Politics. -----	25
Chemical Safety as a Policy Area -----	27
Rise of the “Precautionary Principle” -----	27
Closing the “Data Gap” on Dangerous Chemicals -----	30
International Language of “Sustainable Development” -----	35
A Brief Tour of the Global Chemical Industry -----	39
CHAPTER 2: TOWARDS A THEORY OF INTERNATIONAL MARKET REGULATION -----	47
Economic Power, Institutions, and Ideas -----	50
Economic Power as a Structural Variable -----	52
The Role of Institutions -----	55
The Power of Ideas -----	60
Explaining Success in Governing Global Product Markets -----	67
A Theory of Global Regulatory Power -----	72

Defining the Outcome of Interest: Governance Success	74
Global Political Strategy: Necessary Element to Governance Success	77
Methods and Research Design	82
Testing Alternative Theories	82
Explaining the Dependent Variable: EU Governance Success	88
Independent Variables: What Accounts for Governance Success?	90
Evidence and Sources	97
Conclusion	98
CHAPTER 3 – THE STORY OF REACH – GLOBAL POLITICAL STRATEGY IN ACTION	99
Policy Formation and Political Strategy	101
Early Studies and Informal Meetings	101
Safety Scandals and Growth of Environmental NGOs	105
Growth of Environmental Politics: Electoral Sphere	107
Analysis	109
Approving the Political Strategy: Release of the Commission “White Paper”	111
Analysis	118
Legislative History of REACH	119
Stakeholder Sessions and Internet Consultation	119
Release of the Legislative Draft	123
Co-Decision Part I: Council and Parliament Study the Proposal	129
Intervention of the “High-Level Group”	131
Co-Decision Part II: Parliament Pushes More Changes	135
Political Intervention by Heads of State	138
Co-Decision Part III: Parliament and Council Compromise on a “Common Position”	140
Analysis	142
EU Implements REACH	146
Phased Implementation	146
Creating a New European Agency	150
Compliance with First Registration Deadlines and the Role of SIEFs	152
Analysis	160
Conclusions	163
CHAPTER 4: INTERNATIONAL RESPONSE TO REACH-- FROM CHALLENGE TO ADJUSTMENT	166
International Opposition and EU Diplomacy	167
US Orchestrates International Opposition to REACH	167
EU Uses WTO Committee to Respond to Critics	170
Analysis	190
The US “Blinks” and Reforms TSCA	191
Early Efforts to Build a Reform Coalition	198
ACC Tacks Toward Reform	200
US Congress Gets into the Act	204

The Failure of the Democratic Bills Opens the Path for Bipartisan Reform-----	209
Letter from “Moderate” Democrats Breaks Stalemate -----	219
Shift to Republican Control and Final Passage-----	221
Analysis-----	225
Key EU Trading Partners Upgrade Their Chemicals Laws -----	229
Analysis-----	235
Conclusions -----	237
CHAPTER 5 – CONCLUSIONS-----	240
International Governance: Necessary Elements for Success-----	241
Political Strategy and the Challenge of Human-Caused Climate Change-----	246
Suggestions for Further Research -----	251
BIBLIOGRAPHY-----	255
LIST OF INTERVIEWS -----	266
APPENDIX A: A BRIEF REVIEW OF KEY EU INSTITUTIONS -----	268

LIST OF TABLES

Table 1-1 World's Largest Chemical Companies 2015.....	44
Table 2-1: Leading Theories and the Dependent Variable; Expected Values	86
Table 2-2: Leading Theories; Independent Variables.... ..	92
Table 3-1: Electoral Results for Environmental Parties (1994-2009).....	108

LIST OF FIGURES

Figure 1-1. World Chemical Sales 2017. CEFIC Report 2018.	41
Figure 1-2. EU chemicals trade flows. CEFIC Report 2018	42
Figure 1-3 World Matrix; chemicals trade balance (2016)	43
Figure 1-4 Capital spending by region. CEFIC Report 2018.	46
Figure 2-1 Economic Power Thesis: Truth Table	89

CHAPTER 1. INTRODUCTION: CHEMICAL SAFETY IN A GLOBAL CONTEXT

In many areas of global governance of the consequences of our modern technological society—such as privacy, climate change and product safety—Europe has asserted its role as a regulatory innovator with the power to drive changes worldwide. This phenomenon has not gone without notice by political scientists and legal scholars. One of the best illustrations of Europe’s ambitions as a global governor is in the policy area of chemical safety. In December 2006, the European Union (EU) enacted a comprehensive chemical safety law called the regulation for Registration, Evaluation and Authorization of Chemicals (REACH).¹ REACH is today the global standard, driving changes in the chemical industry worldwide and serving as a model for legislation, risk assessment and compliance programs in developed economies like Japan and Canada, countries in Europe’s neighborhood like Turkey and Russia, and newly industrialized countries such as China, Korea and Taiwan. The case of global chemical safety policy has figured in past scholarly accounts (Vogel 2012; Keleman & Vogel 2010; Bradford 2012, 2020), but it has not yet been examined in sufficient depth to yield a convincing account of its recent evolution. Cases of governance in related policy areas such as genetically modified crops, food safety, pharmaceuticals, food and cosmetic ingredients, and global climate change show varying patterns of convergence, adjustment and conflict. A close examination of the evolution of the governance of chemical safety during the key period from 1995 to 2016 will help identify the causal factors and the

¹ Regulation (EC) No. 1907/2006.

processes by which these causal factors exert their influence on whether a bid for leadership over global governance is successful and, if it is, what its implications are for those who seek more international cooperation to better manage global risks such as climate change.

The basic empirical story told in this dissertation is as follows. After many years of lagging behind the United States, Europe began in the 1990s to adopt more stringent environmental policies. In 2001, the EU proposed REACH, a law specifically designed to address two weaknesses in the approach then taken by the leading powers. First, REACH was designed to close “data gap” that prevented average citizens from judging the safety of chemicals used in the manufacture or incorporated in products they used every day. Second, REACH shifted the burden from government to industry to prove chemical products were safe. Industry trade associations and Europe’s leading trading partners initially fought hard to stop REACH. REACH was enacted after the EU’s political effort overcame much of the initial opposition to the law. Europe’s leading trading partners then reformed their own laws and regulatory policies to bring them into closer harmony with the approach Europe had taken in REACH. What I have found is that in this policy area, politics matters in a way that sheds light on overall debates in political science about the factors that cause and sustain divergence among great powers and influence the outcome of power contests over governance of key issues of risk and environmental management. Economic structure matters and institutions matter, but the political strategy and tactics that the EU employed to get its way in REACH is also a key factor in explaining its success in governance.

Successful EU Leadership in Chemicals is a Puzzle

The emergence of the EU as a successful regulatory innovator in chemicals safety is a puzzle for political science. Economic and military power cannot account for its success. China is the biggest producer and consumer of chemicals. Europe is only the second largest producer and consumer of chemicals, followed by North America. Although they import a significant share of chemicals they use, Europe and North America are both net exporters of chemicals.² If economic power is a function of a large domestic market (James & Lake 1989, Drezner 2007), why isn't China the leader in chemical safety? And if China is excluded (perhaps because it hadn't quite figured out how to leverage its increasing importance in world economy during the years in focus), why was not the other global economic power, the United States, successful in preventing Europe from asserting its leadership over chemical safety based on a rival design or at least brokering an international compromise or even merely using its residual economic sway to form a rival regime?

The case of Europe's reform of its chemical safety regime is interesting and important because of the light it can shed on the dynamics of the regulation of global business generally. Chemicals manufacture is one of the world's largest and most important industries. According to the International Council of Chemical Associations (an industry group), it is the fifth-largest manufacturing industry in the world (ICCA 2019, 5). In 2018, total sales of chemicals by EU producers were \$608.23 billion, of

² According to industry statistics. See International Council of Chemicals Associations (ICCA) 2019. *Catalyzing Growth and Addressing Our World's Sustainability Challenges; Report: The Global Economic Footprint of the Chemical Industry*. Oxford, UK: Oxford Economics; Conseil European de Federations Chimiques (CEFIC). 2018. *Facts and Figures of the European Chemical Industry 2018*. Brussels: CEFIC; and American Chemistry Council (ACC). 2018. *Jobs and Economic Impact*, Washington, DC: ACC.

which \$174.39 billion in products were exported outside of the EU (CEFIC 2018).³ The chemicals sector is near the very center of the modern industrial economy. Chemical products are used in the manufacture of many products which end up in construction materials, transportation equipment, consumer durables, food, pharmaceuticals, and fertilizers. Thus, chemicals policy has a large impact on a wide variety of manufacturing industries. Chemical products are the subject of a robust international trade, with a significant share of domestic consumption of chemicals in all regions of the world shipped from distant countries. There is significant cross-border direct investment in chemical manufacturing and distribution facilities. The global importance of the chemicals safety regime must be judged from this context: the large size of the chemical industry, its close relationship with other key economic sectors and its international scope.

Additional factors also speak to the relevance of the case of chemical safety for the study of international regulation. Perhaps no change in international governance in the last decades has been more remarkable than that affecting the regulation of chemical substances. First, the policy area of chemical safety has seen the rise of the European Union (EU) as a regulatory innovator and global standard-setter (see e.g. Vogel 2012). This rise has been at the expense not only of the EU's main rival for leadership of the global policymaking, the United States, but also at the expense of international governmental organizations (IGOs), which have largely been sidelined from leadership in regulatory design. The era in which Europe took the lead was also characterized by increasing divergence in regulatory models between the US and Europe. While the US

³ All figures in the CEFIC report are in Euro. These figures were converted to U.S. Dollars using the reported exchange rate on March 8, 2019.

led the world in the 1960s and 1970s as it relates to the stringency of its environmental and product safety regulations, the pattern has reversed, and many commentators have noted how Europe consistently has since 1990 taken a more stringent approach to regulation of products and services than the United States (Keleman & Vogel 2010).

Second, chemicals regulation shifted dramatically during the period from 1995 to 2016. Prior to this time, regulators had limited practical means to evaluate the safety of chemical products and decide on what priority to place on more intensively regulating certain products. At the end of this period, enterprises that make or use chemicals are expected to provide detailed health and safety information to regulators and remove from the marketplace any chemical substances that cannot be proven safe. REACH represented a major departure in chemicals policy, replacing the then-existing “risk-based” approach modeled on the U.S. Toxic Substances Control Act (TSCA).⁴ Under TSCA and laws modeled on it, manufacturers were expected to file notices containing safety information about new chemicals they wished to place on the market but had no duty to provide information about chemicals already on the market when the statutes were enacted. Regulators had the burden of proving by “substantial evidence” that chemicals should be restricted or banned. This burden was made more severe by court rulings that had the practical effect of making such decisions very difficult. Critics had for decades criticized two key defects of the TSCA approach: (i) the distinction between existing and new chemicals created a “data gap;” and (ii) chemicals stayed on the market for years despite growing concerns about their safety. Critics hoped to replace this model with one based on a “precautionary principle” where a substance would not be

⁴ P.L. 94-496, 15 U.S.C. §§ 2601-2929 (1976).

allowed on the market unless it could be proven safe for its uses (Brickman 1984; Eckley & Selin 2004).

In the 1990s, The EU needed to update its own chemical safety laws. In 1995 the EU had completed the fourth enlargement, adding three members, Austria, Finland, Sweden that had a tradition of stringent environmental regulation. The EU responded to the simultaneous demands for greater stringency and regulatory uniformity across the Single Market by proposing a new regulation that would centralize regulatory authority at the EU level. This new regulation, REACH, was innovative in that it represented an advance on existing regulation in two respects. First, it would close the “data gap” that had emerged as existing chemicals were exempted from required disclosure of comprehensive health and safety data to governmental authorities. This goal embodied in the slogan “No data, no market,” which was intended to capture the thrust of the universal registration requirement for non-experts and members of the public. REACH promised to generate a flood of new information on the safety of chemical products that would enable authorities to prioritize the evaluation of more dangerous substances and encourage manufacturers and end-users to find substitutes for those whose hazards could not be effectively managed in the supply chain. Second, regulation of chemical hazards under REACH would be consistent with the “precautionary principle.” Those wishing a chemical substance to remain on the market would bear the burden of proving its uses were safe, rather than the authorities having the burden of proving, for example by “substantial evidence” like under TSCA, that a product should be restricted or banned. Authorities would be empowered to adopt restrictions and impose bans even if the data were inconclusive. To capture this burden shifting element, REACH was said to embody

the longstanding principle in domestic environmental policy that “polluters pay” for the damages they cause. Manufacturers of chemicals and their customers would be expected to pay the costs necessary to understand the risks that chemical substances posed for society and the environment and to accept the consequences if those risks were unacceptable. The EU took the bold step to reform their laws to close the “data gap” and institutionalize the “precautionary principle” notwithstanding the initial refusal of the United States to reform its own laws and without waiting for a compromise to be brokered in a club forum like the Organization for Economic Cooperation and Development (OECD).

One might expect that political science would have developed a theory to explain why Europe could take such a leadership role and drive a change in global policy. Scholars have proposed a range of variables—materialist, institutional or ideational—that could explain international developments in key policy areas like financial regulation, monetary policy and trade (Drezner 2007; Farrell & Newman 2010; Fioretos 2010; Mattli & Büthe 2003, 2010; Posner 2010). David Vogel (2012) offered an account that could explain the growing EU commitment to regulatory stringency and the precautionary principle at the same time the US moved away from its historic leadership on safety policy. Vogel was not able to find any evidence to plausible theories for the shift, such as differences in actual risks, Europe simply catching up, economic performance or growth rates, the role of economic interests or deep-seated views on the role of government regulation, political systems or cultural values (Vogel 2012, 22-34). To explain this shift to stringency in Europe and retreat from stringency in the United States, Vogel identified three variables: (i) *public perception of risk*; (ii) *political preferences of leaders*; and (iii)

willingness of officials to assert regulatory power in the face of scientific uncertainty (Vogel 2012, 34-36). EU's experiment in globalizing its chemicals policy with REACH was an important empirical example explored by Vogel. Writing in 2012, Vogel predicted continued divergence between Europe and the United States in chemical safety policy (Vogel 2012, 177). This prediction failed to anticipate the decision of Republican legislators to work with centrist Democrats to enact a significant reform of TSCA in 2016.

The theory in political science that best explains EU success is found in the work of Bradford (2012, 2020). Bradford coined the term "Brussels Effect" to explain in compelling fashion why it might be that EU can succeed in internationalizing its policy preferences. Her theory is a hybrid, combining insights from power-based theories like that of Drezner (2007), economic mechanisms of "trading up" identified by Vogel (1997) and others (Mattli & Bütte 2003, 2010, Newman and Posner 2007) with insights developed in the 1990s and 2000s by scholars working in the Institutionalist tradition (Bach & Newman 2007; Posner 2009, 2010; Bach & Newman 2010, Farrell & Newman 2010, Newman & Posner 2016) that explored several mechanisms that they believe explain patterns of convergence in financial and economic policy and the emergence of the EU as a regulatory innovator. These mechanisms included several different dimensions of regulatory capacity in which Europe had proven increasingly adept at building: "political centralization" (Posner 2009, 280); ability to create highly regarded standards (Posner 2010) and ability to restrict others from the home market (Posner 2010, 659 quoting Bach and Newman 2007). All these mechanisms were more-or-less in evidence in the case of chemical safety, but their presence does not account for the

special sequence of events that unfolded in the case of REACH and its aftermath. In the years leading up to its decision to embark on REACH, the EU had embarked on a series of interrelated political projects: building a Single Market, expanding the Union to encompass former authoritarian states on its periphery and launching Euro as a common currency. Learning lessons from these successes and some disappointments in other areas (such as the failed attempt to take global leadership on restricting import of GMO ingredients), the EU was able to anticipate many roadblocks to internationalizing its preference for a centralized regulatory approach that would “level the playing field.” The EU developed a deliberate political strategy to overcome those roadblocks. Leadership in Brussels and the member companies apparently did not expect that the inherent logic of EU policies nor the size of the Single Market to guarantee the success of REACH. This variable, the ability of EU institutions and member governments to agree on and pursue a successful global political strategy, is not explored by Bradford or the institutionalists. This is a gap that this dissertation will fill.

Summary of the Argument; Plan of this Dissertation

In this dissertation, I will use the case of chemical safety, with a special focus on REACH and the US experience reforming TSCA, to evaluate theoretical tools that are used to account for changes in rules in other policy domains to see whether these tools can be employed to construct of a compelling theory as to why the EU was able to act unilaterally in the area of chemicals policy and apparently succeed in re-setting international standards according to its preferences. My empirical work suggests that the ability of the institutions of the EU to draw support from a variety of constituencies for

comprehensive reform of chemical policy allowed it to move first and generate adjustment in the behavior of leading private actors that forestalled the emergence of a rival international regime. At the outset, Europe had only limited and diffuse regulatory capacity relevant to chemical safety. It had limited success in multilateral fora like those organized under the auspices of the OECD in seeking convergence on more stringent standards for assessing risk and addressing the “data gap” in chemicals. Yet, the Commission, at the urging of the Council and with support of the Parliament, addressed these weaknesses head on and created a strategy for winning over diverse constituencies—environmental NGOs, chemical manufacturers, end users of chemicals, and economic bureaucrats inside the governments of key trading partners—that gave it crucial time to build capacity and implement a unilateral effort to build a universal registration regime based on the “precautionary principle.” The mechanisms identified in the institutionalist literature summarized briefly above and explored in more depth in Chapter 2 can help to shed light on sources of strength that allowed EU to do this. Bradford’s theory distills learnings from the institutionalists into two factors of her five-factor test⁵ for international regulatory influence: “preference for stringency” and “regulatory capacity.” Clearly chemical manufacturers were part of a globally-connected network and the subtle change in industry preferences played a huge role too. But what is not clear is to the extent this shift happened for economic, institutional or idea-based reasons. Elements of the story of how and why the EU decided to proceed with REACH do not fit squarely within Bradford’s factors and are not anticipated by Institutionalists looking primarily at rules for finance.

⁵ The five factors are: (i) economic power; (ii) preference for stringency; (iii) regulatory capacity; and cross-border product markets that are (iv) inelastic and (v) non-divisible.

In chemical safety, Europe was able to use a global political strategy to overcome initial international opposition to its leadership ambitions. Europe could capitalize on the large size of its market to influence the behavior of international actors but this had proved insufficient in cases such as GMO ingredients, for example, when opposition by the United States to its exercise of global ambitions was fierce. REACH shows that Europe could prevail but only when it reinforced its strengths as leading economic bloc with the internal capacity to enforce stringent uniform standards with a well-thought out global political strategy.

The European Commission explicitly incorporated the realities of global politics in its proposal for REACH. As it was formulating its legislative proposal, the Commission sought the input and involvement of economic actors outside of Europe and made changes to address concerns that were raised. European diplomats used the WTO Technical Barriers to Trade Committee to address global criticism led by the United States. The political effort succeeded in blunting the opposition and preventing the coalescence of any international movement to counter REACH with an alternative policy structure. There was no principled consensus in favor of any particular risk-based evaluation system or Europe's "precautionary principle." The acquiescence by global actors was pragmatic not principled, in that it did not reflect any scientific consensus on what constitutes appropriate level of risk for chemical exposure for all but a handful of substances.

Even before REACH went into effect in 2007 actors around the world had begun taking part in the implementation projects initiated by the Commission. Participants at all positions in key global supply chains for manufactured goods had already been

encouraged to plan for the implementation of REACH and to offer their input on how to make the regulations first steps go smoothly. This implementation process resulted in a successful launch of the initial registration of thousands of chemical substances. This success led to a shift in preferences, making local reform of chemical safety laws much more palatable to business interests than such reforms had been prior to REACH's enactment and implementation. The shift in preferences were driven by economic considerations but political calculus and concerns for industry reputation that went beyond short-term bottom-line concerns also played a role. The depth of this turn towards accommodation of greater regulatory stringency and data transparency was signaled dramatically when a bipartisan coalition in US Congress enacted a significant reform of TSCA. This reform occurred in 2016, a presidential election year and a time when Republicans controlled Capitol Hill. The US step was part of a larger global movement towards reform and accommodation of REACH which saw Canada, Japan, Korea, Vietnam, China, Taiwan, Turkey and states of the former Soviet Union, among others, enact laws that incorporated important elements from REACH.

This sequence of events, and the central place that politics played within the overall story, has implications for theories of global regulatory change. Ambitious global governors gain meaningful advantages if they can deploy an effective global political strategy. Political strategies can overcome initial opposition, giving well-theorized mechanisms from the institutionalist literature, such as first-mover advantages and increasing returns, a chance to mold preferences and priorities of international economic actors. The timing of political contestation and eventual economic adjustment are sequential not simultaneous. Theories that do not address the sequence of events in time

have a difficult time explaining the dynamics of global governance in product markets. The case of chemical safety offers lessons that can help overcome some of the limitations of leading theories of Europe's regulatory leadership such as Vogel (2012) and Bradford (2020) and establish the necessary foundations for building more useful theory about why certain attempts at global governance succeed and others fail.

This dissertation is divided into five chapters, including this one. The remaining part of Chapter 1 is devoted to providing necessary empirical background on the politics of risk and safety and the role played by the European chemical industry in the wider global context. Chapter 2 surveys the current literature on international governance and offers a summary of the theories that will be tested. In that chapter I introduce an elaboration of Bradford's "Brussels Effect" and Vogel's "California Effect" to account for the role of political strategy in overcoming roadblocks that appear because of the sequence in which reform and adjustment of global governance take place. In Chapter 2, I also address the methodological choice I have made to do a single-case study. I also explain why the focus on "governance success" (Avant et. al. 2010) rather than the construction of formal institutional arrangements makes the most sense in this policy area.

Chapter 3 is an in-depth study of EU's design, enactment and implementation of REACH in the years leading up to 2016. It puts Europe's choice to pursue reform of chemical safety in the context of its own complex politics, deemphasizing the extreme focus on the preferences of Commission bureaucrats and activists and taking account of the control over the process exerted by more traditional political actors, such as political parties and trade associations.

Chapter 4 looks carefully at how the world reacted to REACH. It looks at how diplomats used the WTO forum of the TBT Committee to challenge EU's unilateral bid for leadership. EU's leaders understood that if Europe's bid for leadership were successful it could box actors around the world into a policy structure that might be seen as imposing costs on local enterprises and favoring Europe over its economic rivals. The chapter also examines closely the response of Europe's key rival in matters of international economic regulation, the United States. In the years when REACH was being proposed and implemented, the dominant voices with access to power in the US were those critical of the "precautionary principle" and skeptical of comprehensive government-led solutions like REACH. Nevertheless, REACH was seized upon by an unlikely coalition of environmental activists, reformers within industry and pro-business politicians that moved the US more towards the Europe-led compromise between activists and business around the need for more comprehensive regulation and information transparency. This coalition was weaker in the US than elsewhere as it needed to overcome stronger business preferences for lighter regulation and trial-lawyer and activist preference for more decentralized, less expert-led policy-making. Chapter 4 will also offer a brief tour of post-REACH reforms in countries as diverse as Canada, Japan, South Korea, Turkey and China. Although REACH has not been replicated, it has exercised a predominant influence over everything that has been done in this policy area since. All the reforms reflected the reality that internationally-minded businesses everywhere had already come to peace with REACH and had already undertaken significant efforts to comply. A rough convergence has occurred, but the degree to which material interest, diffusion of ideas and other mechanisms have influenced the result vary

depending on economic, political and institutional context in which debates about risk take place within a given country or region.

Chapter 5 distills the lessons from the empirical chapters and suggests what the case of chemical safety teaches theorists of international regulatory convergence and conflict. These lessons offer insights into the success of the next round of international economic regulation and in particular the attempt to coordinate policies to slow-down human-caused climate change. The fact that traditional political actors shaped the debate and steered the activism of post-materialist actors in a direction that did not challenge the primacy of economic considerations, has important implications for the politics of climate change. By framing the climate crisis in manner similar to that used by the Commission in REACH, a political strategy could offer the hope that by addressing the unintended consequences of industrial civilization, a new wave of innovation-led economic growth and institutional development would offer solid basis for achieving the long-standing goals of the modern project: reducing material suffering in the hope that the causes of war and other forms of conflict could thus be rendered less dangerous.

Politics of Chemical Safety in Context

The “Risk Society” and Post-Materialist Politics

Some theorists, drawing from the sociological tradition, argue that we today live in a “Risk Society.” This new society is characterized by “self-reflective modernism,” an outlook which is modernist in the sense of transcending traditional ties, but qualitatively different than the classic modernism of the industrial era (Beck 1992, 1999; Giddens 1990; de Breton 2012). According to this view, in the late stage of modernity experienced

by advanced societies, daily life depends on systems that are prone to breakdown and are plagued by dangers to human health and survival, many of them hidden from view. Rationality and science are at once pre-conditions for establishing and maintaining expert systems to manage these risks and increasingly called into question by critics who view scientific claims to value-neutrality and objectivity with skepticism. As in past eras, risks to survival exist in the forces of nature, such severe weather events, earthquakes and fires. These risks also include historic threats of exposure to disease and other pathogens of the natural environment such as malaria as well as the weather-related failure of crops and food systems. In the “Risk Society” these historic risks do not disappear but their seemingly successful management by science create new human-created risks to survival that themselves become the central subject of politics. Human life is afflicted increasingly by risks posed by human activities themselves and even the survival of the human species and the persistence of earth as a hospitable place for the diversity of non-human species is put at risk by human-created dangers. These unintended but inevitable side effects of economic “progress” could be dangers from introduction of human-made materials in food, in household products or are designed-in features of normal operations of industrial systems such as mining, agriculture or energy production and distribution. Dangers also include the risk of unintended releases due to breakdown of systems designed to manage these risks. These risks have increased with the overall size of the impact of human activity on the planet but, according to the theorists of the “Risk Society” like Beck and Giddens, awareness of these dangers may have increased even faster.⁶

⁶ For a sympathetic yet critical reappraisal of the “risk society” thesis, see Mythen (2007).

This growing awareness of the risk inherent in human activities has generated a new type of politics designed to protect us from the risks of daily life.⁷ This distinctive politics of the new modernity has been given various names: “post-materialist” politics (Ingehardt 1997), environmental politics (Clapp and Heliener 2012), and risk politics (Giddens 1990; Beck 1992). Some of the risks that are the subject of this politics are of the type that can be managed through personal choices, such as decisions on whether to wear seatbelts, quit smoking, eat red meat, drink and drive or own a gun. Other types of risk are those that arise from normal operations of the economic system and are therefore beyond the ability of individuals to manage effectively. Some of these, such as the risk of unemployment, fluctuations in overall economic activity and maldistribution of economic benefits have long been seen as best managed through state policies promoting full employment and provision of a minimum social safety net. These risks have been the primary ground contested by the longstanding parties that arose from the first-wave industrialization—Socialist, Liberal and Conservative. Other risks, the risks that are characteristic of “post-modern” or “late modern” life relate to “externalities” to the normal operation of the economic system, for example the risks to health imposed by pollution or the disposal of waste or risks hidden in materials incorporated into products we use and the risk posed by emissions from interlinked energy systems from which individuals cannot effectively opt out. This second category does not as easily avail itself to solutions based on macro-economic management or welfare provision nor do voter preferences on them map easily onto the traditional right-center-left political spectrum

⁷ See DeBreton (2012, 11-30) for a discussion of risk as it affects daily life (*l’Individue Précaire: Risque et Quotidien*).

nor on top of traditional class cleavages of owners and workers.⁸ Neither are these susceptible to remedy by policies (like anti-smoking and temperance campaigns) designed to encourage individuals to make better choices. Rather, the individual-based thought patterns of modernism lead to the contention that dangers inherent in industrial products or productive systems themselves are most appropriately managed by the actors that profit from the activities that create these dangers. In modern capitalist world system this means the profit-driven capitalistic businesses that are in charge of these systems.⁹ In this type of politics, activists seek to place producers under moral or legal obligations to conduct their operations in accordance with minimum standards designed to reduce risks to an acceptable level or face action by public authorities or by direct action of members of the public who are frightened or harmed. At the extreme, actors engaged in risk politics demand that certain activities that pose existential risks to human life and the environment, be radically scaled back or eliminated entirely.

The politics around these types of risk takes the form of a classic battle between environmental activists and business. Activists organize campaigns appealing to “post-materialist” values to bring political pressure on business to improve standards and/or lobbying governments for more prescriptive rules. Business defends its competence to manage the risks its activities create without such rules being imposed from the outside in a way that is expensive or inefficient. Expert systems developed by credentialed scientists are the way this type of risks is managed (Giddens 1990, 31-36). The political battle then

⁸ See Beck (1992, 19-50) for a discussion of how the distribution of risk positions are different than wealth distribution and for that reason change the nature of cleavages in modern politics. See also De Breton (2012, 55-103) on “risk societies” (*Les sociétés du risqué*) and the impact of reflexive modernism in driving the politics of the “precautionary principle” (*le principe de precaution*) and the emergence of its political critique (*critique de la prevention*).

⁹ See Giddens (1990, 29-52) on how the risks of modern life raise the political significance of trust in formal systems of administration and “expert systems” and scientific expertise generally.

becomes one not between classes with different property claims to social wealth, but between those who trust the expert systems developed to manage risks, and those who question them, either because they are motivated by a different system of values or by virtue of geographical or other position (“social risk positions” vs. “class positions”) they are more at risk of suffering harm if the expert systems break down. The battle over expert systems also must involve questions of causation which begin to politicize the truth claims of both natural and social sciences giving political battles characteristic of Risk Society their special quality (Beck 1992, 19-84). For theorists of the Risk Society like Beck and Giddens, the paradigmatic battles in this new terrain are those over risks to global survival such as nuclear disaster and human-caused climate change. A classic example of risk politics affecting national policy would be the decisions of the United States to stop the commercial re-processing of nuclear waste in the 1970s (fear of nuclear proliferation) and the decision of Germany to phase out civilian nuclear power entirely after the Fukushima disaster in 2011.

There are a great number of areas of risk politics that follow the “new” pattern characteristic of the Risk Society. These include among others food safety, and the regulation of dangerous products such as pesticides, pharmaceuticals, cosmetics and other industrial products. Of these, regulation of the safety of chemical products is one of the most central for the issues it raises and for its history of public contestation. Politics that concerns the regulation of products share key features that affect how issues are contested in the political realm. First, politics addresses itself primarily to the management of risks created by business in its normal operations not the risk of breakdown of normal

operations (Beck 1992; De Breton 2006). Thus, this type of contestation is focused on reforming processes and setting safety standards not reducing the risk of accidents.

Second, the politics of product regulation is concerned with establishing a target level for risk that is “acceptable,” it generally being acknowledged that a “zero risk” level for the use of any product is unattainable. Meanwhile the effects of chemical pollution are often “silent” or “invisible” and take years to manifest themselves (Beck 1992; DeBreton 2006). At the same time the technology of screening for small traces of chemical materials has improved and become inexpensive and widely available. The testing programs of advocacy groups has confronted the public with knowledge that human bodies typically contain trace amounts of many chemicals, the majority of which have not be conclusively tested to eliminate the possibility of harmful effects.¹⁰

Third, the politics of product regulation always revolves around causal stories which are based in natural sciences, but natural science can never answer the question of what is an acceptable risk (Beck 1992; Giddens 1990). This question of the acceptability of a risk of a product is a political one, and the state of scientific knowledge on the subject is always an important element in reaching a political decision but is not determinative. The promise of science is that it can provide a more “objective” view of risk than that of popular opinion generally. However, as the politics of risk has developed over recent decades, it is increasingly obvious that science itself is highly contested¹¹ and that the wider public, including its political representatives whose power ultimately depends on public trust, support, and acceptance, is increasingly unwilling to defer to the

¹⁰ Author interviews with Brussels-based lawyer with background in chemistry and lawyer at international environmental NGO.

¹¹ See e.g. Wildavsky (2017), Vogel (2012), Sunstein (2002), and Wagner (1994)

opinions of scientific experts on such matters whether they be chemical safety, the risk of nuclear accidents or climate change (Beck 1992).

The patterns of contestation over policy areas such as chemical safety in the Risk Society have impacted the larger political system in advanced societies. Support has waned for traditional political parties and political movements that emerged during the first wave industrialization in the 19th and early 20th centuries. These traditional parties tended to carry the banner of ideological programs based on Socialism, Liberalism and modern democratic Conservatism. This shift in voters and parties has inspired a lively literature debating the role of sociological and institutional factors in explaining this evolution (Wren & McElwain 2007; Inglehardt 1997, 1987, 1977; Katz & Mair 1992; Dalton 2000). Inglehart (1997) has argued that this evolution is a result of changing voter preference, in particular the tendency of voters in advanced societies increasingly to base their voter preferences on so-called “post-materialist” issues such as self-expression and the environment. Some have tied this move towards “values” issues and away from concerns for material comfort and security to the evolution of labor markets in advanced industrial societies to one where many workers manipulate symbols and perform services rather than work in classically “productive” activities such as manufacturing or agriculture (Iversen & Wren 1998). Others have tied this evolution to the growing salience of issues of globalism, the environment and immigration which create new cleavages between winners and losers that do not fall neatly on the economic cleavages (capital vs. industrial labor vs. traditional elites) that generated the modern left-right-center political spectrum and challenges the power of elected politicians to address them on a national level (Rodrik 1997, Kitschelt 1994). Chemical safety is an excellent

example of what Inglehart would class as a “post-materialist” issue. It offers a window into the pattern that many who have studied “new” politics movements have identified, that activists appeal to the public with campaigns that seeks to subordinate the political goal of more economic growth and higher and higher levels of industrial development to the achievement of “post-materialist” values. These values include social stability, priority of local connections, the right to live free of “survival” risks, animal welfare and harmony with nature. Analysts have included chemical safety in the list of issues that animate new international advocacy networks and so-called “epistemic communities” dominated by credentialed experts on particular issues of safety and risk (Haas 1992; Keck & Sikkink 1998).

The relationship between environmental politics and “risk” politics generally and scientific truth is an uneasy one. This has led to a cleavage among activist groups and prevented the development of strong scientific consensus in the field. In the 1980s and 1990s many activists sought to discredit the advice of organized experts in fields of toxicology who sought to reassure the public that the level of risk posed by the existence of small amounts of man-made materials in the environment were not dangerous to the public at large. They sought to encourage public doubt of those who argued that risks of dangerous exposure from accidental releases, such as at the chemical plant at Bhopal or the nuclear power plant at Chernyobl could be managed by “expert systems” set up to reduce the risk of such accidents to an acceptably low level. Other activists embraced a different view, one which viewed environmental problems as “externalities” of the marketplace that could be managed effectively by expert systems if the proper incentives were created through governmental policy and private standard-setting. Anthony Blowers

(1997) identified this cleavage as one between “ecological modernism” which seeks solutions within the current world system and the Risk Society which features a broader critique of industrial society and its commitment to economic “progress” at the expense of survivability of the species and the planet. Political scientists seeking to understand the environmental movement in a global context would draw distinctions between activist networks (Keck & Sikkink 1998; Ford 2018) who shared a world view and sought a change in “values” around the relationship among humans, their collective activities, and nature, and “epistemic communities” (Haas 1992A, 1992B) which united networks of credentialed scientists around a particular set of reforms in domestic international policy and their institutionalization. There was no firm line that could be drawn between those on the “values” side (critical of modernism) and the “modernist” (pro-science) side of the divide and in fact many organizations and individual activists express at different times commitments on either side. Nevertheless, maintaining this conceptual distinction to describe different activist campaigns can serve to illuminate some of the tensions that remained among different actors in the drama of chemical safety reform, particularly why a path to joint advocacy by some elements of the environmental movement and industry opened up during a critical period in the late 1990s and early 2000s.

Both “modernist” and “Risk Society” factions of post-materialist movements have had to face their intellectual critics. Douglas and Wildavsky (1983) characterized the public’s view of risk as formed by sociological factors that cannot be reduced to statistical accountings of risk. Wildavsky would later craft a polemic (2017) in favor of a rationalist and materialist “objective” take on risk and against activist attempts to reduce politics to a battle of values without regard to the economic cost of their advocacy. Legal

scholars (e.g. Wagner 1994; Sunstein 2002) have criticized the misuse of risk analysis by government bureaucracies, concluding that risk policy in practice is prone to inconsistency, resulting in both over- and under-inclusive regulation that addresses the wrong risks and offers inefficient policy prescriptions. Someone citing Beck or Inglehart might observe that critics like Wildavsky and Wagner were imprisoned in “materialist” assumptions that put the achievement of maximum economic growth at the center of politics despite the fact that political preferences were shifting to give priority to competing “post-materialist” concerns.

Whatever the merits of either side, no consensus had emerged on a proper risk policy. Vogel acknowledged that there was no international expert consensus around risk politics in the late 1990s and early 2000s, as worries continued about the danger that, when pushing for too much “protection” against the side-effects of industrial society, activists might endanger the real gains in health and safety that come with greater general prosperity (Vogel 2012, 36-40). These costs are not distributed evenly through society as the market allows producers to pass costs to consumers and the welfare of poorer members of society are more adversely affected by higher costs than others. As we will see in the policy area of chemical safety, the political formula of “sustainable development” allowed conventional materialist thinkers to remain hopeful that within this framework a healthy debate was still possible about how much of the benefit economic growth would need to be sacrificed in order to achieve sustainability. As wielded by politicians and technical experts keen to retain influence over politicians, the “sustainability” slogan gave elite and popular audiences the impression that the quality of

economic growth in advanced societies would improve as solutions were generated to make industrial processes more sustainable.

All Politics is Global, Especially Environmental Politics.

The “post-materialist” politics of risk and environment have also become global. Daniel Drezner addressed this trend directly in the title to his “All Politics is Global” (Drezner 2007). Because the risk to human societies and the environment do not respect national borders, and because national economic systems are increasingly intertwined, politics also must transcend national borders. As a consequence, environmental politics has attracted a great deal of attention from scholars who study international politics from both the standpoint of comparative politics and international relations. “Governance” of the international aspects of risk politics has become politically urgent. This is emphatically the case with the politics of human-caused climate change, which is an increasing pre-occupation of both activists and governments around the world confronting growing evidence that human activity is likely to result in an unprecedented rise of average global temperatures, changing weather patterns, disrupting food systems, causing coastal flooding and species extinction. In 2016, 180 nations signed the Paris Climate accords with a goal of preventing these catastrophes by encouraging nation-states to commit to reductions in projected emissions of CO₂, methane and other “greenhouse gasses” (GHGs). The question of whether 190-plus nation states who are members of the United Nations Organization (UN) can create a governance structure for managing the risks of climate change is therefore one of increasing importance for the world.

The study of chemical safety has much to teach a world contemplating the creation of new international governance structures to manage risk issues that transcend

borders, such as the imperative to decarbonize global supply chains to reduce emissions of GHGs and avoid catastrophic effects of rapid climate change. Chemical safety has figured in the analysis of recent analysts of international environmental politics, most notably David Vogel (2012) and Anu Bradford (2020). Each author has used chemical safety as a case to help them develop frameworks to understand the changing dynamics of international environmental politics during the period after 1990. Both Vogel and Bradford investigate the reasons why Europe has taken a leading role in pushing for reformed governance of international environmental issues and the United States largely has not. For Vogel, chemical safety is good case for explaining the growing divergence between US and European regulatory outcomes. Since 1990, Europe has consistently opted for more stringent and more comprehensive regulatory responses to environmental risks that are the inevitable side-effect of industrial society. EU's decision to enact REACH is a paradigmatic case in point. Anu Bradford uses chemical safety as an illustration about how Europe can create what she calls *de facto* leadership in an issue area even when other nations do not follow their lead in enacting compatible laws. For Bradford, Europe's ability to assert *de facto* leadership is function of the interconnected nature of the global economy and particular features of product markets that give power to regulatory actors with a preference for stringency.

What is missing from Vogel and Bradford's studies is a full account of how politics influenced the result each researcher identified: divergence between US and Europe in Vogel's case and Europe's *de facto* leadership in the case of Bradford. Bradford's theory doesn't adequately theorize Europe's preference for stringency and thus fails to account for the politics of REACH. Vogel fails to anticipate Europe's ability

to overcome US opposition and inspire a reform of US policy. These are the gaps that this study is meant to fill.

Chemical Safety as a Policy Area

Rise of the “Precautionary Principle”

The shift in regulatory design signaled by REACH is the culmination of a long and contentious political process. As originally conceived, REACH was a response to critics who argued that existing chemical safety policies had failed to protect human health and the natural environment from dangerous chemicals such as PCBs and DDT. The critics charged that many dangerous products remained on the market years after doubts about their safety had been raised. According to Vogel’s account, the principle of “precaution” has multiple sources. As early as 1958 U.S. Congress amended federal food safety statutes to include the “Delaney clause” which banned any substance that causes cancer in animals or humans from being used as a food additive regardless of whether there was definitive proof its use as a food ingredient was itself unsafe.¹² This bias for protection was incorporated into the Endangered Species Act¹³ and the National Environmental Policy Act¹⁴ as well (Vogel 2012, 253). The concept that regulators have the power to ban or restrict substances that “might” cause harm in the face of scientific uncertainty was upheld in a series of U.S. court decisions from 1970s through 1990s (Vogel 2012, 316-7).

The “precautionary principle” developed in Germany, where the concept of “foresight” (*Vorsorgeprinzip*) had long been promoted as an ideal in laws regulating

¹² Food, Drugs, and Cosmetic Act of 1938, 1958 Amendments, Pub.L. 85-929, 21 U.S.C. §§ 321, 341 et. seq.

¹³ Endangered Species Act of 1973, Pub.L. 93-205, 16 U.S.C. §1531 et. seq.

¹⁴ National Environmental Policy Act (1970), Pub.L. 91-190, 42 U.S.C. §4321 et. seq.

hazardous air emissions. Later the concept of the “precautionary principle” was formally elevated as a goal in international environmental conferences sponsored under UN auspices. The principle of “precaution” was included in the official declaration of the UN’s Conference on Environment and Development (UNCED) held in Rio de Janeiro in June 1992 (the “Rio Declaration”).¹⁵ Principle 15 of the Rio Declaration states: “In order to protect the environment, the precautionary approach shall be widely applied by States according to their capacities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.”¹⁶ The European signatories to the Treaty of the European Union included a statement approving the precautionary principle. Article 130r of the Maastricht Treaty states:

Community policy on the environment shall aim at a high level of protection taking into account the diversity of situations in the various regions of the Community. It shall be based on the precautionary principle and on the principles that preventive action should be taken, that environmental damage should as a priority be rectified at source and that the polluter shall pay.¹⁷

The addition of Sweden, Austria, and Finland to the EU in 1995 brought in states with a long history of preference for stringent environmental protections. Accordingly, the pressure to reform EU environmental rules picked up steam in the 1990s. Meanwhile, European member states were moving ahead with restrictions, such as France’s rejection of British beef for reasons of “Mad Cow” disease (BSE). The Commission was under pressure both to “rein in” member states and justify ad-hoc assertions of the “precautionary principle” in ways that did not offend WTO rules. This set the stage for

¹⁵ Report of the United Nations Conference on Environment and Development (Rio de Janeiro, 3-14 June 1992), A/CONF.151/26 (“Rio Report”).

¹⁶ Rio Report at 3.

¹⁷ Treaty on the European Union, OJ C1919, 29/07/1992

the “informal” meeting of the Environmental Council of the Council of Ministers in 1999 and the issuing of a Commission White Paper on REACH in 2001 (the “White Paper”).¹⁸

Activist-minded observers often cite Europe’s embrace of the precautionary principle as a major achievement (Eckley & Selin 2004; Vogel 2012). The precautionary principle is best understood as an incremental shift in emphasis rather than a revolution. It is not so much a scientific concept as a statement of regulatory philosophy. The precautionary principle requires that possibly dangerous products should be restricted and/or banned before definitive scientific proof is available, thus taking a “better safe than sorry” approach to regulation overall. There is no scientific consensus about when a “hazard” becomes an unacceptable risk that justifies a precautionary use of regulatory power. The Commission defined the “precautionary principle” in the White Paper as applying “when there is a preliminary objective scientific evaluation indicating reasonable grounds for concern that the potentially dangerous effects on the environment, human or plant health may be inconsistent with the high-level protection chosen for the Community.”¹⁹ This definition includes key words and phrases (“dangerous”, “high-level of protection”) that have no objective scientific meaning independent of the conclusions that there is an “unacceptable” risk in a particular case. The precise definition of these terms the Commission and the Council left for future determination. What constitutes a “preliminary” evaluation? What are “reasonable” grounds of concern of “danger” threat of harm to humans and the environment? What is the level of probability necessary for the “potentially dangerous effects” to be “inconsistent” with the

¹⁸ European Commission 2001A. *White Paper: Strategy for a future Chemicals Policy* (Brussels, 27.2.2001) COM/2002/088 final

¹⁹ White Paper. p 29.

high-level protection chosen for the Community?” As much as the authors of the REACH strategy wished to base decisions on science, much of the burden of elaborating a successful shift in policy would depend on political judgments.

By the time the EU committed to reform of its chemicals policy in 2000, no firm international consensus had formed around the correct formulation of the precautionary principle. In fact, the prevalence of “health scares” such as around that alleged the chemical Alar came under wide-ranging attack by policy experts who insisted that remote risks to human health and the environment be prudently discounted when balancing benefits and costs of regulation. These counter-critics, mainly active in the US, included both movement “Conservatives” hoping to defend of “economic freedom” against the “nanny-state” but also more mainstream pro-business liberals like Cass Sunstein and future Supreme Court Justice Stephen Breyer who bemoaned the inefficiencies that accompanied policymaking on the heels of crisis-induced “information cascade effects” (Vogel 2012, 257-264; Sunstein 2002).

Closing the “Data Gap” on Dangerous Chemicals

The lack of the “precautionary principle” was not the only “gap” in the then-current chemicals policy that needed to be filled with the help of reformed laws. For years, chemical safety laws had exempted “existing chemicals” from notice or information requirements. Laws required manufacturers to notify authorities of “new chemicals” and thereby alert public authorities to the release on the market of new potentially harmful products so action could be taken to prevent harm, but chemicals already on the market could continue to be manufactured, marketed, transported, and used without any formal regulatory review of their safety. Critics decried the “evidence

gap” created by the lack of reliable and publicly available data concerning the safety of many products on the market.²⁰ To fill this “gap”, advocates pushed to remove the special treatment of “existing chemicals,” requiring industry to provide regulators the scientific information they needed to set priorities for investigation and political decisions on restrictions and bans (See Brickman 1984; Warhurst, 2005).

Worries about the impact of chemicals on human health and the environment have existed since the rise of industrial production of chemicals in the 18th century. For example, the environmental damage to local communities in the UK caused by the manufacture of the building block chemical product, soda ash inspired special Parliamentary legislation in the 1860s.²¹ The use of chemicals in warfare during the First World War resulted in international conventions for banning the use of certain categories of weapons in war. In the 1960s widespread prosperity triggered worries about the costs of such prosperity, including from the widespread the use of chemicals on the environment. Rachel Carson’s *Silent Spring*, published in 1962 became a worldwide best seller, popularizing its case against the spraying of DDT, an insecticide that had made a significant dent in the spread of malaria but had also been blamed for the rapid drop in certain bird populations. In 1970, a coalition of activists and philanthropists in the United States sponsored the first “Earth Day” to capitalize of the spirit of youth activism to tackle environmental degradation, which they saw as a major threat to the health and welfare all people not unlike war and racism. Later that year, President Richard Nixon

²⁰ National Research Council. 1984. Steering Committee on Identification of Toxic and Potentially Toxic Chemicals for Consideration by the National Toxicology Program, Board of Toxicology and Environmental Health Hazards, Commission on Life Sciences. *Toxicity Testing: Strategies to Determine Needs and Priorities*. Washington, DC: National Academy Press.

²¹ The Alkali Act of 1863. (26 & 27 Vict. c 124).

proposed a reorganization plan creating a single independent regulatory agency, the Environmental Protection Agency (EPA), to coordinate environmental protection activities of the US federal government which had been addressed in a fragmented fashion within various agencies and departments.²² The same year, US Congress enacted, and the President signed a comprehensive set of amendments to existing pollution legislation called the Clean Air Act of 1970.²³ The Clean Air Act was substantially amended again in 1977 and in 1990. The United States tackled water quality with the Clean Water Act,²⁴ the generation, storage and disposal of hazardous waste with the Resource Conservation and Recovery Act of 1976 (RCRA),²⁵ and the clean-up of contaminated sites with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)²⁶ that created the “Superfund” and initiated a generation of litigation to determine responsible parties for the clean-up of past contamination. Years before, in 1947, Congress had passed the Federal Insecticide, Fungicide and Rodenticide law (FIFRA)²⁷ to update the earlier Federal Insecticide Act of 1910 to better regulate the safety of agricultural and other pesticides. In the 1972, Congress passed laws to bring this existing FIFRA regime up to date under the authority of the new beefed-up EPA which later expanded and tightened its rules.

In 1974, US Congress passed and the President signed the Toxic Substances Control Act (TSCA)²⁸ which imposed requirements on anyone wishing to bring new chemicals to market (other than those in food, cosmetics, and pesticides already subject

²² Reorganization Plan No. 3 of 1970. (July 9, 1970) H.Doc. Nos. 91-364, 91-365, 91-366.

²³ Clean Air Act of 1970, 42 U.S.C. §7401 et. seq.

²⁴ Pub. L. 92-500 (1972), 33 U.S.C. §1251 et seq.

²⁵ Pub. L. 94-580 (1976), 42 U.S.C. 6901 et seq.

²⁶ Pub. L. 95-510 (1980), 42 U.S. C. §9601 et seq.

²⁷ Pub. L. 80-104 (1947), 7 U.S.C §136 et seq.

²⁸ Pub. L. 94-469 (1976), 15 U.S.C. §2601-2626.

to separate regulation) to file pre-manufacture notification, and authorized the EPA to maintain a TSCA inventory of chemicals classified by their hazards and imposed record-keeping requirements on “all persons who manufacture, import, process or distribute chemical substances in commerce.” Groundbreaking when enacted in 1976, TSCA came under increasing criticism by activists because it exempted chemicals already on the market at the time it became effective from its notice requirement and, despite imposing pre-manufacturing notice on new chemicals, did not require that the industry prove that a chemical was safe before it hit the market. As it was interpreted by courts, TSCA came to require that the regulators establish with virtual scientific certainty that the chemicals “may present an unreasonable risk of injury to health or the environment” before EPA could take action to ban or restrict the use of a chemical.²⁹ In practice, the EPA has taken up testing of new substances too slowly for critics. Consequently, a rising chorus of voices expressed the desire to replace TSCA’s “risk-based” model with one based on a “precautionary principle” where a substance with a potential for harm would not be allowed on the market unless it could be proven safe for its uses (Brickman, 1984; Eckley & Selin 2004). Discontent about the state of chemical regulation was long standing, in a report issued in 1984 under the auspices of the US National Academy of Sciences, the authors identified the gap in publicly available data on the safety of chemicals as the biggest weakness in US chemicals policy.³⁰

Europe, although slower off the mark, had not been completely inactive in legislating on the environment during this period. Most European nations had laws to remedy environmental pollution and punish environmental crimes, although in practice

²⁹ TSCA §4, 15 U.S.C. §2603.

³⁰ National Research Council. 1984.

enforcement during those years relaxed the farther one travelled from Northwest Europe south to the Mediterranean and west to the Iberian Peninsula. Beginning in 1967, the institutions of the EU began taking action to provide a European framework for laws protecting the public from dangerous chemicals within the common market. By the 1990s, Europe had enacted four such regulations: Council Directive 67/568/EEC relating to the classification, packaging and labelling of dangerous substances; Directive 88/379/EEC related to the classification, packaging and labelling of dangerous preparations; Council Regulation (EEC) 793/93 on evaluation and control of risks of existing substances; and Directive 76/679/EEC relating to restrictions on the marketing and use of certain dangerous substances and preparations (European Commission 2001A, fn 5).

Until the EU's "chemicals strategy" was approved in 2000, Europe had been seen as lagging behind the United States in the stringency of environmental laws. EPA had led the world in removing lead from paint and gasoline and had already made significant progress in reducing urban smog and developing a widely admired program in the 1990s for controlling acid rain through a cap-and-trade system for controlling the emission of sulfur-containing oxides by utilities. Activists had long used the civil litigation system in the United States to challenge dangerous products such as asbestos-containing materials and tobacco. Especially since the midterm elections in 1994 elected a movement of self-styled "conservatives", opposition to centralized regulatory solutions strengthened even when such solutions could be argued as being in the best interests of business. The ground was set for increasing policy divergence between the US and the EU.

International Language of “Sustainable Development”

Meanwhile, there was also a growing movement towards international cooperation in environmental matters. In 1972, the UN sponsored a conference on Development and the Natural Environment in Stockholm in 1972. The declaration from that conference contained historic words regarding the right of humans to “live in an environment of quality” while bearing a “solemn responsibility to protect and improve the environment for present and future generations.”³¹ In 1985, 28 nations signed the Vienna Convention that called on signatories to take steps to control the emission of classes of chemicals believed to cause a degradation of the planet’s ozone layer.³² Two years later, signatories approved the Montreal Protocol to this convention³³, which took the unprecedented step of putting into place concrete measures to phase out the production and use of certain classes of chloro-fluorocarbons (CFCs) used mainly as refrigerants. Nearly all nations are now parties to Vienna Convention (198 parties) and the Montreal Protocol (197 parties). The Basel Convention³⁴ emerged in 1989 after the scandalous journey of the *Khian Sea*, a chartered vessel containing incinerator ash from the City of Philadelphia. The Basel Convention committed parties to prohibit “toxic colonialism” and enshrined a system of informed consent for the acceptance of hazardous waste. At the “Earth Summit” in Rio de Janeiro in 1992 organized under as UN’s

³¹ Report of the United Nations Conference on the Human Environment (Stockholm 5-15 June 1972). 4. A/CONF.48/14/Rev.1.

³² “The Vienna Convention for the Protection of the Ozone Layer” (March 22, 1985) published in the *Ozone Treaties*. 2019 (Nairobi: Ozone Secretariat of the UN Environment Program), 1-31. (“Ozone Treaties”)

³³ “The Montreal Protocol on Substances that Deplete the Ozone Layer” (September 16, 1987) published in *Ozone Treaties*, 35-83.

³⁴ “The Basel Convention on the Control of Transboundary Movements of Hazardous Waste and Their Disposal” (March 22, 1989) published by the UN Environment Program, accessed February 3, 2022 at <http://www.basel.int/TheConvention/Overview/TextoftheConvention/tabid/1275/Default.aspx>.

Conference on Environment and Development (UNCED), delegates issued the “Rio Declaration” which contained a provision that committed the nations represented at the meeting to pursue “sustainable development.” Chapter 19 of Agenda 21 of the Rio Declaration expressly called for nations to agree on a common program for the sound management of chemicals.³⁵ The text identified two major problems of chemicals management, namely the “lack of sufficient scientific information for the assessment of risks” and “lack of resources for assessment of chemicals for which data are at hand” particularly in developing countries.³⁶ The Rotterdam Convention³⁷, which opened for signature in 1998 and came into force in 2004, was designed to implement a system of “prior informed consent” to give nations the means to decide whether to allow the importation of potentially dangerous chemicals and pesticides. The Stockholm Convention³⁸, also entered into force in 2004, focused on the eliminating or reducing increases in the release to the environment of persistent organic pollutants (POPs). The United States initially signed but has failed to ratify either the Stockholm or the Rotterdam Conventions.

³⁵ United Nations Conference on Environment and Development (Rio de Janeiro, Brazil, 3 to 13 June 1992) “Agenda 21: Chapter 19, Environmentally Sound Management of Toxic Chemicals, Including Prevention of Illegal International Traffic in Toxic and Dangerous Products,” 19.1-19.76. accessed February 3, 2022 at <https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf>. (“Agenda 21”)

³⁶ *Agenda 21* at 19.1.

³⁷ “The Rotterdam Convention on the prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade” (September 10, 1998) published by the UN Environment Program, accessed February 3, 2022 at <http://www.pic.int/TheConvention/Overview/TextoftheConvention/tabid/1048/language/en-US/Default.aspx>.

³⁸ “The Stockholm Convention on Persistent Organic Pollutants” (May 22, 2001) published by the UN Environmental Program, accessed February 3, 2022 at <http://www.pops.int/TheConvention/Overview/TextoftheConvention/tabid/2232/Default.aspx>.

This brief history is evidence of persistent efforts by the international community, often since the 1990s led by Europeans, to address specific issues related to environmental protection through international treaties. These efforts were designed to deal with relatively narrow circumstances where environmental issues crossed borders (like the “ozone hole” and “toxic colonialism”) in a way that posed special challenges for national regulators. Moreover, that these treaties lack effective enforcement mechanisms and that a key manufacturer and exporter of chemicals, the United States, has failed to ratify two of them (Stockholm and Rotterdam), have undermined their effectiveness. At the time that Europe was ready to launch its strategy on chemicals policy, international treaties were increasingly seen as not the most effective means to develop a comprehensive system for assessing the safety of chemical products.

Another example of growing international cooperation towards developing international governance over hazardous chemicals was the development through IGO’s of a “globally harmonized system” (GHS) for the uniform communication of chemical hazards. The demand for a harmonized approach to hazard communication first was articulated by a resolution of the UN-affiliated International Labor Organization (ILO) approved in 1989. This demand was then taken up at the Rio “Earth” Summit in 1992.³⁹ The subsequent work was coordinated and managed under the auspices of an inter-agency group called Programme for the Sound Management of Chemicals (IOMC) Coordinating Group for the Harmonization of Chemical Classification Systems (CG/HCCS). The CG/HCCS identified three different IGO bodies as “focal points” for

³⁹ Chapter 19 of Agenda 21 from the 1992 Earth Summit included a call for “A globally harmonized hazard classification and compatible labelling system, including material safety data sheets and easily understandable symbols, should be available, if feasible, by the year 2000.”

different aspects of the work: (i) OECD for work on human health and environmental hazards; (ii) a special UN committee of experts tied to the ILO as the “focal point” for work on physical hazards, and (iii) ILO itself as the “focal point” for work on Hazard Communication. The GHS was approved by a series of UN affiliated bodies in 2002. The GHS was designed to be the reference point that member governments could draw upon to develop national chemical hazard communication systems by “providing a basis for the establishment of comprehensive chemical safety programs.”⁴⁰ As such it serves as an example of how IGOs could have served as a forum for construction of comprehensive system to govern chemical hazards, making EU’s decision to go forward with REACH alone unnecessary. Europeans who participated in the OECD workstreams, notably Bjorn Hansen, would later become important contributors to REACH legislation and implementation.⁴¹ Further research on this case would establish the extent to which there existed an “epistemic community” of experts on how to classify chemicals for risk assessment purposes. If one existed, as likely could be credibly argued, the historical record would show that was sufficiently constrained by member state politics to prevent such a community from spreading its influence to questions of chemical policy itself. OECD never developed into the institutional mechanism for arriving at harmonized rules for resolving the key policy questions at the center of chemicals regulation. What risks were “appropriate” for society to impose on some of its members in the interests of

⁴⁰ WSSD Global Partnership 2012, 2.

⁴¹ Hansen, then at the Commission’s Joint Research Agency’s ISPA lab in Italy, represented the EU in OECD efforts in the 1990s and played a role in developing the IUCLID software tool to store chemical hazard information and the QSAR Toolbox for grouping and comparing chemical properties, which is useful to assess data gaps and facilitate reading across safety data among classes of similar chemicals. See “A tribute to Bjorn Hansen: Three decades of EU chemicals policy making and implementation.” ChemCon Conferences Video April 2022 at 9:00 available at <https://www.youtube.com/watch?v=cj6C4-rCyU> (accessed June 2022).

overall welfare? How much science is necessary to prove a substance is safe or to justify its restriction or ban? GHS nevertheless successfully harmonized national chemical hazard communication systems worldwide and developed common tools that now serve as important convergence points in an international governance structure in which REACH is a central part.

A Brief Tour of the Global Chemical Industry

Modern life is unthinkable without man-made chemicals.⁴² Without exaggeration, the chemicals sector is near the very center of the modern industrial economy and the global importance of the chemicals safety regime should be judged in that context. The study of the politics by which this industry has been more tightly regulated globally, promises to yield useful insights into global governance. The size of the chemical industry alone argues for closer study by political economists and political scientists. The chemical industry added \$1.1 trillion to world GDP and employed 15 million people in 2017, making it the fifth-largest global manufacturing sector (ICCA, 2019, p. 5). The industry is global in scope and its economic footprint has shifted dramatically in the 21st century. The geographical area whose chemical industry makes the largest contribution to global GDP and jobs is the Asia-Pacific region, generating in 2017 45 percent of the industry's total annual economic value, and 69 percent of all jobs supported by the industry. Europe made the next most important contribution (\$1.3 trillion total GDP contribution, 19 million jobs supported) followed by North America

⁴² A message that the industry has tried to hammer home in publicity campaigns. DuPont's slogan "better things for better living" and ACC's "better living through chemistry" campaigns are only two well-known examples.

(\$866 billion total GDP contribution, 6 million jobs supported) (ICCA 2019). According to US industry sources, in 2017, total sales of chemicals by U.S. producers were \$526.2 billion of which \$129.8 billion in products were exported. Total sales of chemicals in 2017 in the United States was \$493.4 billion, including \$97.1 billion in imports resulting in a net trade surplus of \$32.7 billion (ACC 2018). In 2017, total sales of chemicals by EU producers were \$608.23 billion, of which \$174.39 billion in products were exported outside of the EU (CEFIC 2018).⁴³ Perhaps more important than quantitative measures of its financial impact is the industry's role in bringing functionality to products manufactured in every other industry, from metals and plastics, energy, automobiles and electronics, food, cosmetic and pharmaceuticals ingredients to agriculture and paper and glass-making.

The paragraphs that follow and the accompanying figures are designed to offer a bird's eye view of the global chemical industry from an EU perspective. The discussion is based on statistics reported by European Chemical Industry Association (CEFIC), the largest and most influential lobby of chemical manufacturers in Europe, who in recent years has published an annual update of a report in this format that it uses to inform its target audiences, which can be understood as a mix of people in its industry, policy makers around the world and the European general public. The data are from the 2018 report ("CEFIC Report") because they provide evidence on the state of the chemical industry at the close of the time-period that is the focus of the study.

⁴³ All figures in the CEFIC report are in Euro. I converted these figures to U.S. Dollars using the reported exchange rate on March 8, 2019.

Europe is the second largest chemicals producer in the world

World chemical sales (€3,475 billion)

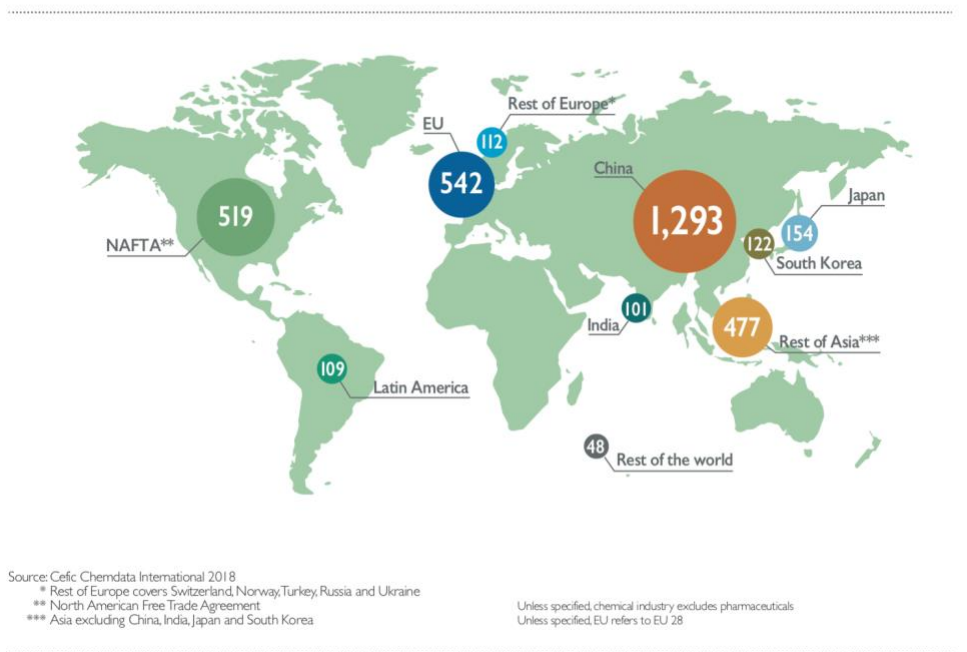


Figure 1-1. World Chemical Sales 2017. CEFIC Report 2018.

Figure 1-1 shows chemical sales in 2017, at the very end of the period that is the focus of this study. If one were to refer to similar statistics from the beginning of this period (1995), it would reveal that Europe (EU together with “Rest of Europe”) was the largest market for chemicals in the world. Since the 1990s, China has grown much faster, both in terms of investment and total value of production. China is now the world’s biggest market for chemicals and EU is the second biggest. As shown in **Figure 1-2**, Europe is the largest exporter of chemicals, running a large surplus with most regions of the world, including its two biggest trading partners, the United States and China. Latin America and Africa are proportionately large importers from the chemical manufacturing hubs in North America, Europe and Asia. **Figure 1-3** shows the trade balances that prevailed in

2016 between different regions of the world. Although China was by 2016 far the largest chemical producer in the world, it ran a small trade deficit with the rest of the world, importing more chemicals than it exported, with most imports coming from developed nations and running an export surplus only with less developed areas of the world such as Africa and Latin America. During the period of study, China's exports tended to be opportunistic and highly variable in total value from year to year, with most exports being commodity chemicals where China competes largely on price.

Top 10 EU partners account for 70% of EU chemicals trade*

EU chemicals trade* flows with top partners

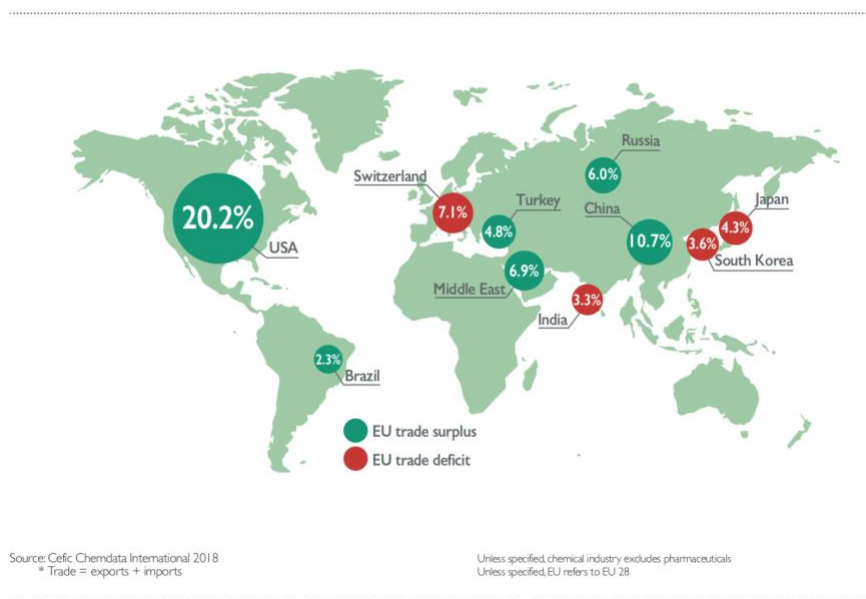


Figure 1-2. EU chemicals trade flows. CEFIC Report 2018

The EU has by far the largest chemicals surplus in the world

World matrix: chemicals trade balance (2016)

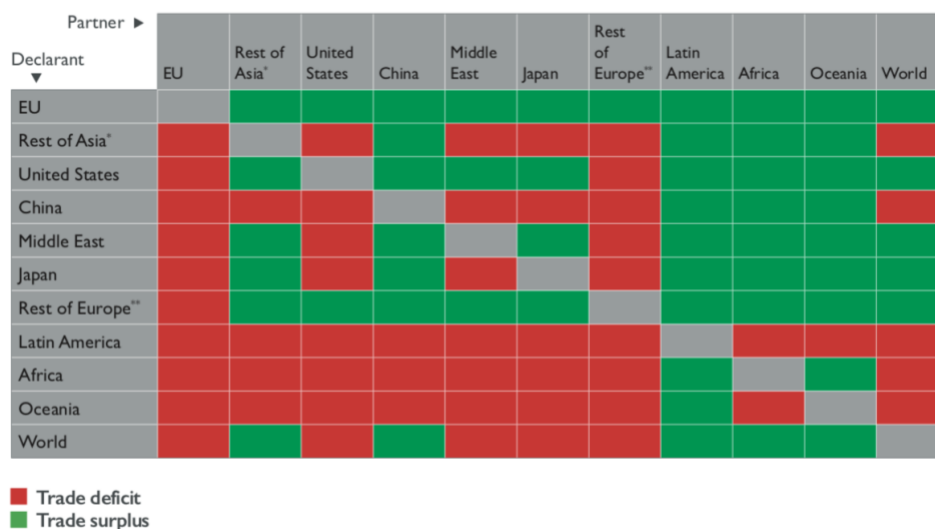


Figure 1-3 World Matrix; chemicals trade balance (2016)

Thus the market power of Europe in markets for chemicals has to be judged in context of this complex picture. As explained in more detail in Chapter 2, power-based IR theory predicts that countries with large demand for imports can export their product rules through a process called *asymmetric adjustment*. The importance of the European market for chemicals is not merely a function of its appetite for imports. Europe is the birthplace of the modern chemical industry and is still an important source of innovation and investment for the entire world. Europe is the home of many of the largest integrated chemical manufacturers.

Table 1-1 World's Largest Chemical Companies 2015.

Global Rank	Name	Headquarters Country	Global Chemical Sales (US\$ billions) (FY2014)	Main Products	Sites of Major Operations
1	BASF	Germany	\$78.7	Diverse	Global
2	Dow Chemical	USA	\$58.2	Diverse	Global
3	Sinopec	China	\$43.3	Petrochemicals	China, Africa, Middle East
4	ExxonMobil	USA	\$38.2	Petrochemicals	Global
5	Formosa Plastics	Taiwan	\$37.1	Petrochemicals	Taiwan, USA
6	LyondellBasell Industries	USA	\$34.8	Petrochemicals,	Global
7	DuPont	USA	\$29.9	Diverse	Global
8	Ineos	UK	\$28.1	Pharmaceutical ingredients, plastics, inorganics	Global
10	Bayer	Germany	28.1	Materials, agrochemicals, pharmaceuticals	Global
11	Mitsubishi Chemical	Japan	26.3	Diverse	Japan, USA
12	Shell	UK and Netherlands	24.6	Petrochemicals	Global
13	LG Chem	Korea	21.5	Electronics chemicals	Korea
14	Braskem	Brazil	19.6	Petrochemicals	LATM, US
15	Air Liquide	France	19.2	Industrial gases	Global
16	AkzoNobel	Netherlands	19.0	Diverse	Global
17	Linde	Germany	18.6	Industrial gases	Global
18	Sumitomo Chemical	Japan	17.8	Diverse	Japan
19	Mitsui Chemicals	Japan	17.2	Diverse	Japan
20	Evonik Industries	Germany	17.2	Specialty Chemicals	Global

Source: Chemicals and Engineering News ⁴⁴

A list of the largest global chemical producers in 2015 is found in **Table 1-1**. Of the top 20 largest chemical producers globally, eight (highlighted) were headquartered Europe (including the UK). Any of the companies in this list of largest companies plan their activities with an eye towards competitive dynamics around the world. This is perhaps more true for European chemical producers, as they tend to be the most sensitive to international trade in chemicals than counterparts elsewhere. During this period,

⁴⁴ The full results of this survey for multiple years can be found at CEN's website <https://cen.acs.org/articles/94/i30/CENs-Global-Top-50.html>

Europe was the largest chemical exporter in terms of the value of trade. Europe is the leader in the export of specialty chemical and its large integrated chemical producers have made big investments abroad and especially in China. The share of chemicals produced by Europe that are exported has varied, but has typically averaged more than 50% of total production in years between 2010 and 2020.⁴⁵ Imports are significantly less. Market dynamics means that exports play a large role in balancing supply and demand in most areas of the world, with the price of imported chemicals having an important limiting function on what domestic manufacturers can charge their local customers. Thus, most large manufacturing companies that use chemicals in their operations seek to maintain sources of foreign supply if only to discipline the price demands of domestic suppliers. This also means that domestic chemical manufacturers in net importing regions such as Asia and Latin America often compete against imports sourced from distant areas of the world. Moreover, in many markets for specialty chemicals, European producers have important technology and quality advantages that make them the preferred source.

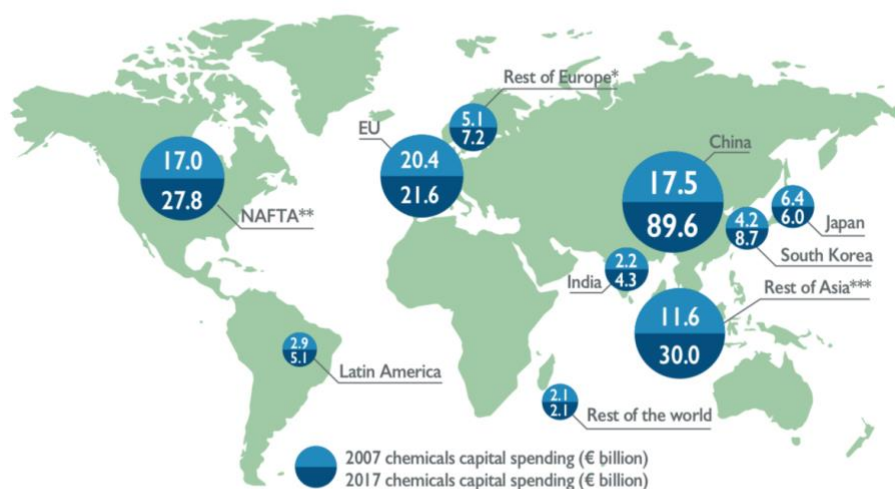
At the same time there has been a growing trend to export manufacturing to those parts of the world with the fastest increase in the demand for chemicals. In practice, this has meant that a nearly overwhelming share of investment new plant and equipment has occurred in China, and to a certain extent other East Asian economies. This trend towards Asia is made clear in **Figure 1-4**, which tracks capital spending by region from 2007 until 2017. Capital spending is essentially flat in Europe from 2007 to 2017. There has been some growth in the United States, mainly due to North America's relatively low

⁴⁵ https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Production_and_international_trade_in_chemicals

energy costs. But the increase of investment in China from €17.5 billion in 2007 to €89.6 billion is truly remarkable. CEFIC has continued to include this figure in its annual reports for the evident purpose to prove to its EU governors the importance of understanding the relative position of the European industry in the global context and the need to continue to work with the industry. CEFIC's goal has been to make sure that the historical role of Europe in chemical investment and innovation is not undermined by Europe's own ambitions to be a global leader by raising the stringency of regulation over this large and important industry.

China dominates world chemicals investment

Capital spending by region



Source: Cefic Chemdata International 2018

* Rest of Europe covers Switzerland, Norway, Turkey, Russia and Ukraine

** North American Free Trade Agreement

*** Asia excluding China, India, Japan and South Korea

Unless specified, chemical industry excludes pharmaceuticals

Unless specified, EU refers to EU 28

Figure 1-4 Capital spending by region. CEFIC Report 2018.

CHAPTER 2: TOWARDS A THEORY OF INTERNATIONAL MARKET REGULATION

The emergence of Europe as a global regulatory power has not escaped scholarly interest. Numerous experts in global regulation have commented on the phenomenon of Europe's seizure from the United States of global leadership in key issue areas such as chemical safety. This assertion of unilateral leadership is a puzzle for structural theories of global power. Europe is not a global hegemon in terms of military or predominant economic power. Europe is a significant economic power but traditional power-based theories of global regulation (Drezner 2007) do not predict the degree of success that Europe has achieved. Political scientist David Vogel, an important contributor to the theoretical and empirical debates that marked the emergence of the International Political Economy subfield has offered an explanation for why regulators with a preference for stringency might prevail (Vogel 1997, 2011, 2012). Anu Bradford (2012, 2020) has refined Vogel's approach in two studies (2012, 2020) that identified the causal factors by which a "Brussels Effect" allows Europe to punch above its weight-class in traditional power-based terms. The work of Vogel and Bradford are part of a broader literature on regulatory politics. Each author seeks out patterns in complex empirical phenomena that have led to important outcomes; in Vogel the outcome is Europe's divergence from the United States in regulatory preferences, and in Bradford, Europe's replacement of the United States as an incubator of new policy designs and success in asserting leadership in global governance.

Vogel and Bradford are practitioners of some have called “middle-range theory” meaning theory that avoids the pitfalls of over-generalization by sticking closely to empirical cases and carefully defining scope conditions (Merton 1968, Sil & Katzenstein 2010). In recent decades there has been a healthy movement in social science towards what Sil and Katzenstein (2010) termed “analytic eclecticism.” Often the most illuminating work on global regulation proceeds from a set of clear concepts that researchers use to identify mechanisms of regulatory innovation and change to shed light on underlying causes in important empirical cases. The “isms” debates in International Relations (IR) and Comparative Politics (CP) that led to the emergence of International Political Economy (IPE) have been transcended, in that a majority of practicing scholars today combine elements of the major “traditions” in service to the task of generating hypotheses and illuminating the social processes at work in the cases they are examining. Scholars of international regulation today tend to take an eclectic approach (Sil & Katzenstein 2010; Lake 2013; Jupille, Caparaso & Checkel 2003). These researchers readily adopt the seminal insights from IR’s traditional focus on structural constraints, while developing theories to explain how domestic and international actors pursue their interests given those constraints. In practice, the eclectic approach often owes much to classic “rational choice” theory even if researchers take more care to examine mechanisms by which interests can be “constructed” or contexts in which sociological factors better help explain why some goals are privileged for action and others are not. Most scholars in this area today operate as if IR theories of “unitary state actors” shed little light on the behavior of the multiplicity of players –international, supranational and subnational—that contend for influence in global regulation. A general acceptance of

“pluralism” prevails, and hence scholars of international market regulation can be counted on to keep one eye on domestic politics even as they seek to explain international outcomes. These theorized mechanisms, generalized from close observation of, and comparison among, real-world cases, generate testable hypotheses about how global regulations emerge and change. Nevertheless, the literature would benefit from more frequent “looks over the shoulder” at broader theoretical and methodological debates within various subfields of political science and social science generally. A principal goal of this dissertation is to develop a middle-range theory to explain the sources and dynamics of Europe’s emergence as a leader in global market regulation is to make sure that the mechanisms (rational, ideational, sociological etc.) that drive the various elements are laid bare so that the analysis of actual cases can shed light on larger theoretical debates in IPE and the social sciences generally, while contributing to a robust hashing out of “middle-range theories” used to explain global regulatory phenomena.

There are several general-level theoretical controversies upon which a theory of global market regulation can shed light. The first is the classic debate between those who see social science outcomes as generated by structure and those who stress the importance of human agency. The second is a debate between those who see rational choice (classic economic) mechanisms as paramount and those who see “sociological” (or constructivist) drivers as explaining the behavior of actors. The third is the debate among those who base seek to understand the degree to which traditional state actors have ceded power and authority in international regulation to one or another new international actors such as international governmental organizations (IGOs) and their paid bureaucrats, non-governmental organizations (NGOs) and the “activist networks”

and “epistemic communities” that are said to drive their agendas; and various sub-national actors such as national regulatory authorities, local governmental officials, courts and the like. I will address three classic categories of explanation for governance success—economic power, institutions and ideas—before articulating my own theory of that in addition to the Brussels Effect factors, an effective global political strategy is also necessary to success.

Economic Power, Institutions, and Ideas

Since the 1970s scholars have tried to explain the causes of convergence and cooperation, on the one side, and conflict and divergence, on the other, in global rules. The topic became important because the treaty-based system that the United States and the United Kingdom created after the end of the Second World War to manage global economic affairs had begun to unravel. The traditional IR approach to market regulation was to theorize the emergence of global governance arrangements as the assertion of the preferences of the most powerful players within the international system. In the 19th century this had been a story of the hegemony of the United Kingdom and since 1945 a story of the hegemony of the United States. As the consequences of the US abandonment of the gold-exchange dollar in 1971 were felt, scholars began debating the future of international cooperation in a world where there was no clear hegemon with the power and prestige to get its way in all cases. Some scholars believed that cooperation would slow down and states would again assert their interests in an “egoistic” fashion predicted by an earlier generation of “realist” IR theorists (Krasner 1991). Others in the “liberal internationalist” tradition insisted that, in the absence of coercion, economic powers

would still see possible gains from cooperation as sufficiently attractive to agree to rules and institutional mechanisms that bound their theoretical freedom of action in non-trivial ways (Keohane 2012, 1984, Keohane & Nye 1977). The favored domain of this “liberal internationalist” perspective was in policy areas where benefits from cooperation did not create a “zero-sum” choice (where one actor benefits when the other does not) that resembles the classic presentation of the prisoners’ dilemma problem.

Keohane and his followers did not question the rigors of the “security dilemma” in matters of war and peace, where national survival was at stake, but rather theorized the existence of many avenues for cooperation where state actors would accept some diminution of their full sovereignty in order to reduce transaction costs and achieve welfare gains from trade. Thus, they asserted the role for agency of rational actors in overcoming the structural effects of “anarchy” in the international arena (Keohane & Nye 1977; Keohane 1984). Others insisted that even with the partial breakdown of the hierarchical structure of the US-led international order, relative state power remained a crucial factor to explain international regulatory outcomes (Gilpin 2001; Krasner 1991). Since then, scholars have struggled to identify the precise balance of factors that determine policy outcomes and account for governance successes and failures in an interdependent world. This has been a particular challenge for scholars seeking to account for patterns of governance that emerged with the deepening globalization of markets. The increasing flow of trade and finance cross national boundaries weaken regulatory leverage exerted by national governments even when the governance imperative, such as regulating bank capital, promoting investor protection or regulating toxic chemicals, continued to appeal to local elites and popular electorates. Given the

growing importance of trade and the relative portability of capital, many have observed national regulatory power cannot safely enact standards without some attention being paid to how these standards would affect the trade and balance of payments position of the home country or the decisions of investors to shift capital to jurisdictions with favorable regulatory regimes (Strange 1996, Rodrik 1997). In this context it became important to ask: what now were the sources of regulatory power? What factors gave some regulatory actors leverage to craft regulations and compel others to conform to their preferences?

Economic Power as a Structural Variable

The first category of explanation seeks an answer by examining the distribution of power among sovereign nation-states based on measures of power, what many have called “materialist” factors. The leading candidate variable to explain which preferences would dominate international economic rules is relative economic power--measured in terms primarily of market size--of the nation seeking to influence them (James & Lake, 1989; Vogel 1997; Drezner 2007). This mode of explanation is materialist in the broadest sense in that it places decisive importance on a nation’s economic strength in determining its ability to compel actors outside of its jurisdiction to follow regulatory standards enacted to meet its preferences. It is a structuralist perspective in the sense that the outcomes are driven by the distribution of power, not the will of the actors themselves. At the same time, to the extent the sources of actor behavior need to be explained, the perspective has an epistemological bias towards understanding the formation of actor preferences as the product of rational self-interest. Actors know their economic interests, and predicting outcomes is largely a function of creating models of how domestic politics

and international institutional structures and power relationships impose constraints on their self-interested behavior (see e.g. Gourevitch 1986; Frieden 1991). In a power-centered account of market regulation, states are thought of as unitary, but it is acknowledged that state preferences are the result of the play of interest groups that influence preference formation. Thus, the preferences of states in the international realm are the outgrowth of the rational responses of state actors to problems of collective action and the distribution of relative economic power. This is also the heart of the overall approach taken by Moravcsik and others identified with “Liberal International Theory,” a pluralistic perspective that preserves much of the “rigor” of rational choice theory but looks beyond the state to perceive the constellations of interests who have the power to set the agenda and define the preferences of governmental institutions in international context (Moravcsik 1997).

Scholars in the “power-centered” tradition have observed that nations whose regulations prevail are those with the biggest market size (James & Lake 1989; Drezner 2007). Inequalities of economic power create “asymmetric interdependence” as the nation with the larger and hence more attractive domestic market can take the risk of excluding non-complying products imported from a smaller country whose producers do not have the same willingness to risk failing to comply with the more powerful nation state’s regulations. Daniel Drezner had observed that among developed economies in the early 2000s, the two markets with sufficient size to capitalize on “asymmetric interdependence” and impose adjustment on other actors are the United States and the EU (Drezner 2007).⁴⁶ Thus, when there is convergence in regulatory preferences between the

⁴⁶ China is excluded from this theoretical account, although with the dramatic increase in the relative size of its economy since 2007, Drezner’s thesis is due for an update.

two economic superpowers, his “revisionist realist” theory predicts that there will emerge a de-facto single global standard. When there is regulatory conflict between these key actors, the results vary. Rival international standards could develop, as countries line up to maintain access to the market of one rival superpower bloc or another, or there could result international regulatory failure often masked by a “sham standard” promoted by an IGO or NGO that no one really follows (Drezner 2007).

A materialist examining the case of chemical safety would need to prove that the European market is so crucially important to economic actors in the chemical sector that no rationally motivated actor would forgo sales into that market to avoid the costs of adjustment to REACH. If true, this could account for European leaders’ confidence that they could pursue favored regulatory goals in the EU without the need to coordinate with potential rivals. But it doesn’t explain the failure of a rival standard to emerge. To offer a completely satisfactory account, materialists would also have to explain why Europe was successful in comprehensively reforming its chemicals policy and bringing the world with it while the United States was not. This approach does not provide an easy means for solving this puzzle. The relative sizes of the US market and the European market are essentially equivalent and the relative importance of the chemical industry, and the level of the industry’s dependence on cross-border trade, in each is not fundamentally dissimilar. For this reason, Bradford (2012, 2020) adds additional factors to her Brussels Effect beyond economic power to account for the ability of Europe to prevail in its preference for stringency. This is certainly true in the case of chemicals, where market power alone cannot be the key variable in explaining European leadership in writing global rules.

The Role of Institutions

Another mode of explanation is offered by scholars who identify as “institutionalists.” This approach heavily influences especially the approach taken by Vogel (2012), but also Bradford (2020), in explaining the case of chemical safety. Institutionalists come in several varieties, with different scholars focusing on various drivers of institutional behavior. What all institutionalists have in common is that for them governance outcomes depend on particular features of the “rules of the game” as inherited from the past, whether the rules be formal or informal, which is how theorists define the term “institution.” (Schmidt 2009; North 1990). Institutions matter, because no outcome can be predicted solely by the rational pursuit of “interests” by themselves. Therefore, no complete account of international market regulation is complete without a close look at the particular constellation of institutions that have evolved in a particular issue area. These institutions affect results, institutionalists insist, in ways that cannot be predicted if one ignores institutions and only looks at states and the structural features of the international system that affect the distribution of power among states. In practice, institutionalists use primarily qualitative tools to trace the particular institutional processes by which actors seek to enact their governance preferences and the feedback loops that develop between these processes and the ways in which participants come perceive their interests and organize their activity (Schmidt, 2009; Farrell & Newman, 2010). Institutionalists put varying weight on the rational-choice, historical, sociological and discursive factors that can influence the formation of preferences, mold institutional behavior and affect power relationships. In a review of this literature, Abraham Newman and Henry Farrell (2010) noted the importance of “sequencing,” a mode of analysis developed from insights that political scientist Paul Pierson borrowed from economics.

Paul Pierson (2000) noted that economic theories about how “path dependence” and “increasing returns” make the particular sequence of events crucial to explain the success and failure of certain firms or technologies, could be readily applied to many situations in political science. In business, early advantages can give actors “first mover advantage” that is extremely difficult for others to overcome, as the first mover is able to harvest increasing returns from these early investments. The translation of these insights to the theory of international governance is not seamless, however. Pierson (2000) makes a strong case for path dependence in such areas as political party organization and the persistence of the influence of certain institutional actors after the reasons that gave rise to their emergence have disappeared. Using these insights, Elliott Posner (2011) looks closely at the particular sequence of events explain why the US lost the “first mover advantage’ and ceded ground to competing European accounting standards. Orfeo Fioretos (2010) uses the tools of historical institutionalism to explain why the United States acquiesced to more rigorous regulation of hedge funds despite the size and power of its hedge fund industry in the US. He concludes that the U.S. Securities and Exchange Commission (SEC) acquiesced to stringency because of the manner in which, over the course of its institutional life, the SEC had seen its mission as striking a balance between investor protection and the preferences of financial market actors. This political history, going back to the SEC’s origins in the Great Depression, meant that the voices of fund critics could not be completely ignored.

Institutionalist theories would predict that institutional history and the European Commission’s particular genius for accumulating and employing regulatory capacity might best account for Europe’s success in imposing its chosen design on the

international regime for chemical safety through unilaterally enacting its REACH law. Institutional focus on sequencing and path-dependency also offer distinct advantages in explaining why Europe was able to overcome the opposition of regulatory rivals like the United States and make regulatory choices that heavily influenced the choices of key trading partners.

The emergence of the international standardization movement as an effective means of governing such matters as technical standards and management systems has attracted much attention by institutionalists. Walter Mattli and Tim Büthe (2010; 2003) have written a series of articles describing how small groups of experts have been able to broker a degree of international convergence on technical standards in such diverse fields as camera film speed, electrical equipment safety, quality management, information technology, occupational health and safety, and environmental management that might be surprising if economic power differentials among governments and the preferences of individual international economic actors drove results. The conclusion that can be drawn from this literature is that private institutions such as the International Organization for Standardization (ISO) or the International Electro-technical Commission (IEC) have proven an efficient means for sidestepping sovereign preferences and overcoming private power politics to find solutions that facilitate the internationalization of commerce on a more open basis. Mattli and Büttli (2003, 23-28) have also documented the degree to which the Europeans have deepened coordination on standards setting and how that can be compared to the more fragmented landscape for standardization in the United States. They conclude that, for this reason, European standard-setting has gained more international influence in recent decades. REACH incorporated elements of private

standard setting in its design and especially in the way it was implemented. The Mattli and Büttli studies of the standardization movement thus can shed light mechanisms that made acceptance of Europe as a global standard-setter on chemical safety easier for many private actors to accept.

Institutionalist scholars also have sought to identify the factors that could account for why some efforts at regulation of international markets succeed in raising standards while in others the lack of coordination creates a competitive “race to the bottom” as those jurisdictions with the most accommodating standards attract mobile capital. Drawing on earlier work in this area (James & Lake 1989; Vogel 1997), Posner and Newman (2010) explore how economic actors with attractive markets can induce economic actors to avoid transaction costs of complying with multiple standards by tailoring their activities (“trading up”) to the most stringent jurisdiction and lobbying home jurisdictions to copy the rules of the more dominant regulator.⁴⁷ The works of these scholars test various theories as to how and why EU efforts have met with greater success and the US has accommodated its policy preferences in multi-lateral rulemaking. Bach & Newman suggest that “Europe’s growing regulatory influence is the by-product of domestic institutional reforms and co-ordination of the EU level that have augmented Europe’s regulatory capacity in several industries (2007, 830).” Posner (2009) examined six areas of financial policy—accounting standards, directors of publicly-traded companies, stock exchanges and de-regulation of foreign investment-- and concluded that EU did better when its regulatory efforts were relatively more centralized. Posner

⁴⁷ The “California effect” gets its name from the influence California has had in setting standards in such areas as vehicle emissions, electric power portfolios and chemical labeling despite the narrowness of its legal jurisdiction as only one of 50 US states. This effect is contrasted with the “Delaware effect” so-called because Delaware generated a “race to the bottom” in regulation of the internal affairs of corporations in the first half of the twentieth century.

recognized that EU's institutions were often not centralized in the classic sense of being housed in one centralized hierarchical bureaucracy (2009, 680). Nevertheless, Posner's case analyses suggest that when the EU is able to speak with one voice on a topic, it has a greater tendency to prevail. Newman and Posner (2016) found that policy feedback loops at the transnational level were important in creating "soft law" (i.e. informal) standards that often influenced the outcome of international policy battles. They looked at three areas of international economic regulation – accounting standards, prudential regulation of banks and rules governing multi-national conglomerates—and concluded that Europe's ability to align its preferences with the "soft law" templates developed by international policy networks led the EU to have more influence in these policy areas than would be expected based on either its collective economic power and the fact that international business successfully influences reform proposals adopted by transnational networks (Newman and Posner 2016).

The scholarly literature on business strategy also has explored possible advantages that can accrue to firms that are early proponents of high standards, and leading strategy gurus like Michael Porter have suggested that such standards promote innovation (Fröhwein and Hanjürgens 2005; see also e.g. Reed Elsevier R&D Solutions Group 2016). The fact that consultants often preach the value of a "trading up" strategy means that private actors could rely on a common language to weigh the potential opportunities against the many obvious threats posed by Europe's ambitious REACH agenda such as regulatory costs and risks of loss of market access.

The Power of Ideas

Another branch of scholarship that bears on the regulation of global markets is an approach that emphasizes the “power of ideas.” This “ideational” approach to explaining regulatory outcomes and institutional evolution overlaps with a broader theoretical agenda called “constructivism” which views power, interest and institutions fundamentally as social “constructions” that do not exist independently from the structures (understood as primarily constituting shared frames of reference, beliefs and values) from which they emerge.⁴⁸ The focus on ideas as a motive power in the evolution of politics, economics and society has grown in acceptance as better accounting for the persistence of certain policy choices, particularly varieties of “neo-liberalism” regardless of whether they continue to serve the material interests of actors (Blyth 2013; Abdewal 2009; Widmaier 2016). As a consequence, some like Schmidt (2009) have observed an “ideational turn” in many different strands of institutionalism since the 1990s. These “idea-based” theories might predict that EU’s unilateral action and the United States’ opposition in the 2000’s was determined by the influence of diverging concepts, a waning agreement on key facts and weakening consensus on values. David Vogel and Dan Keleman (2010) together and Vogel writing alone (2012), have developed an explanation for why environmental and product safety policies have diverged. Their approach is a hybrid, incorporating ideational factors alongside structural political and economic variables into their explanation. According to this story, the US and Europe have “traded places”, with the former leader in stringency, the United States, taking a back seat to the new leader, the EU (Keleman & Vogel 2010). The reasons for this

⁴⁸ See e.g. Alexander Wendt’s influential critique of traditional power-based IR theory in his *Social Theory of International Politics* (1999).

divergence lie in the domestic political landscape of the two economic powers, with Europe's public and influential pro-environment "Green" parties putting more pressure on legislators and regulators to adopt stringent standards.

Presented with the puzzle of why the United States went from leading the world in the stringency of its product safety and environmental regulation to lagging behind Europe, Vogel looks to the ideological shift in parties of the center right in the United States after the crucial 1994 mid-term elections. These elections resulted in the shift in control of the U.S. House of Representatives after nearly 50 years to a vastly enlarged Republican delegation under new leadership who had "nationalized" the election with its "Contract With America." After this shift in power within the Republican Party towards anti-state neo-populism, the bi-partisan consensus around stringent environmental regulation broke down. In the meantime, politics in Europe were shifting in a different direction. Green Parties, notably Germany from 1998 to 2005, entered into governing coalitions with more mainstream parties. Traditional Center Right and Center Left parties felt the need to compete for allegiance of voters swayed by pro-environment messages. The expansion of the European Union, meanwhile, brought into the union new members, like Sweden, Austria and Finland, whose domestic politics was more friendly to environmental stringency. All this meant that the center of gravity in European politics and the US were moving in opposite directions in the policy area of environmental regulation. This account of divergence has distinctive features and is worthy of consideration as a theory distinct from other ideational theories, because it combines constructivist concepts with traditional materialist structural analysis of domestic politics that it shares with Open Economy Politics (OEP). A version of Vogel's approach more

explicitly grounded in theory might be found in the work of scholars coming out of an institutionalist tradition who have theorized about the existence of a Continental “variety of capitalism” less hostile to state action than that preferred by Anglo-Americans (e.g. Fioretos 2010 building on ideas explored at more length by Hall and Soskice 2001, and reviewed in Schmidt 2009). In contrast, Vogel does not make any broad institutional claims, noting that long-standing differences in institutions do not explain the relatively sudden “swap” of attitudes towards risk policy in Europe and the United States since 1990 (Vogel, 2012, 34). Kelemen and Vogel (2010) argue that their “regulatory policy approach” is a better predictor of divergent policy outcomes than either measures of the degree of interest-group influence over the policy process or the value of Inglehart’s favorite variable: the share of public support for “post-materialist” values and political goals.⁴⁹

The emerging subfield of International Political Economy and the Environment (IPEE) has also sought to integrate environmental policy into a theoretical framework using many of the tools of the institutionalist and comparative approaches within IPEE to answer questions regarding the prospects and pitfalls of new global paradigms of “sustainable development” and attempt to forge consensus on a set of international policy responses to the dangers of climate change (see e.g. Clapp & Helleiner 2012). Scholars have also attempted to answer questions regarding the degree to which environmental politics should be analyzed in terms of existing political categories or whether it deserves an entirely new conceptual apparatus (see, e.g. Blowers 1997). In answering tentatively

⁴⁹ See also Keleman (2010) where the author makes the case for political factors leading to increasing European effectiveness in internationalizing its preferred approach to global environmental governance.

in favor of new conceptual framework, IPEE scholars have traveled in the same direction as, if not actually been influenced by, sociological theorizing about the emergence of a “risk society” as a distinct feature of post-modern or at least “late-stage” modern society (Giddens 1990; Beck 1992, 1999; Inglehart 1997).

Scholars convinced that international environmental politics pointed towards the emergence of new political patterns have generally created theories focusing on the “power of ideas.” IR scholars looking at the emergence of new politics at an international level have developed distinct approaches that focus on the role of language and learning in creating new pathways for the development of governance systems and the emergence new institutional and quasi-institutional relationships that transcend national boundaries. These efforts tend to be based heavily in sociological approaches and focus on the causal role of “networks” and “communities” based on shared knowledge and values, as opposed to economic interest. In his groundbreaking works on the “risk society” Beck (1992, 1997) theorized about how the globalization of markets and risks and the blurring of the roles of classic institutions like states, legislatures and political parties have given rise new political patterns and structures (media cycles, the judiciary, private life as a sphere for politicization, and activist groups and social movements outside of traditional political structures). In IR and IPE, this transformation of politics has been seen as reflected in the growth of “epistemic communities” and “transnational advocacy networks” as forces pushing international politics towards a convergence around new norms. Peter Haas (1992A, 1992B, 2004), is associated with the concept of “epistemic communities” and Keck & Sikkink (1998) with the related but distinct concept of a “transnational advocacy network.”

Haas defines “epistemic communities” as networked groups of elite experts with professional credentials who have informational advantages that allow them to influence political decision-makers and orchestrate convergence of global regimes around their preferences. According to Haas, epistemic communities have:

- (1) a shared set of normative and principles beliefs which provide a value-based rationale for the social action of community members;
- (2) shared causal beliefs, which are derived from their analysis of practices leading or contributing to a central set of problems in their domain and which then serve as the basis for elucidating the multiple linkages between possible policy actions and desired outcomes;
- (3) shared notions of validity—that is, intersubjective, internally defined criteria for weighing and validating knowledge in the domain of their expertise; and
- (4) a common policy enterprise—that is, a set of common practices associated with a set of problems to which their professional competence is directed, presumably out of the conviction that human welfare will be enhanced as a consequence. (Haas 1992A, 3)

Haas identifies the characteristic causal logic behind the ability of “epistemic communities” to influence outcomes as moving from “uncertainty” to “interpretation” to “institutionalization.” (Haas 1992A, 3). The classic application of this approach was to explain the emergence of the Montreal Protocol, where the international community (through institutions of the Basel Convention) reached consensus and promptly signed a protocol requiring signatories to ban certain CFC compounds from commerce by set dates. According to Haas’s account (Haas 1992B), a small networked group of atmospheric experts took advantage of real uncertainty among political decision-makers about the causes of the “ozone hole” that had been observed over the Southern Hemisphere, provided an “interpretation” in the form of an explanation of how it was likely created by widely-used family of chemical compounds, and then pushed the international decision-makers to institutionalize this realization in a protocol to an established treaty, the Basel Convention, with a secretariat and a member body already in

place to ensure the protocol would achieve its purposes. Haas' theory fits the CFC case very well but may not offer a generalizable pattern that can explain other cases. Studies employing the language of "epistemic communities" to analyze the struggle to establish effective governance in the climate change issue area have raised more questions than resolved debates regarding the degree to which these communities are primary causal factors in building consensus or are subject to the same types of pressures of fractionalization and internecine conflict as other broad-based activist coalitions (Gough & Shakley 2001).

As articulated in the introduction to their influential book (1998), Keck and Sikkink's concept of a transnational advocacy network (TAN) is different than Haas's communities of experts made up of credentialed scientists, focusing instead on the role of those who fit within the classic profile of a highly-placed activist, journalist or policy expert at international environmental NGO like Greenpeace, WWF or Friends of the Earth. TANs transcend individual organizations to unite networked individuals around common "campaigns" to push change on an international level consistent with the TANs values. There is a "revolving door" between organizations within the network as individual activists move through different roles on the strength of shared ties and long-standing relationships built through years of communication and cooperation. TANs are like networks of scientific experts and organized economic interests such as trade groups in that they engage in informational exchange across borders. What distinguishes them from their elite counterparts is that TANs are primarily motivated by shared values rather than common professional or economic concerns. If business groups are motivated by "instrumental goals" and epistemic communities by "shared causal ideas", TAN's are

motivated by shared principled ideas or values (Keck & Sikkink 1998, 6-8). The causal logic that leads to TAN influence over policy manifests itself as activists seek out allies outside their home country when channels between domestic groups and governments are blocked. This blockage and the TAN response creates a “boomerang effect” when activists succeed in influencing the policies of other governments and these governments put pressure on the home government to change policies. TANs use tactics of information politics: symbolic politics (demonstrations); leverage politics (i.e. shaming); and accountability politics (i.e. naming and embarrassing). TANs are said to be successful if they have measurable influence at various stages: issue creation and agenda setting, influence on discursive positions of states and international organizations, influence on institutional procedures (greater public access and transparency, change in behavior of targets such as NGOs and MNCs) and influence on state behavior. As will be clear, this broad definition of effectiveness makes testing their influence a challenge for a social scientist as success at “issue creation” is a very different measure of success than decisive influence on state actors to encourage significant reform in a policy area like chemical safety. As Ford (2018) argues, if one takes a “governance” perspective, influence over the behavior of actors is often not a function of formal authority or police powers. Ford points out that NGO’s such as the International Union of the Conservation of Nature (IUCN) and WWF have been given quasi-official roles in the UN system for monitoring compliance with international governance regimes (Ford 2018, 37) and as we will see in Chapter 3, the EU will give prominent environmental NGO’s an official seat at the table in the development of the REACH legislative proposal.

Explaining Success in Governing Global Product Markets

This work will evaluate the strength of theories that allow scholars to explain the patterns of divergence and convergence in global governance. This work is fortunate to have in Anu Bradford's the "Brussels Effect" (2012, 2020) a source offering the opportunity to build on an influential "middle-range" theory to explain the success of Europe in imposing its regulatory preferences on actors throughout the globe. This theory has been elaborated using elements developed in the economic power, institutionalist, and ideational branches of the larger IPE literature. To this end, Bradford has adopted analytical tools developed over many years by a host of scholars, including Vogel (1997), Bach and Newman (2007), Posner (2007, 2010), Keleman and Vogel (2010), Newman and Posner (2010), and Vogel (2012).

According to Bradford, the "Brussels Effect" makes a strong impact in cases of global rules aimed at governing the qualities of products and services. In these markets, where sale and or use within a significant market area can be conditioned, restricted or prohibited by the state actors who seek more stringent standards, the costs of producing and selling according to two different standards will be high compared to the costs of upgrading processes to produce and sell goods and services according to the more strict standards (Bradford 2020). When these conditions prevail the un-coordinated adjustments of actors can generate momentum towards the creation of a single set of standards by the logic of market behavior alone, which Bradford (2020) calls the "*de-facto* Brussels Effect." For example, attempts to regulate product safety provides stronger incentives for the creation of coordinated standards as opposed to regulation of capital markets for example, where wealth is in the modern world both fungible and portable and therefore can seek issuers of securities and borrowers offshore. Privately negotiated

international standards for the design of products and their safe use such as those developed under the auspices of ISO are one way this market need can be satisfied (See Mattli & Buthle 2003, 2010). But often, an initial impetus is provided by a state actor with the initiative and regulatory capacity to provide a necessary focal point around which information flows and efforts at coordinated governance can rally. This focal point may be necessary in order to overcome market failure, such as information inefficiencies, collective action problems and the unwillingness of private actors to provide public goods. International standards on chemical safety and data privacy are cases that follows the latter pattern: coordinated state action through European Union institutions provides the catalyst for triggering the “Brussels Effect” as private parties adjust their compliance strategies around Europe’s new regulatory regime and have an incentive to lobby other states to reform their domestic regimes to remove friction with the new international regime converging on the European model. Instead of being a product of the agreement of economic powers representing a predominant share of world trade and investment, one coalition of states with regulatory capacity (in this case the European Union) unilaterally adopts a comprehensive legislative response to what was seen as unfulfilled demands for reform of an issue-area with wide global implications. This pattern of states reforming their own laws to better complement the stringent standards of the initiating power is called the “*de-jure* Brussels Effect” (Bradford, 2020). Bradford’s theory thus predicts that Europe’s unilateral gambit to launch REACH would succeed and became the focal point around which a new set of global rules formed.

Bradford is not the first scholar to notice patterns where market incentives support the regulatory ambitions of jurisdictions with abundant regulatory capacity and the

political will to adopt stringent standards. David Vogel identified logic for the pattern of international convergence around the most stringent regulations creating a “race to the top” (towards higher stringency), also called the “California effect,” rather than a “race to the bottom,” (towards regulatory laxity) also known as the “Delaware effect” (Vogel, 1997). For Vogel (1997) and others who have extended his insights like Bradford (2012), the “California effect” owes its power largely to the cost savings that can be achieved by complying with a single set of stringent regulations and the promise that by “trading up” to higher standards one can create differentiation versus (often foreign) competitors.

Building on Vogel’s theory of sub-national patterns in the US, Bradford theorizes that the “Brussels Effect” pattern will appear internationally when each of five elements are present to a sufficiently strong degree (Bradford 2012, 10-19; 2020, 25-64). They are:

1. The would-be “governor” has authority over a geographic area of significant market size
2. The “governor” has sufficient regulatory capacity to be a successful rules entrepreneur
3. The principals who control the “governor” have a preference for high stringency
4. The targets of regulation operate in markets that are “inelastic”
5. The target markets are “non-divisible.”

In this scheme, market power plays the same role as it does in classic IPE theory (James & Lake 1989, Drezner 2007). Regulatory capacity is a combination of quantifiable material power as measured by budgets and numbers of trained bureaucrats, but also contains elements of the type of qualitative features, such as having an effective global political strategy, that I will explore in this dissertation. Bradford does not fully theorize the origins of what she calls the preference for high stringency but in her discussion it is portrayed as an outcome of ideology (a “tradition” in Europe of favoring state-led reforms). Political choices are seen as refracted through the institutional framework of the EU which has given voice to activists through the influence of Green politics on many

member governments and in European Parliament. The final two elements (4 and 5) are features of the economic structure of the activities that regulatory authority seeks to influence. According to Bradford, the Brussels Effect will assert itself more forcefully when targets are “inelastic” meaning that there is no option to continue to enjoy access to the European market and not comply with the regulatory scheme. The Brussels Effect will also be powerful in cases where the product and service markets are “non-divisible” meaning it is less costly to upgrade the production, sale and distribution of goods and services to a higher standard than it is to divide compliance efforts so that they are geared to meeting different standards in different markets. As conceived by Bradford, the five elements are generic conditions for unilateral regulatory power. She writes:

The EU is currently the predominant regulatory regime where these conditions exist, explaining why the EU—and not, for example, the US—wields unilateral influence across a number of policy areas. (Bradford 2020, 26)

So, market size and economic logics are permissive conditions. At least three (China, US and EU) and maybe four (Japan) economies have sufficiently large internal markets to exert this unilateral power. Yet only EU has so often in the last three decades exerted unilateral power in policy domains at the heart of the global economy. This does not mean that the US has lost completely its legacy of influence in such areas as the safety of pharmaceuticals, where the FDA still is the beacon. But even in those few areas where the US has preferences for more stringent regulations (such as securities market regulation), there has been a trend toward fragmentation of standards.

Bradford’s theory works well at the level of description and is easy to understand and apply to familiar cases. Its uncomplicated surface hides a great deal of causal complexity beneath that begs to be unpacked. This lack of explanatory complexity makes

Bradford's theory difficult to use in evaluating actual cases like REACH. For this reason, in the following section I will articulate a theoretical approach that builds on Bradford's insights but places them on more solid methodological foundations while taking care to weigh the influence of various mechanisms that IPE scholars have been explaining for decades.

As useful as Bradford's work is, there are causal mechanisms about which she could have been more clear. Her "market size" element is essentially based on the same mechanisms identified by scholars in the realist "economic power" school (James and Lake, 1989; Drezner, 2007). The second prong of Bradford's theory places "regulatory capacity" at the core of any successful explanation of why one economic power prevails over its potential rivals. However, this element is thinly theorized. It is not clear whether "capacity" as Bradford sees it is a function of material power, such as the size of budgets, the number of bureaucrats, the concentration of technical expertise in government service. It is also not clear how the Brussels Effect accommodates the reality that in significant ways the institutions of the European Union, lacking the sovereign powers of direct coercion and following a principle of "subsidiarity" that requires that authority and action be delegated to the national level when possible, are "weaker" in conventional terms as compared to powerful independent regulatory agencies in the United States such as the Federal Trade Commission, the SEC and EPA. In the case of chemicals, Europe's base-line regulatory capacity at the outset of reform did not demonstrate such clear superiority over such rivals as the United States and IGOs or even private standard setting if measured only in traditional material or formal legal terms. In the case of REACH, the EU would make a choice to build its capacity over time, but at the time the Commission

proposed REACH most of that capacity-building was still to take place. As Posner observed, regulatory capacity at the EU was not primarily a function of the power of a traditional hierarchic bureaucracies as much as “multiple committees and a delicate balance of powers” (Posner 2009, 680). Observers have debated the degree that the “California Effect” and the economic logic of trading up influenced international attitudes towards REACH’s more stringent standards and one academic study (Heyen 2013) reported some evidence of the logic impacting MNC behavior but at the time of writing predicted that the impact was not so strong as needed for the US to reform TSCA significantly in response to REACH. To fully account for the success of Europe as a global governor of market regulation, it is necessary to theorize new sources of power and mechanisms of influence than pure economics logics or the power of regulatory capacity as traditionally conceived.

A Theory of Global Regulatory Power

From the literature summarized in the previous section, it is possible to identify a range of variables and causal mechanisms that might help better predict outcomes the global governance in different branches of market regulation. I will consider alternative hypotheses that flow from existing branches of literature about what ingredients are necessary and sufficient for governing success. I also will propose a theory that builds on existing work, especially by Bradford, Vogel and the institutionalists, which I will call the “Global Political Strategy” approach. In essence, in making a move towards a Global Political Strategy I am arguing that:

1. Some quantum of economic power is necessary to lead to a regulatory actor's success in governance, but that economic power is not the sole factor nor is it jointly sufficient with the existence of the right institutional arrangements.
2. Institutions and path dependence matter but "first-mover advantages" are not sufficient to determine the success of an economically powerful regulator in global governance if that governor does not use a strategy designed to minimize friction with other governance systems and meet the requirements of global commerce.
3. Political strategy is fundamentally a bundle of ideas and strategies but in this arena the "power of ideas" only can be harnessed by institutions with sufficient power to establish authority (through persuasive, informational and enforcement capabilities) led by skilled diplomats and bureaucrats familiar with the language of international governance and who can lever the expertise of scientific experts to enhance their authority. This is not the "power of ideas" as usually expressed in the constructivist literature on specialist epistemic communities or TANs divorced from economic power and practical politics. Ideas rather constitute a qualitative extension of the material force inherent in economic strength (size of the domestic market) and institutional capabilities (regulatory capacity). In the case of global regulation, successful political strategy can be based on any combination of the following: (i) the politics of aspiration, (ii) distribution of authority to include different levels of government and regulated entities themselves in governance and (iii)

intentional incorporation of international dynamics in planning and execution of the political strategy.

The elements of the Global Political Strategy approach are defined in the pages that follow. I argue that this approach better accounts for the evolution of governance of chemical safety than a theory based either Vogel or Bradford that does not focus on sequence and how a particular strategy may be formed by, and influence, the preferences of traditional political actors such as elected politicians, political parties and trade associations. The approach combines the insights of Bradford and Vogel with specific predictions based on logics identified by the institutionalists.

Defining the Outcome of Interest: Governance Success

Before proceeding, I will more precisely conceptualize the dependent variable that defines the outcome of interest: governance success. A number of different terms have been used as a way of describing successful global coordination in a particular global economic policy area. Beginning in the 1980s, international relations scholars and theorists of “interdependence” worked out the concept of an “international regulatory regime” or “IRR” (Krasner 1983). For most scholars, the existence of an IRR does not require that sovereign actors delegate formal regulatory authority to an international body capable of enforcing fully articulated binding commitments on states to conform their laws to a single standard or that the international regime be supervised by a powerful bureaucracy with the power to compel compliance. Rather, an IRR can be said to exist if it articulates sufficiently precise definitions and standards, has transparent decision-making procedures and acts as an effective coordination point for the behavior of actors even if there are no formal measures to enforce obligations (Krasner 1983; Koremenos,

Lipson & Snidal 2001). There is some overlap here with the abundant literature on “legalization” of international norms (Abbott, Keohane et. al. 2000). Legalization is seen as a continuous variable where the degree of coordination varies along three separate lines: “obligation,” “precision” and “delegation.” In many cases IRRs exist “de-facto” in the sense that standards embodied in the regime are recognized and followed regardless of the fact that there is no formal legal obligation imposed on targets of the standards or rules nor any independent international authority with the authority to enforce compliance. Nevertheless, the use of the IRR nomenclature comes with the risk that the result of an example of successful international governance be seen as requiring formal features that are not characteristic of current examples, like REACH or Europe’s General Data Protection Regulation (GDPR) where the governance entrepreneur is a supra-national but regional complex of institutions like the EU that effectively governs in the wider international context without the authority of a formal international treaty.

Another branch of the international organization literature provides a more precise and more fruitful concept for this project than IRRs. This is the concept of “global governors.” As articulated by Avant, Finnemore and Sell (2010) in their introduction to the volume *Who Governs the Globe?*, global governance is not properly thought of as a structure or a process but as the activity of actors who are “global governors.” According to their definition, “global governors are authorities who exercise power across borders for purposes of affecting policy.” The authors go on to explain that global “[g]overnors [...] create issue, set agendas, establish and implement rules or programs, and evaluate and/or adjudicate outcomes.” (Avant et al. 2010, 2). Governance success depends on potential governors successfully achieving “authority” which can be claimed in several

ways. Authority is the result of a “political process” that is “shaped by power, access, mobilization, leadership and other political variables” (Avant et al. 2010, 7). In most cases authority does not require coercion. Often perceptions of the legitimacy of the goals of the governors and the creativity of their solutions to old problems are enough to command authority. In recent decades, the mutually sustaining forces of globalization of trade and investment, reduction of direct state-involvement in the economy and necessary deregulation and re-regulation of markets, technological innovation and the decline of the bipolar Cold War security stalemate has increased the number and variety of global governors. Accordingly, authority is at its simplest level “the ability to induce deference in others.” (Avant et al., 9).

The simplicity and generality of the “who governs?” formulation, has distinctive advantages. First it helps to conceptualize to the dependent variable (“yes, successful governance”) in such a way that it can be readily operationalized. Deference to a global governor can be observed in the empirical record and when conceptualized in this way can generate testable hypotheses that can be used to establish the extent to which a global governor has successfully exercised “authority” in a given field. Within a given policy domain, there should be observable implications of the exercise of “authority” and the response of other actors with “deference.” Second, the governance approach is sufficiently general to permit any number of paths by which a governor can achieve “authority” in a given domain. A variety of candidate independent variables can therefore be incorporated into the framework. Careful selection of candidate independent variables can facilitate theory testing by detailed process tracing of a single case of global governance. Others have looked closely at other economic policy areas, from GMO seeds

to data privacy (Pollack & Shaffer 2009; Zeitlin ed. 2015). This project will examine the case of chemicals regulation, and in particular Europe's bid for role as "global governor" as an important test of which independent variables bear the most causal weight in an account of what would appear to be a case of successful exercise of global governance.

Global Political Strategy: Necessary Element to Governance Success

Building on Bradford, I propose a new analytical approach which I call the "Global Political Strategy" approach. It adds nuance to Bradford's predictions based on factors related economic power, the structure of markets and abundant regulatory capacity alone. My Global Political Strategy approach focuses on the qualitative elements of European regulatory initiatives that cause it to "punch above its weight class" if one were to measure European regulatory capacity by traditional materialist measures of market size and "capacity" alone. Clearly the material elements of institutional capacity matters at the threshold, but it doesn't explain Europe's dominance in regulation without looking at "how" Europe uses the capacity it has. European politicians, diplomats and bureaucrats at the national and the EU level have certain habits of thought and tactical preferences that give them advantages over their rivals which may give a better clue as to what drives success in the context of the period from the 1990s forward than traditional measures of regulatory capacity. By the mid 1990s, Europeans had already embarked on several related political projects: building the single market, expanding the Union to encompass former authoritarian states of southern, central and eastern Europe, and launching the Euro as a common currency. These projects required that European leaders and bureaucrats develop certain habits and skills and adopt a distinctive aspirational

language carefully crafted to facilitate agreement among often antagonistic actors and bridging goals in real tension with one another. European efforts towards integration came to rely on a handful of common features that distinguish these efforts from more traditional regulatory efforts.

- *First*, the Europeans have a habit of framing their proposals in the language of aspiration. Finnemore and Jurkovich (2020) have conceptualized this as the “politics of aspiration”, a tactic that has important advantages but some weaknesses as well. Aspiration allows for disparate parties to support the broad goals of the project while also being encouraged that there will be considerable flexibility in how the rules will be applied. One feature of the European approach is to define multiple aspirational goals that appeal to multiple constituencies while leaving the details of how to manage tensions among the legislative and regulatory measures by which these aspirations would be achieved to be resolved later. In the economic realm, this has meant promoting idealistic goals of protecting privacy, securing health, guaranteeing respect for human rights or ensuring environmental quality *and* doing it in a way that promotes economic competitiveness of Europe and its enterprises. This insistence of having its cake (promoting “post-materialist” values) and eating it too through higher quality and more inclusive economic growth (the consensus goal of traditional “materialist” politics according to Inglehart) is a key feature of how REACH was sold to legislators, industry, environmental activists, and the general public.

- *Second*, Europe has actively distributed responsibility for different aspects of their governance initiatives among different actors: the Commission itself; Union-level bureaucracies; member-states authorities; and enterprises affected by the regulation. They have also reached out the NGO activist community and industry and given both of them a seat at the table and a stake in the success of some of their most ambitious initiatives.
- *Third*, international considerations are typically expressly built into the regulatory design and affect the political strategy pursued by European regulatory entrepreneurs. I will argue that these design and strategy elements are not unique to Europe, but their strong presence in global regulatory initiatives is a distinctive feature of the European approach. The US approach to regulation is much more formal and based on “command and control” rules, with a great deal more required of the bureaucracy before it announces new rules, strict limits on official consultations with regulated parties and NGOs, and until today a much greater risk that the ultimate outcome of the regulatory process will ultimately be successfully challenged in court. During the early 2000s, China had not endowed institutions of its regulatory state with sufficient independence to be credible rule-based regulators for the rest of the world. IGOs are plagued with practical barriers to efficient coordination among multiple veto-partners. In short, there may be qualitative factors that are force multipliers that allow European politicians and regulators to “punch above their weight class” expressed in pure quantitative terms.

The IPE literature offers many aids to understanding how actors respond to the regulatory efforts of potential governors. Bradford's "Brussels Effect" conceives of accommodation to regulatory preferences of the EU in purely economic terms. However, classic economic reasoning based on rational expectations theory and the assumption of efficient markets only tells part of the story. Institutionalists such as Douglass North (1990) who base their approach in part on the work of organizational theorists such as Herbert Simon (1986; 1985) and others, have long insisted that rational choice models that were historically used to theorize the dynamics of institutional development and change need to be amended to reflect that real decision-making rarely takes place in an environment where information is free or where there is certainty about the consequences of competing alternative courses of action. If actors in the real world are "rational" their rationality is "bounded" in the sense of being instrumental but reflecting biases and informational deficits that plague decision making in the real world. A useful theory of international governance would therefore need to build its expectations on a firm foundation of realism about the bounded nature of the decision-making dilemmas facing real actors and be alert to where such limits are likely to affect the result of efforts to coordinate governance across borders. Sometimes these factors will increase the likelihood of failure of coordination and at other times, the influence of imperfect information and a-priori frames may actually *increase the likelihood that well-strategized bids for governance may succeed*. This is especially the case where the international governance entrepreneurs have an effective political strategy. In the case of REACH, EU political leaders increase their chances of success in so far as they: (i) base their programs on the politics of aspiration; are (ii) credible managers of staged implementation plans

spread over many years that involve multiple stakeholders; and (iii) use language familiar to those accustomed to operating in a multinational context. This theoretical construct thus combines the key insights of middle-range theories of the California Effect and the Brussels Effect with a more theoretically developed model of how decisions are actually made in large organizations. Decisions are not made without a real commitment to the success of the organizations where the decision-makers sit. But the decisions are not made according to the strict rules of economic rationality—they do not “maximize” utility--nor are the decisions based solely on the language of “appropriateness” that constructivists have insisted upon putting at the center of their theories of international cooperation. Those who decide to accede to the authority of a foreign regulator do so not necessarily because they have adopted the values of the regulator, but because within the limits of their own decision-making realm, acceding to that authority seems like the best course of action.

For these reasons, a potential governor will owe its success at writing the rules that others actually follow in equal measure to: (i) economic power; (ii) regulatory capacity understood not in purely quantitative terms but also in terms of qualitative factors such as distributed decision-making and ability to coordinate local preferences with transnational policy norms and language ; and (iii) the structure of the markets (i.e. in the case of product markets where they are both inelastic and non-divisible); and (iv) well-thought out political strategy. Europe’s recent success as a global governor is attributable in no small part to the strategic and tactical qualities that its leaders have exhibited in key issue areas.

Methods and Research Design

Testing Alternative Theories

To test the explanatory power of my Global Political Strategy approach against rivals and predecessors, I will examine the single case of chemical safety. Stephen Van Evera (2016) has compared the inferential power of a well-done case study favorably to large-N comparison studies, particularly if the focus of the research is to explain causation (i.e. *how* the independent causes the dependent variable). Also case studies can provide “decisive” tests of theories whose expected evidence is embedded in the statements of actors and in official documents. Bennett and Checkel (2015) reached similar conclusions on the strength of the case study method for “measuring and testing hypothesized causal mechanisms.” Gerring (2017) has noted the ability of “small-C” (i.e. low number of case) studies to leverage effectively both longitudinal and within-case evidence. This is especially the case when the researcher pays close attention to tracing the particular institutional and structural processes by which outcomes are reached. Process tracing gains strength from its ability to identify evidence of the operation of theorized mechanisms or the lack of such evidence.

An element of the new consensus around the role of the case study in well-conducted social science research has been the trend towards combining large-*n* cross case comparisons to cast doubt on weak general hypotheses with case studies designed to confirm with process tracing causal links between variables showing significant statistical correlation, a combination now called “Multi-methods Research” (See Gerring 2017, 138). In Multi-methods Research, a comparison of many cases using frequentist statistics to compare individual cases to population-level parameters is frequently cited as either an

important first step to isolate variables of interest for close scrutiny in focused case studies or as means of establishing more general validity for conclusions drawn from case studies. For all the advantages of multi-methods research, I will not examine the full range of cases of bids for international governance over economic or regulatory policy. First, there is a limited number of examples, all of which have their own features which embed them in a complex set of prior conditions that cannot be assumed away. Second, the challenge of separating out independent variables from background is particularly tricky when each global activity (whether finance, food safety, privacy, pharmaceuticals, or chemicals) have different constellations of key economic actors and interest groups and different structural features. This makes quantification of relationship between key variables and outcomes of interest very difficult. Finally, the value of the dependent variable itself (international governance success) is subject to considerable variance depending on the precise conceptualization of “success” and “governance.” For all these reasons, as well as practical constraints of economizing my efforts, I have chosen only to look at one case of international governance: chemical safety. In any event, coding cases based on the degree of governance success is fraught with perils of subjectivity and bias. For sure, there remains a problem of external validity of any inferences drawn from within case evidence. I will explore the extent to which findings from this study travel to other policy areas, in particular the politics of combatting human-induced climate change, in the concluding chapter. My hope is that by understanding a very important case of international governance—chemical safety—I can inspire more informed research into other policy areas where such leadership is necessary.

Single case studies are especially attractive if they offer many opportunities to observe and measure using within-case evidence the effect of variables on predicted outcomes. Chemical safety is such a case. Europe's bid for governance passed through various stages: conceptualization and design, legislative drafting, promoting the system to trading partners and key economic interests, and implementation. The full story of the bid is only possible to be told if one also examines how other actors outside of Europe responded to this bid for leadership. In complex cases like chemical safety ideas, material economic forces and political institutions combine their effects in different degrees at different times. This is made more powerful because the constellation of key actors, the historical time-period, the ideological background, and existing state of institutionalization of the governance regime are relatively constant (or change slowly as they are impacted by the effect of study variables) within the single case of chemical safety. The tools of close process tracing help identify the different causes, as they express themselves in sequence at distinct phases against the same background, for Europe's success in triggering a significant shift in global governance of chemical safety.

The choice of a single case is also justified by the logic of Bayesian inference. I do not propose to construct my process tracing method to fit a classic application of Bayesian statistics. The narrative flow of each chapter is preserved so that the reader can experience the case evidence without an intrusive methodological voice drawing quick inferences. The main move I will make inspired by Bayesian techniques is from attempting to measure the magnitude of the effect of independent variables (economic power, institutions, ideas) on the target dependent variable (governance success) to weighing the plausibility of mutually-exclusive hypotheses about causes in light of the

evidence the study has turned up. This move from measuring variables to testing alternative hypotheses using Bayesian logic is supported by the work of Fairfield and Charman (2017). Fairfield and Charman make a case for using numerical values to define the weight of evidence expressed on a logarithmic scale comparing how rival hypotheses account for new evidence. They explain how these values can be simply added together to measure the degree to which the evidence that emerges from a given study has cumulatively updated prior judgments about the relative strength of these hypotheses. I do not use numerical measures to capture the weight of evidence, opting instead for words that communicate the degree to which the evidence supports an inference that one hypothesis has more plausibility than another. In subsections marked “Analysis” appearing after key sections of chapters, I explicitly compare hypotheses asking in which of two competing visions of the world is the evidence from the case least surprising. The hope is by keeping the case narratives relatively uncluttered by analysis, the reader can better trace the actual processes by which events developed. The procedure also helped the author avoid tilting the narrative towards favored theories.

I have included Table 2-1 to provide a bridge between more standard qualitative methods where the influence of independent variables on the dependent variable are measured by expressly setting forth expectations of observable implications of individual variables affecting outcomes and the Bayes-influenced method of weighing the change in the plausibility of two rival hypotheses given a particular piece of evidence.

Theory	Rationale	Hypothesis	Observable Implications	Expected Values of DV:
Economic Power (James&Lake 1989) (Drezner 2007)	The result of great power disagreement is either a “sham” standard; rival standards; or no standards	Agreement between major economic powers (Europe and US) is a necessary and sufficient condition for governance of chemical safety to shift towards greater stringency (precautionary principle) and transparency (“no data, no market”)	With REACH, Europe failed to shift global governance of chemical safety towards greater stringency and transparency	No shift occurred in global governance towards greater stringency and transparency
Institutional Regulatory Preferences (Vogel)	Differences in domestic political traditions, ideas and institutions drive divergence in international regulatory preferences	Long-standing differences in preferences and institutional arrangements prevented governance of chemical safety to shift to greater stringency and transparency	Deep structural and institutional forces and resultant differing regulatory preferences in the US and Europe prevented convergence around more stringent global governance of chemical safety	No US reformed TSCA in 2016
GSC Thesis (Haas) (Keck & Sikkink)	“Epistemic Communities” among experts and transnational advocacy networks drive agreement at international level, overcoming or sidelining objections of domestic political actors	The existence of robust GCS networks (communities of experts and networked environmental activists) were the most important factors allowing Europe’s unilateral bid for global leadership to succeed and for the governance of chemical safety to shift towards greater stringency and transparency.	Evidence reveals that experts drove agreement on regulatory design even when economic motives for agreement were absent; veto parties followed the recommendations networked experts and activists even though other voices (politicians, trade associations) were advocating different policies	Yes shift occurred in global governance towards greater stringency and transparency
Brussels Effect (Bradford)	In cases like chemical safety and general privacy, even without superpower agreement, Europe has combined economic power and regulatory capacity to govern product and service markets characterized by “inelasticity” and “indivisibility”	The strong presence of Brussels Effect factors in the case of chemical safety reform were sufficient to allow Europe’s unilateral bid for global leadership to succeed leading to greater stringency and transparency.	Evidence shows that global markets for chemical products were sufficiently characterized by “inelasticity and “indivisibility” and European regulatory capacity robust enough to motivate chemical manufacturers to shift preferences to a more stringent global system (i.e. “trading up”)	Yes
Brussels Effect + Political Strategy (Pasquier)	Regulatory strategy and its effect on decisions of state and private actors were as important as economic factors and traditional measures of regulatory power in explaining Europe’s success	Europe’s success in shifting global governance to more stringency and transparency owes as much to its political strategy as the presence of Brussels Effect factors alone or of the existence of GCS networks.	Process tracing evidence that strategic elements influenced regulatory success where economic logic and regulatory capacity alone may have failed (i.e. inconclusive evidence that exit is really more expensive than compliance or bureaucratic weakness)	Yes

Table 2-1: Leading Theories and the Dependent Variable; Expected Values

Table 2-1 sets out the main theories, their causal logic, rival hypotheses and the implications of these hypotheses on the value of the dependent variable. From the literature of international market regulation, I distill three rival theories to the “Global Political Strategy” approaches sketched in the previous paragraphs (treating for a moment the Brussels Effect theory as incorporated into the Global Political Strategy approach).

They are:

- Theories focusing on the role of strategic behavior of nation-states in the establishment of global regimes where relative economic power is the critical variable and states are assumed to have committed preferences based on self-interest (e.g. Drezner 2007). I will call these “Economic Power” theories.
- Constructivist IR theories explaining the emergence of global regimes in terms of the power of ideas and the influence of networks of either technical experts, i.e. “epistemic communities (Haas 1992A, 1992B, Gough & Shakley 2001) and norm entrepreneurs, i.e. TANs (Keck & Sikkink 1998). I will collectively refer to these theories as “Global Civil Society (GCS)” theories.
- Hybrid theories that explain policy divergence as being based on various institutional and ideational factors expressed at the domestic policy level proposed by Vogel in his *Politics of Precaution* (2012). For purposes of the analysis, I will account for the fact Vogel did not predict the passage by the U.S. of the 21st Century Act by making a small adjustment to

include the politics of continued activism of state and local governments to this model. This also dovetails with the literature on “Varieties of Capitalism” that theorizes variance among countries based on structural and ideological factors. As “Varieties of Capitalism” is a vast literature touching on many things that are not our concern here, I will refer to this line of analysis instead as the “Institutional Regulatory Preferences” approach.

Table 2.1 outlines these three alternative theories and my proposed “Global Political Strategy” approach, as they would influence our expectations of the value of the dependent variable “governance success.” In the column labeled Observable Implications I include the types of evidence that each theory would predict would emerge from research on the case. Table 2.1 also adds in a fourth alternative theory for a total of five rival theories, an application of Brussels Effect approach without the benefit of considering the key role of political strategy which is the distinguishing feature of the Global Political Strategy approach.

Explaining the Dependent Variable: EU Governance Success

Table 2-1 has an additional use. Because it highlights the fact that two of the five rival theories predict that Europe’s bid for unilateral governance would fail, it allows us to simplify the hypothesis-testing exercise that will follow from our tracing of the processes in the case. Of the three alternative theories, the Economic Power and the Institutional Regulatory Preferences approaches would predict less success at coordinating governance of international economic markets than their rivals, including my Global Political Strategy approach. An empirical conclusion, based on carefully

weighing evidence, that other powers “defer” to the authority of the EU would-be global regulator of chemical safety and that the EU’s preferences tend to prevail in national- and international-level regulatory design and in the compliance strategies of key regulated parties, effectively de-confirm the pure form of Economic Power Thesis.

The logic of this de-confirmation is made clear with reference to the following truth-table:

Figure 2-1 Economic Power Thesis: Truth Table

Dependent Variable: Successful Global Governance?	Independent Variable: Conflict between Great Powers?	
	Yes	No
Yes	REACH, GDPR	TRIPS, CFCs
No	GMOs	

The Economic Power thesis predicts that the box (*yes, yes*) would not be occupied at all because in cases where there is no single dominant power, the failure of the leading powers to agree on regulatory design would doom global rules to failure. Yet both REACH and GDPR sit in this box. The Economic Power thesis predicts that conflict would produce either a “sham standard” where aspirations are established by international proclamation but compliance is not widespread, or a “failed standard” under which de-facto regulatory divergence would continue. These predictions are born out with respect to the Trade-Related Aspects of Intellectual Property treaty (TRIPS) and

ozone-depleting chemicals (CFCs) where a lack of superpower conflicts predicts governance success. Establishing the value of the dependent variable in the context of evidence of conflict between powers on initial regulatory preferences has clear implications for theory testing.

The Institutional Regulatory Preferences approach is falsified by the same evidence as the Economic Power thesis, because convergence should not happen if deeply-embedded regulatory preferences determine conflict or divergence. The GSC Thesis, on the other hand, predicts as much or more success in coordinated governance than the Brussels Effect and Global Political Strategy approaches. Thus, given the evidence for regulatory convergence that will be offered in Chapter 4, it is possible to reject the pure Economic Power Thesis and the Institutional Regulatory Preferences approaches as not predicting the success of Europe in becoming a successful “global governor” in the field of chemical safety. In Chapters 3 and 4 therefore, I focus my theory-testing exercise on three rival theories only: The GCS Thesis, the Brussels Effect and the Global Political Strategy refinement of the Brussels Effect thesis. Within-case analysis using process tracing is used to tease out facts that have implications for rival hypotheses, constructed as mutually-exclusive alternative “worlds” which can be tested one against the other using Bayesian logic.

Independent Variables: What Accounts for Governance Success?

Table 2-2 summarizes the independent variables that might account for the success of Europe in achieving governance success in the realm of chemical safety and ties them back to the rival theories laid out in Table 2-1. The table includes a slightly different set of case-specific hypotheses which are designed to illuminate the type of

evidence that each theory would rely on to tell its favored story about the role of a particular independent variable in causing the outcome. The independent variables that account for the success of governance are very different, however, as between ideational (GSC) and material (Economic Power and Global Political Strategy) approaches, and these variables will leave observable implications that will be possible for researchers carefully tease out employing process tracing to determine which variables account for the pattern of evolution. The Brussels Effect could predict either a greater likelihood of success for global coordination than Economic Power alone or, on the other hand, greater likelihood of failure, because it underspecifies the elements of regulatory capacity that must exist alongside economic factors. There are many economic markets that are sufficiently “inelastic” and “non-divisible” but have not yet seen the type of evolution as in chemical regulation where Europe’s efforts have spurred a rapid shift in global rules. Process-tracing that focuses on the evidence unique to the Global Political Strategy approach will allow us to understand better when the background economic factors will lead towards global rules and when they are less likely. This is because this approach includes additional fine-grained expectations about how regulatory capacity can effectively be used in an international context. Evidence that reveals the use of the politics of aspiration, a stakeholder approach and an express international strategy all are important to confirming the Global Political Strategy approach. If the record is full of examples of these logics being expressed in documents and in the recollection of key players, it will be possible to develop reliable conclusions about their level of importance in driving changes in global regulations. Evidence of mechanisms derived from literature on organizational behavior, including bounded rationality, band-wagoning, market

Table 2-2: Leading Theories; Independent Variables

Theory (Logic)	Hypothesis	Independent Variable	Observable Implications
Economic Power (dominance necessary and sufficient)	Europe’s economic power was sufficient alone to lead to successful global governance	Economic Power	Evidence of traditional measures of economic power for nation-states who were proponents of more stringent governance of chemical safety –evidence of global convergence through the mechanisms of asymmetrical interdependence
GCS Thesis (international networks sufficient to produce international governance)	Europe’s governance success occurs for reasons other than economic power mainly due to the power of ideas expressed through role of experts organized in international networks;	Economic Power	Evidence that shows economic power not sufficient to drive change in governance; Instead evidence that experts and activists not captured by economic interests formed “epistemic communities” and global advocacy networks that prevailed in promoting a more stringent regulatory design
Brussels Effect (economic power necessary at threshold but not sufficient)	Europe’s governance success occurs for reasons of its economic power, but regulatory capacity must exist and the structure of markets also must be right type	Economic Power	Evidence of internal deliberations reveal that economic decisions of regulated parties to accommodate to the proposed stringent regime were classically rational maximizing behavior
Global Political Strategy (economic power necessary at threshold but not sufficient)	Europe’s governance success occurs for reasons of its economic power, but regulatory capacity, its strategy and the structure of markets also must be right	Economic Power	Evidence of internal deliberations reveal that rational economic calculation was not as evident as “bounded rationality” in the face of uncertainty; Non-compliance and exit from Europe believed to be more expensive than anticipated costs of compliance whether it was or not

Theory (Logic)	Hypothesis	Independent Variable	Observable Implications
Economic Power (Dominance necessary and sufficient)	Global Civil Society plays at the margins, but big power preference drive outcomes	Epistemic Communities and Transnational Advocacy Networks	Evidence of the existence of transnational NGOs and networks of scientists lobbying for change in chemical regime does not conclusively prove that their role was important let alone decisive if there is no evidence of theorized mechanisms in the GCS literature
GCS Thesis (international networks sufficient to produce international governance)	GCS plays key role in developing options for international governance and GCS networks can speak “truth to power” at conjunctural moments	Epistemic Communities and Transnational Advocacy Networks	Evidence exists that scientific consensus around chemical safety reform emerged because of uncertainty about the effect of continuing the then-dominant regime. “Precautionary Principle” has a sufficiently precise meaning to be the focus of consensus among key networks of actors, whether scientists, NGOs and “reformers” within the Chemical industry.
Brussels Effect (economic power necessary at threshold but not sufficient)	While GCS can play a role in changing regulatory preference for stringency, acceptance of European leadership depends on other variables such as economic forces and regulatory capacity	Epistemic Communities and Transnational Advocacy Networks	Evidence of the existence of international networks of experts and advocates and their role in the early debate on Chemical Safety does not outweigh strong evidence that economic forces and regulatory capacity played a more important role in causing European bid for leadership over chemical safety to succeed. Lack of evidence of theorized mechanisms from GCS theory for early advocacy to translate into regulatory outcomes.
Global Political Strategy (economic power necessary at threshold but not sufficient)	While GCS can play a role in changing regulatory preference for stringency, acceptance of European leadership depends on other variables such as economic forces, regulatory capacity and decisively regulatory strategy	Epistemic Communities and Transnational Advocacy Networks	Evidence of the existence of international networks of experts and advocates and their role in the early debate on Chemical Safety does not outweigh strong evidence that economic forces and regulatory capacity played a more important role in causing European bid for leadership over chemical safety to succeed. Further, evidence that Europe used a regulatory strategy that used GCS actors and their concepts as tools to influence the preferences of international actors such rival states and forces within the chemical industry is more consistent with a world where regulatory strategy matters decisively and not the existence of GCS networks by themselves.

Theory (Logic)	Hypothesis	Independent Variable	Observable Implications
Brussels Effect (necessary but not sufficient)	Concentrations of expertise are decisive; resource expenditures are sufficient to capitalize on structural features of markets	Regulatory Capacity	Traditional measures of regulatory capacity reveal that Europe assembled sufficient power to predict governance success
Global Political Strategy (necessary at threshold but not sufficient)	A relatively resource-light and decentralized approach to institution-building is sufficient if the political strategy is well-thought-out and effectively executed		Traditional measures of regulator capacity do not show clear superiority in expertise, institutional authority and enforcement resources over rivals like the United States;
Global Political Strategy		Global Political Strategy	
	Use of politics of aspiration gained legitimacy for Europe's plan and help establish its authority as a credible governor	<ul style="list-style-type: none"> • Politics of Aspiration 	Statements of European leaders relied on appeals to aspirations of key audiences (NGOs, politicians, trade associations)
	Attention to seeking "stakeholder" participation at supranational, national, sub-national levels from private parties (NGOs and economic actors) helped Europe establish authority as a governor	<ul style="list-style-type: none"> • Participation of multiple stakeholders 	Evidence of involvement of multiple stakeholders (in Europe and outside) at all stages in making of REACH and its implementation
	Incorporation of language from international treaties, IGO and NGO initiatives (e.g. "sustainable development") and use of WTO institutions defused complaints of protectionism from critics and rival governors	<ul style="list-style-type: none"> • Express international strategy 	Degree to which regulatory approach reflected international norms and leveraged prior international agreements

positioning rationales, anticipation of actions of NGOs and consumer behavior influencing the decisions of actors to oppose or support global convergence on a high stringency regulatory regime will also tend to support the account based on the Global Political Strategy approach. If bounded rationality played a role in the reaction of key economic actors to Europe's REACH, then the record should be filled with evidence that heuristics such as "getting in front of the issue", "finding a seat at the table" and like logics played a greater role than the logic of profit maximization. The Brussels Effect and the Global Political Strategy approach make similar predictions as they share so many elements in common. Analytical leverage can be gained by posing counterfactuals to reveal whether at any particular juncture Brussels Effects factors such as "trading up" economic logics and regulatory capacity could have accounted for EU achieving successful governance without a decisive role for effective political strategy. What the case of chemical policy reveals is that sequencing can reveal a lot in the context of counterfactuals. EU succeeded in implementing REACH by engaging transnational actors such as NGOs and industry organizations before the effect of economics or regulatory capacity had a chance to influence the outcome. In the light of evidence brought forward in this dissertation, it will be easy to see that REACH could have been "smothered in the cradle" politically long before the force of economics and regulatory capacity had a chance to assert themselves.

The reactions of economic rivals that spring from logics of norm diffusion and functionalism are evidence for a rival theory, a type of ideational theory which I will for parsimony treat as an approach that stems from the same logic as the Institutional Regulatory Preferences approach. Those powers with similar institutional constraints will

share regulatory preferences and are likely to imitate each-other. This is less a function of bargaining and political positioning as much as a purely technical matter of choosing the best regulatory model for the functional task at hand and diffusion of knowledge of these “best practices” across borders. Evidence that there is little or no policy conflict within the political system of a rival power to Europe is confirmation that the Global Political Strategy approach is not as important as pure institutional “first mover” logics. The case evidence shows that there was considerable conflict over the enactment of REACH and a more stringent approach to chemical safety generally in the United States that better fits the expectations of the Global Political Strategy approach. If evidence from other countries shows that logics of norm diffusion do play a role, especially when it was clear that the US would not offer a competing model of governance, this would not necessarily be strong confirmation of diffusion as a separate explanation for Europe’s governance success. Europe had to prevail over serious rivals like the United States before the logics of diffusion inspired countries like Korea, Vietnam, Turkey and China to follow the European pattern. Diffusion stories often gloss over the complexities of local power dynamics that make acceptance of foreign regulatory models more or less likely. Moreover, especially after it was clear that EU’s registration system for chemicals was going to succeed, the strong economic logic of asymmetric interdependence began to make a national choice for rules that ignored REACH a more costly strategy to pursue. Mere evidence of formal imitation, given the sequencing of events, is not necessarily confirmation that learning as opposed to economics and politics were the most important drivers overall.

Evidence and Sources

Evidence can be obtained from three main categories of sources. The first are public documents published by regulators and trade associations. In the case of REACH, there are abundant records available to the general public regarding each step of the regulatory process and the reactions of stakeholders at each stage in the development of political strategy, writing of legislation and the implementation of the system. Many of these sources are readily available online. Additional archival resources shedding light internal deliberations of EU bodies are available in the European Union's archives online, in Brussels and at several depositories inside the European Union and in North America. Documents key to the making of REACH are available online and can be found by consulting the archives or history tabs at websites of the European Chemical Agency, the European Commission, the Parliament, the Council and the European Council. In addition, individual documents can be found by searches in the official EU legislative repository at a website maintained by the EU called "EUR-lex."⁵⁰ The minutes of the WTO's Technical Barriers to Trade Committee (TBT) can be found by searches at the WTO's website.⁵¹ Documents relevant to the making of environmental policy in the U.S. are available at the website of EPA, at the special legislative archive for the US Congress maintained by the Library of Congress online.⁵² Additional background and insight for this project was obtained by the author's 16 structured interviews with participants, both in governmental and private sector roles. Information gathered from interviews were used to test the presence of theorized mechanisms and shed further light into the logics

⁵⁰ <https://eu-lex.europa.eu>.

⁵¹ https://www.wto.org/english/res_e/res_e.htm

⁵² <https://www.congress.gov/>

that affected the success of REACH and reform efforts in the US. The findings gathered from these interviews were confirmed by consulting contemporary press accounts, especially in trade publications aimed at regulatory specialists in industry.

Conclusion

In summary, a close study of REACH using process tracing techniques— looking carefully at how REACH emerged in Europe as a signal legislative achievement of the European Union, how it was implemented in an international context and the reaction of rival economic powers—will teach us a great deal about the dynamics of change in global regulation. It will provide a crucial test for approaches that look to interplay between economic structure and regulatory capacity such as Anu Bradford’s “Brussels Effect” approach and reveal areas where elaborations on these approaches such as my Global Political strategy approach can add precision and nuance to the interpretation of real-world events. Chapter 3 tells the story of the evolution of REACH as a strategy, its enactment as an EU regulation and its implementation by actors across the globe. Chapter 4 looks at the reactions of economic rivals, first Europe’s key rival in the rule-making, the United States, and then by other countries. Chapter 5 elaborates general conclusions to emerge from this this case and suggests avenues for future research.

CHAPTER 3 – THE STORY OF REACH – GLOBAL POLITICAL STRATEGY IN ACTION

When enacted in 2006, REACH broke new policy ground and, without hyperbole, can be described as innovative. Moreover, the manner of its launch was a bold experiment of one economic power bloc's ability to assert governance over an important policy area in a way that reflected its preferences for greater stringency. In Chapter 2 we saw that many scholars explain that Europe's success in writing rules aimed at a global audience owes a great deal to its collective economic power as expressed through the size of its Single Market and the capacity of EU institutions to enforce common rules. Yet, economic power alone (even combined with traditional measures of regulatory capacity) does not adequately account for Europe's rise at the expense of the United States as a source of innovation and action in global governance over chemical safety. Explanations that emphasize the role of political institutions and the power of ideas as supplements to economic power are required if one wishes to account for this puzzling result. A fine-grained analysis of how Europe built REACH and deliberately promoted it as a global standard promises to shed light on how ideas, power and institutions interrelate in driving political outcomes.

The story of how the European Union enacted REACH reveals that Europe's leaders understood the influence that a uniform regulation enforced across the Single Market could have on the economic decisions of actors around the world. Nevertheless, they proceeded in a way that also showed that they were not convinced that Europe's economic power expressed through Brussels Effect mechanisms alone would prove sufficient for it to prevail over its economic rivals, even in global markets for chemical

products which are inelastic and non-divisible. At a minimum, European leaders took care to manage the risk that their bid for regulatory primacy would fail. Europeans were very careful to design a regulatory system that would win at least grudging acceptance by the biggest industry players and environmental NGOs and at the same time dissuade rivals from proposing a full-blown alternative to their bid for regulatory primacy. This ability to capitalize on a strong but not overwhelming hand dealt it by virtue of its status as number two global economic power is evident when one examines closely the way European diplomats and politicians used the institutions of the European Union and drew strength from a mindset that favors consultation and consensus-building over open conflict. The ability to execute these strategies was developed over time and trace their origins to the beginning of the European project. By the time REACH was enacted, European officials, diplomats and politicians had developed these strategies to a high level of sophistication. Europe had emerged from a decade-long period of creativity that followed its historic decision to transform the Community's customs union into a Single Market. Creation of a Single Market required systematically addressing non-tariff barriers with the goal of creating a continent-wide area where goods and services and capital and labor would circulate freely. To do this without diluting Europe's social and economic model required that labor standards and other regulatory measures be leveled-up to the stringent standards common in northern and western Europe. Leveling the playing field required the development of a complex set of new EU-level rules, including environmental and product safety standards. The skills that European politicians and diplomats developed on how to use multilateral fora to further their policy ends has also

made Europe a particularly effective global governor in policy areas crucial to the global economy.

This Chapter is organized into three main sections in addition to this introduction and a conclusion. Section 1 surveys the policy considerations and political background that led to the EU's decision in 2000 to embark on erecting a comprehensive system with global reach to fix the perceived weaknesses of the existing chemical safety regime in Europe. Section 2 recounts the legislative history of REACH itself, paying particular attention to how Europe used its experience in building its own supranational institutions and history working of working constructively in multinational fora to design a legislative process that engaged key stakeholders and offered behavioral enticements for leading global chemical firms to tailor their global compliance strategies around REACH years before the arrival of the first compliance deadlines. Section 3 carries forward the story from the enactment of the REACH law in 2006 through its first decade of implementation.

Policy Formation and Political Strategy

Early Studies and Informal Meetings

REACH was the culmination of over two decades of attempts to forge a common policy on hazardous chemicals in Europe.⁵³ Studies by experts that were critical of the existing governance of chemicals had been circulating for years,⁵⁴ leading to consultations at OECD to determine the best way for leading countries to unite around a common approach to close the “data gap.” These talks did not yield tangible results

⁵³ For a useful contemporaneous account of the making of REACH, see Warhurst (2005), pp. 164-7.

⁵⁴ See, e.g. National Research Council. 1984.

within the timeframe that satisfied Europeans. In 1999, the European Chemical Bureau (then the only EU-level institution dedicated to chemicals policy) issued its own report, identifying the continued lack of safety information regarding existing chemicals as the single biggest weakness in Europe's regulatory scheme.

The Council⁵⁵ had studied the competitiveness of the European Chemicals industry and issued a set of conclusions in November 1996 on the subject. In the meantime, the expansion of the EU in 1995 in which Sweden, Austria and Finland joined necessitated Council to initiate a workstream by which European environmental laws were brought into closer harmony so as not to dilute the traditionally stringent approach to these issues preferred by the new entrants.

These two threads of Council action, competitiveness and environment, came together in a series of behind-the-scenes meetings held over the 18 months following the second conclusions of the Environment Council, the subset of the Council consisting of the environmental ministers of the member states. In April 1998, the environmental ministers of the EU member states gathered in Chester, England for an "Unofficial meeting" of the Environment Council of the European Union. As a group, the Environment Council reflected the combined effect of then-emerging electoral influence of Green Parties and growing popular support for the campaigns of environmental NGOs on member state governments. The Green Party members that joined member state cabinets were most often given power to influence of the government's environmental

⁵⁵ Four EU institutions were critical in the making of REACH: the Commission, the Council, the Parliament, and the European Council. The text uses consistent terms for EU Institutions. The "Council" will refer to the Council of the European Union. The "European Council" will refer a separate body, the European Council. The "Commission" will refer to the European Commission. The "Parliament" to the European Parliament. Those readers less familiar with EU institutions can refer to *Appendix A* for a brief review of the key institutions and their respective roles in European politics and policy-making.

portfolio and in some cases took the post of environment minister as a reward for support for the ruling coalition (Vogel 2012, 31). Consequently, the Environment Council represented the European institution most under the influence of Green Parties and their brand of post-materialist politics. The report from this meeting signaled the member states' new urgency to reform chemical regulations and called on the Commission to begin formal process for drafting a new regulation to replace the patchwork of Union and member-state rules with a comprehensive Europe-wide scheme.

The Council asked the Commission to study existing European law on hazardous chemicals and report its recommendations about how gaps could be filled. The Council heard the Commission's report in December 1998 and reached its first set of conclusions regarding the EU's future chemicals policy. In February 1999 the Commission held a "brainstorming session" among 150 stakeholders including industry, labor, scientists, politicians, ENGOs representatives and consumer activists. The environmental ministers "informally" met again in Weimar, Germany in May 1999 to reflect on the results of the Commission's work and its "brainstorming sessions" and to plan further legislative actions in Council. In June, the Council issued a second set of conclusions on chemical safety. In December 2000 the Council issued a resolution on the "precautionary principle," a statement that was formally endorsed a few days later by the European Council at its summit in Nice (European Council 2000A).

Close observers of the process give much of the credit for moving forward the cause of chemical safety reform in the early years to Margot Wallström, Commissioner from Sweden, and Bjorn Hansen, then a senior scientist at the European Chemicals

Bureau which then was an arm of the Joint Research Council of the Commission.⁵⁶ Also playing an important early role was Ritt Bjeregaard, a veteran Danish social-democratic politician who served as the Environment Commissioner in the Santer Commission.⁵⁷

Wallström is a veteran social-democratic politician who had served in various ministerial-level roles in Swedish governments before being named Sweden's EU Commissioner. Wallström succeeded Bjeregaard as Environment Commissioner at upon the installation of the Prodi Commission after Santer resigned in scandal in 1999.

Wallström remained Sweden's Commissioner after Stavros Dimas succeeded her with the installation of the Barroso Commission in 2004. Hansen is a technocrat with university-level degrees in probability theory and applied math earned outside his native Denmark (one in the Netherlands and another in Germany) and advanced academic work at institutions on both sides of the Atlantic. As a function of his role leading research at the European Chemicals Bureau, he had represented EU at OECD discussions around classifying chemicals for risk assessment and closing the data gap that led to the GHS. In 2003, Hansen moved into a senior policy position at DG Environment where he ran the Chemicals section and participated in many of the negotiations on REACH. He ran the chemicals unit at DG ENV until he moved to Helsinki in 2008 to become director of operations of the new independent European Chemicals Agency (EChA) created under REACH. Much later, in 2018, he became executive director of EChA serving until he officially "retired" from EChA effective April 1, 2022. Hansen served as a key source of knowledge and continuity on chemical safety policy over the entire period in which REACH was conceived, written into law, and implemented.

⁵⁶ Author interview of senior adviser at EChA

⁵⁷ See Appendix I for a list of Commissions in office from 1995 to 2016.

Leaders of other functions at the Commission also played a large role in addressing the competitiveness aspects of European Chemicals Strategy. Martin Bangemann, a veteran German politician from the pro-business liberal Free Democrats, oversaw DG Enterprise in the Santer Commission and both Delors Commissions. Bangemann was succeeded in the role by Erkki Liikanen, a Finnish liberal, who served until 2004 at which time he was succeeded by another Finnish liberal, Olli Rehn, who served until the expiration of the Prodi Commission's term later that year. Except for Hansen, all of these key figures in the creation of REACH at the Commission were seasoned politicians and loyalists of mainstream center and left parties who regularly served as ministers in home country governments prior to and after their service in Brussels.

Safety Scandals and Growth of Environmental NGOs

In the 1990s and early 2000s, the political environment was deeply impacted by health and safety scandals that received abundant media coverage and the role of environmental NGOs in taking advantage of public distrust of political leadership on these issues to press the case for reform. Prominent among these was the “mad cow disease” scandal involving British beef infected by BSE. Also weighing heavily on public opinion, especially in France, was the scandal involving a French government cover-up of its inadequate management of donated blood supplies. The combined effect of these two scandals had a galvanizing effect in French politics, resulting finally in the creation of the Agency for Food, Environmental and Occupational Health and Safety (ANSES)

which would become in 2010 the French competent authority under REACH.⁵⁸ The spectacular safety failure that resulted in a huge emission of radio-active materials from a fire at the Chernobyl nuclear reactor station in Ukraine also figured large in the view of the public towards political stewardship of dangerous technologies. French authorities united to reassure the public that the Chernobyl cloud would never cross the border to affect France, a prediction neither based on science nor common sense. This official unanimity became a huge public-relations liability for French health authorities when the specific assurances proved false.

Environmental NGOs grew quickly in membership, finances and influence in these years (Reimann 2006; Keck & Sikkink 1998). Technological shifts, especially improvements in the sensitivity and the lowering of the cost of testing for trace amounts of chemicals aided activists in raising worries about the persistence of chemicals in the environment. Taking advantage of new testing techniques, Greenpeace and other activist NGOs offered to test the hair of journalists and politicians to show that traces of many chemicals whose safety had not been officially proven were present in the their own samples.⁵⁹ A French industry official I spoke with speculated that but for the sea change in French politics towards greater environmental stringency and the precautionary principle during those years, the political coalition in favor of reforms such as REACH may not have spread beyond the Nordic heartland.⁶⁰ This shift in attitudes on product safety was not significantly correlated by political ideology of the mainstream political

⁵⁸ Author interviews with a legal director of an environmental NGO and a senior Europe regional manager of a global chemical company.

⁵⁹ Author interviews with senior business, regulatory and public affairs officials at several chemical multinationals, the legal director at environmental NGO and officials at a French industry lobby.

⁶⁰ Author interview with senior Europe-area manager of global chemical company.

movements. Industry officials and lobbyists I interviewed tended to agree that trade associations and their paid lobbyists generally have less direct influence over the views in politicians than they do in the United States. From the mid 1990s to mid 2010s the appeals used by industry advocates to lobby a socialist parliamentarian or appointed official was not significantly different from those used with their conservative or liberal counterparts. Pro-European politicians during this era believed that stringency and the “precautionary principle” was an important element in the common strategy of European integration and were not particularly moved by worries that stringency in regulation would hurt industry profitability nor adversely impact jobs.⁶¹ Stringency was generally seen as compatible with the type of economic growth Europe wanted to encourage-- innovation- and knowledge-based growth.

Growth of Environmental Politics: Electoral Sphere

Along with the rise of the influence of ENGOs on public opinion, one must also weigh the effect of the electoral influence of the so-called Green Parties. During the period from 1994 to 2009, there were four elections for European Parliament. The number of explicitly Green members increased over time, but not in a linear fashion. Most of the growth in representation of explicitly environmentalist parties European Parliament occurred in the 1990s, a period of prominent health scandals and a loss of faith in traditional parties among those voters who rated environmental issues high in importance. It also was the period when Sweden and Finland joined the EU and their ecologically-minded Left politics shifted the ideological complexion of the far Left group in Parliament.

⁶¹ Author interviews of European industry officials, Brussels-based lobbyists and NGO activists.

Table 3-1: Electoral Results for Environmental Parties (1994-2009)

	Greens/EFA		United Left/Nordic Green Left		Total	
1994	23	4.0%	28 ⁶²	4.9%	51	8.9%
1999	48	7.7	42	6.7	90	14.4
2004	42	5.7	41	5.6	83	11.3
2009	74	9.8	41	5.5	115	15.3

Source: compiled from election results on European Parliament Website⁶³

The 2004 elections represented a small set-back for Green and other left-wing pro-environment parties, as the post 9-11 period was one characterized by slowing economic growth and worry about competitiveness and jobs in many parts of Europe. The representation of ecology-focused parties increased again in 2008, but the increase was relatively modest and marked the beginning a larger shift away from mainstream parties towards populist parties with a critical stance towards Europe. The influence of Green Parties on European-level politics cannot be simply explained by electoral strength in European elections, however. The existence of effective Green Parties in a wider selection of countries than earlier (France, Italy and UK) meant that more mainstream political movements adjusted their electoral program to attract voters who might otherwise defect to the Greens. Eurobarometer surveys sponsored by DG ENV from the period show a high degree of support for key demands of the ecology movement.⁶⁴ This

⁶² The United Left Group did not present itself as an explicitly ecological movement prior to the entry of Nordic parties into the group prior to the 1999 elections.

⁶³ <https://www.europarl.europa.eu/about-parliament/en/in-the-past/previous-elections> (accessed March 2022)

⁶⁴ For example a survey of 7,533 citizens of 15 EU members states (Eurobarometer 2002) showed that in all but a handful of EU member states (Germany, Netherlands and Greece) environmental factors had a greater impact on the respondents perceptions of quality of life than social or economic factors.

electoral competition was felt especially strongly by socialist and social-democratic parties but also resulted in a shift to a more open position on regulation of business to achieve health and environmental goals among conservatives and liberal parties as well. This is consistent with the evidence that liberal politicians played an active role in shaping the REACH policy, especially its focus on innovation and in also making sure that the reform was consistent with the liberals' traditional support for open markets.

Analysis

The emergence of the chemical safety reform agenda as an active project of the Environmental Council is not surprising in a world where the influence of epistemic communities and international activist networks can frame issues and create new reform priorities that end up “speaking truth to power” as seasoned politicians adopt causal theories and espouse values whose origin comes from within these networks. Thus, this evidence is broadly consistent with the expectations of the GCS Theory. At the same time, the exercise of control over the process by experienced political figures from mainstream political movements is evident from the record and is more consistent with fine-grained theories, like the Global Political Strategy approach, that place politics rather than technical expertise or “values-based” advocacy at the center of environmental policy making. Interestingly, the careers of several of these Commissioners (Wallström and Likkanen) included service as foreign ministers in home country cabinets and others (Bangemann and Dimas) as holders of key economics and finance portfolios in cabinets. The educational backgrounds of these political leaders tended to be in the law, economics, or finance, not in the natural sciences nor risk management. A path to an influential policy role in Brussels was more likely to start by obtaining leadership of a

student movement affiliated with one of the three big pro-European political movements, then rising through the ranks of the parent political party, a requirement for a long career in Parliament and consideration for cabinet positions in electoral systems dominated by party lists. Several, like Martin Bangemann, later took on roles as Party leader in addition to their public service at home and in Brussels. The evidence of the growth of activist-linked Green Parties is a testament to the growing popularity of environmentalist explanations for the causes of well-publicized industrial accidents health scandals. At the same time, the Green Parties did not have the weight to push an ambitious reform agenda without significant allies. Evidence of Green Party growth and influence is not surprising within a world where the GCS thesis is valid. Nevertheless, the fact that the most decisive political champions of REACH emerged from more mainstream political movements is also consistent with the expectations of the Global Political Strategy approach. The strength of the effort to reform chemicals policy was built on the experience of veterans of centrist parties in pulling together wide coalitions among ostensible policy rivals to support Union-level institution-building, using appeals based on aspirational rhetoric such as assertions about the fundamental compatibility of stringent environmental regulation and well-balanced economic growth at a time when the salience of environmental issues was high across the political spectrum. This evidence is consistent with the expectations of the Global Political Strategy approach. Thus, both the GCS and the Global Political Strategy Approaches anticipate different aspects of the way the reform ideas were centered and presented to European institutions for action. The decisive tests for these theories are how they account for against the evidence of how the Commission framed REACH and how the Commission steered the

proposed regulation through the “consultation” phase and co-decision by Parliament and Council. These tests are provided by case evidence of how EU institutions worked closely together to introduce, legislate and implement REACH.

Approving the Political Strategy: Release of the Commission “White Paper”

In the period leading up to the Nice European Council, the Commission had been hard at work designing its proposal and therefore was poised to act quickly after endorsement by the heads of state of the Council’s conclusions on chemicals policy and recommendation that the Commission begin drafting a new regulation. The Commission’s treaty-based power to initiate legislation, allowing it to play role as an actor with independent “agenda setting” power, have been noted (e.g. Pollack 1997). In the case of REACH, the Commission while influencing the agenda was working within parameters that had been set in coordination with other EU bodies and leaders of key member states. The Commission had already made the strategic decision to divide responsibility for carrying out its role, giving responsibility for aspects of the project to several directorates within the Commission bureaucracy. Rather than handing over the lead role to the Directorate General of the Environment (DG ENV), the Commission divided lead responsibility for the new chemicals policy between DG ENV and the Directorate General of Enterprise (DG ENT) whose mandate was to promote innovation and economic growth within the EU.⁶⁵ This ensured that the tensions between the goals of environmental protection and preserving and enhancing the competitiveness of the European chemicals industry would be built into the Commission’s strategy. DG ENV

⁶⁵ The mandate of DG ENT would be absorbed after the reorganization of the Commission in 2004 into the Directorate General of Enterprise and Growth called DG GROW. There have been further reorganizations within the Commission, but the enterprise function is still within the function commonly called DG GROW.

and DG ENT were also expected to consult with DG Internal Market and DG TRADE to make sure that specialists within these functions could weigh in to make sure that their concerns about open markets and international commitments were integrated into the drafting. This pattern of distributed authority would be replicated at each stage, with Council also splitting the lead between its Environment and Competitiveness configurations and European Parliament eventually assigning three of its committees to study the law and provide legislative input: Environment, Industry, and Internal Market.

The Commission published its White Paper in February 2001, a little more than two months after the formal endorsement of the strategy in the Nice declaration.⁶⁶ The Commission issued a press release with quotations from Commissioners Wallström and Likkanen, stressing the combined themes of health and environmental safety and international competitiveness. According to Wallström:

This is one of the most important initiatives the Commission has taken in the context of sustainable development. We have decided on a step-by-step approach to phase out and substitute the most dangerous substances – the ones that cause cancer, accumulate in our bodies and in our environment and affect our ability to reproduce. This decision is crucial for future generations.⁶⁷

Likkanen then added:

Today's decision is crucial to get good and reliable information on the basis of which we can start analysing the many chemicals on the market on which we have no knowledge of their effects on the environment and our health. At the same time the decision is important to create a proper internal market for chemicals products – and thus a level playing field for our industry. The scheme which we have agreed today will also help stimulating innovation and will provide industry a clear framework within which they can work on a competitive footing with other global players.⁶⁸

⁶⁶ European Commission. “White Paper: Strategy for a Future Chemicals Policy.” Brussels: COM/2001/88 final. European Commission 2001A.

⁶⁷ European Commission. Press Release, February 13, 2001.

⁶⁸ European Commission. Press Release, February 13, 2001

In its public statement, the Commission was making very clear that the proposal represented a delicate balance among competing priorities and that success depended on the balance being preserved.

In the White Paper itself, the Commission outlined its “strategy for a future chemicals policy” in considerable detail.⁶⁹ The Commission set forth seven political objectives of the proposed strategy:

- Protection of human health and the environment.
- Maintenance and enhancement of the competitiveness of the EU chemical industry
- Preventing fragmentation of the internal market
- Increased transparency
- Integration with international efforts
- Promotion of non-animal testing
- Conformity with EU international obligations under the WTO.⁷⁰

The first objective was to be achieved by setting deadlines, a “step-by-step” process for addressing the “burden of the past”, i.e. the imperative that gaps in data about the safety of existing chemicals be closed. The Commission envisioned a 10-year plan to remedy this gap, a timing expectation that it would have to modify to meet the objections of those in industry. The first objective required, the Commission made clear, that industry would need to take responsibility for generating the knowledge about chemicals and shoulder the burden of making sure that the chemicals are safe for their intended uses. The effort to engage industry in regulatory work would prove important for the political success of

⁶⁹ European Commission 2001A.

⁷⁰ European Commission 2001A, 7.

REACH. The goal of enhanced protection would also be achieved by extending responsibility for safety beyond chemical manufacturers. Downstream users, including importers of mixtures and articles containing chemical substances would be responsible for making sure any chemical substances above certain thresholds included in their products be registered under REACH and evaluated for safety. The simultaneous reach backwards and forwards up and down the supply chain in effect added extra-jurisdictional heft to the design of REACH, as foreign manufacturers would need to help their customers in Europe comply with the law by submitting themselves to REACH data requirements and collaborating on chemical safety plans.

The Commission was clear in its design that once the data was generated and submitted to European regulators, those products that “give rise to a very high concern” would need to be specifically authorized for each use in order to continue to be manufactured, marketed or used in the EU. The burden would be on industry to prove that each established commercial use of the product presented a “negligible risk” or at least a risk that is “acceptable” given the socio-economic benefits and/or the lack of any practicable substitute product and the existence of available measures to control the risk of inadvertent exposure to workers, the general public and the environment. This formulation gave substance to the claim that REACH would be guided by the “precautionary principle.” Nevertheless, industry would have an opportunity to defend potentially dangerous chemicals under defined circumstances. Finally, the Commission made clear that the goal of protection would be pursued by creating a legal structure that always encouraged the substitution of dangerous with less dangerous substances.

The second political objective of REACH, maintenance and enhancement of the competitiveness of the EU chemical industry, would be accomplished by providing a stimulus for innovation and by establishing a realistic timetable for submission of data to the authorities for evaluation. It would be repeated often in commentary on REACH and in the stakeholder sessions that the Commission hosted during this period that the strength of the European chemical industry in the world was as a hub of innovation and that the impetus offered by REACH would make European businesses leaders in the sustainable technologies of the future.

To make sure that the new Chemicals Strategy would not result in the fragmenting of the internal market, the Commission proposed that REACH be a “regulation” and not merely a “directive.” In the EU system, a regulation has direct applicability to regulated persons within member states and does not depend on member states enacting legislation to carry out the Commission’s policy and turn it into hard legal obligations. Second, the Commission called for the creation of a Union-level agency, an “expanded European Chemicals Bureau” with its own staff and expertise to coordinate and direct the Union’s efforts on chemical safety.⁷¹ This agency would eventually come to be called the European Chemical Agency or EChA for short. EChA’s lead role would be exercised through cooperation with member state “competent authorities” who would conduct evaluations in accordance with the priorities set at the center in order to conform with the Treaty requirement of “subsidiarity.” In the White Paper, the Commission had already thought out the rough balance of activity and authority between center and member states.

⁷¹ European Commission 2001A, 25.

Building on its existing experience, the expanded European Chemicals Bureau [i.e. ECHA] should be a receiving body for the registration dossier, and forward the copies of the registration dossiers to the Member State authorities, establish and maintain a comprehensive central database on all registered chemicals, perform spot-checks and computerised screening of the registered substances for properties raising particular concern. It will also support Member States authorities in the evaluation of substances.⁷²

This essential blueprint was retained as the proposed law moved through the various stages of consultation and legislative drafting. Indeed it is remarkable how much of the final REACH regulation was included in the original design sketched out in the White Paper, if one considers the amount of controversy it created and the ultimate length and complexity of the legislative process leading to its adoption.

Two of the remaining seven political objectives deal expressly with the international context. The Commission stated clearly that REACH would help Europe meet its international commitments in relation to chemical safety. European regulators had actively participated in meetings sponsored under the auspices of the Intergovernmental Forum on Chemical Safety to arrive at common definitions and common models for management of chemical risks as participants at the Earth Summit in 1992 and met its commitments through work through the OECD on several international standard-setting initiatives such as GHS. Further, the Commission warned that “testing obligations will not only affect the EU chemicals industry.” It made clear that “importers will also be obliged to assess the safety of their chemicals, to deliver information and to share the cost of testing.”⁷³ This internationalization of obligations, the Commission reasoned, “avoids distortion of the global market and ensures that the competitiveness of the EU chemicals industry is not compromised.”⁷⁴ There was recognition that once

⁷² European Commission 2001A.

⁷³ European Commission 2001A, 8.

⁷⁴ European Commission 2001A, 9.

Europe helped to close the data gap on existing chemicals, this would have a profound effect on chemical regulation everywhere. As evidence of this recognition, the Commission made clear that data generated outside the European Union for purposes of compliance with other regulatory regimes would also be accorded recognition under REACH, especially mentioning the-then ongoing initiatives within the United States (the “Gore Initiative”) to close the “data gap” under TSCA and parallel initiatives within the pesticide realm. One feature of chemical regulation is that once the data gap is closed anywhere, there now exists public data that in effect holds the potential to close that gap everywhere.

The Commission also realized that its rules might open its REACH system to criticism as protectionist. It made clear that “the new policy should not discriminate against imported products” and expressly committing the EU to comply with Article 2.1 of the WTO’s Technical Barriers to Trade.⁷⁵ This impacted the details of the design of REACH, in particular rules regarding data sharing and access to safety information in dossiers.

In the months that followed, Council and Parliament voted to accept the recommendations of the Commission in the White Paper. Council issued its conclusions on the White Paper in June⁷⁶ and the Parliament accepted its recommendations in October 2001.⁷⁷ The stage was now set for the Commission to begin drafting a legislative proposal.

⁷⁵ European Commission 2001A.

⁷⁶ Council of the European Union, “Strategy for a Future Chemicals Policy, Council Conclusions.” Brussels: 9857/01.

⁷⁷ European Parliament (2001). “Report on the Commission White Paper on Strategy for a future Chemicals Policy.” FINAL. A5-0356/2001.

Analysis

The framing of chemicals reform by the Commission in the White Paper fulfills many of the explicit expectations of the Global Political Strategy approach. The content of the White Paper is also not surprising in a world where the Brussels Effect explains outcomes, specifically the role of preferences for stringency in driving governance success. Nevertheless, the Global Political Strategy approach better anticipates the particular features of the White Paper partly due to the fact that the Brussels Effect is comparatively silent on the “how” reform efforts like this one are framed. The Commission used the politics of aspiration effectively and reached out to would-be rivals in industry associations and environmental NGOs for input on the strategy. The Commission took active consideration of the global economic impact of REACH and was careful to root its proposals in established diplomatic language around sustainable development. It anticipated criticisms by trading partners about alleged “protectionism” and acknowledged the need for the EU to follow WTO rules and notice procedures.

The Commission’s proposal was a political compromise and did not strongly endorse any expert theory of when a chemical should be banned. It spoke in aspirational terms about the “precautionary principle” but made clear that explicit policy choices around restrictions and bans would be taken up by the Commission later and would balance the imperative of precaution with likely impacts on the competitiveness of industry and the success of the Commission’s overall strategy of fostering innovation and the “knowledge economy.” In short, concepts and values incubated by activist NGOs were only some of the ingredient that were baked into this proposal. This framing is more surprising in a world where the mechanisms of the GCS thesis drives policy evolution, legislation and implementation--where small networks of technical experts and

value-based activists successfully convince politicians to enact reforms based on their consensus on causation and common values. The “post-materialist” thrust of putting safety above growth-for-its-own sake did not drive the proposal, which was committed to balancing higher stringency and higher quality growth in a “win-win” designed to appeal to all three leading pro-Union political movements and as many Europeans as possible.

Legislative History of REACH

Stakeholder Sessions and Internet Consultation

As the Commission began the daunting task of turning the White Paper into draft legislation, it deepened the active engagement with “Stakeholders” that it undertook prior to releasing the White Paper. Two additional meetings, called Stakeholder Sessions, were held in Brussels, one in April 2001 and another in May 2002. Representatives of industry, IGOs, NGOs and foreign governments were treated to series of workshops that culminated in issuance of a written report. At both stakeholder sections, attendees included representatives of industry, including not surprisingly CEFIC, the trade group at the EU level for chemical manufacturers, but also representatives of the ACC, the leading industry lobby for the chemical industry in the United States, and environmental NGOs such as World-Wide Fund for Nature (WWF), Greenpeace and Friends of the Earth (FOE).⁷⁸

The report of the first conference reveals that participants emerged united around a “comprehensive approach” that promoted “international co-ordination” with the European Union.⁷⁹ The report states that there was agreement among all participants that

⁷⁹ European Commission 2001C, Stakeholders’ Meeting on the Commission’s White Paper, Conference Report. Brussels.

“sustainable development” and “safe use of chemicals” should be the “main objectives” of EU’s chemicals strategy. Further that all participants agreed on the “political objectives” of the strategy which were framed in terms of “improving chemicals legislation, the foundation of risk management on sound science and risk assessment, and the search for a simple, coherent and workable system.”⁸⁰ The report also reported a long list of diverging views. Industry representatives opposed universal authorization (but not registration) seeing it as redundant to the restriction process. They also expressed grave doubts about the 10-year timelines set in the White Paper to complete registration and authorization, stating that 15 years is a much more realistic time horizon.⁸¹ Representatives of NGOs stated their belief that the willingness of industry to provide more information on risks is not the same as a commitment to eliminate dangerous substances from commerce.⁸² NGO representatives were especially concerned about the lack of any commitment to eliminate endocrine disrupting chemicals (EDCs) and very persistent and very bioaccumulative (vPvB) substances from consumer products. Trade union representatives expressed concerns about retaining some role for social and economic impacts of decisions under REACH.⁸³ The second workshop in the first session was framed by the organizers around the theme of what each category of “stakeholder” could contribute to a successful chemicals strategy. The report contains the remarks not only of the three principal interest groups listed above (industry, NGOs and trade unions) but also participants reflecting on the contributions of member states, of

⁸⁰ European Commission 2001C, Executive Summary.

⁸¹ European Commission 2001C, Comments of Paul Van Eijsden of CEFIC at Second Workshop. Comments of deputy DG Enterprise J Keck in Final Session.

⁸² European Commission 2001C, Comments of Elisabeth Salter Green of WWF at Second Workshop.

⁸³ European Commission 2001C. §2.2.2. Comments by Reinhardt Reisch, European Mine, Chemical and Energy Workers’ Federation (EMCEF) at Workshop II.

a central EU authority (at the time still the ECB), and small and medium sized businesses (SMEs). The conference closed with an address by Jörn Keck, a deputy director general of DG ENT. Keck identified the key points of agreement but also summarized the key areas of disagreement. Industry thought that the 10-year time-frame was not achievable but that “a lot can be achieved within 15 years if good use is made of grouping [of chemical substances], priority setting and international harmonization.”⁸⁴ Industry and trade unions did not think a separate authorization step was necessary. Keck warned that the “internal Commission compromises on the White Paper had not been reached easily” and its “general outlook” was not likely to be revisited.⁸⁵ Jean-Francois Verstrynge, deputy director of DG ENV also addressed the Session. Verstrynge sought to clarify what he characterized as “misunderstandings” of industry regarding a number of matters including the relative roles of manufacturers and downstream users on completing risk assessments and the amount of safety data that was already available as compared to what REACH would require industry to generate. Only once safety data is made available to regulators would it be clear where the gaps were. Verstrynge also noted that there was consensus on the concepts key to “no data, no market”. Significantly no participant seemed to question the basic pillars of REACH: that it was industry’s burden to establish their products were safe and that the consequence of failing to prove that would be to lose access to the market. Alain Perroy, director general of CEFIC, offered a generally upbeat assessment. He stated “industry wants to be involved in studying the quality of available data” and “it is also willing to discuss the next steps but within a feasible timetable, and wants to promise what can be delivered.” Perroy concluded that “industry supports the

⁸⁴ European Commission 2001C §2.3. Conference Conclusions

⁸⁵ European Commission 2001C §2.3. Conference Conclusions

objectives of the White Paper but believes that there is still much room for improvement in implementation.” The chemical industry “is committed to delivering real progress through its voluntary initiatives and open dialogue.”⁸⁶ Hans Wolters, Director of Greenpeace Europe signaled impatience with industry “trying to buy time.” Timeframes should be speeded up and substitution of dangerous with less-dangerous chemicals “should not only be encouraged but promoted.”⁸⁷

At the second Stakeholders Session, the participants heard speeches by Commissioner’s Wallström and Likaanen and were briefed by consultants from the firm Risk and Policy Analysts (RPA) who presented a preview of the draft business impact assessment that would eventually be included as an annex to the Commission’s Legislative Proposal. Participants then could participate in three working group sessions: One on registration; another on evaluation; and the third on the “international dimension of the new chemicals strategy.” The panels included representatives of EU institutions, industry, NGOs and member states. These panels were followed by a “plenary debate.” Closing remarks were offered by the director of DG Enterprise.⁸⁸

Starting in May 2003, the Commission conducted a then-unprecedented eight-week public consultation over the Internet on REACH. The Commission received over 6000 responses⁸⁹, including several citizen petitions, from interested parties inside and

⁸⁶ European Commission 2001C, §2.3. Conference Conclusions.

⁸⁷ European Commission 2001C, §2.3. Conference Conclusions

⁸⁸ European Commission 2002, Agenda: Conference on the Impact of the New Chemicals Policy, 21 May 2002. Brussels.

⁸⁹ According to the Commission:

“More than 6 000 distinct contributions were received. 42% of these were sent by industry - firms or associations. 142 NGOs, including trade unions, responded. From the Member States, five governments [Austria, Ireland, France, Netherlands and United Kingdom] sent comments, as well as a number of public authorities [Austria, Belgium, Germany, Denmark, Finland, Greece, Italy, Netherlands, Sweden, United Kingdom]. Public authorities from three Accession countries [Latvia, Lithuania, Poland] gave their input as well as authorities and governments from third

outside Europe. The process, when viewed as a whole, was extraordinary in its ambition, both in the scope of and variety of stakeholder consultations and the transparency with which each step was publicized and documented for posterity (Warhurst 2005). The responses ranged from large environmental NGOs and broad industry associations representing a broad array of manufacturing and retail sectors, as well as lawmakers, business owners and everyday citizens. Comments were also filed by European member states, several states in the EU accession process, as well as large trading partners such as the United States, China, and Japan. The theme of many of the comments, industry in particular but not exclusively, was an overriding worry that the enhanced regulatory scheme would make Europe less competitive in world markets (not just in chemicals but in industries that used chemicals as well) and that the burdens of complying with the regulations would hit small-and-medium-sized enterprises (SMEs) disproportionately. Europe's trading partners, led by the United States, complained about the cost and complexity of the contemplated regulation but also that REACH would effectively act as a protectionist barrier against imported chemicals.

Release of the Legislative Draft

The Commission released in October 2003 a complete legislative text of the proposed REACH regulation (the "Legislative Proposal").⁹⁰ In the very first lines the

countries (Australia, Canada, Chile, China, Israel, Japan, Malaysia, Mexico, Norway, Singapore, Switzerland, Thailand, USA). The international organisations Asia-Pacific Economic Cooperation (APEC) and Organisation for Economic Co-operation and Development (OECD) sent comments." European Commission 2003A, Explanatory Memorandum, Results of Public Consultations and Risk Assessments.

⁹⁰ European Commission 2003A. "Legislative Proposal to the Council and Parliament on REACH." Brussels: COM/2003/644. The text, found on the EU's EU Lex website, is not paginated.

General Background section, the Commission was clear about its intent to balance the goals of protecting human health and the environment and addressing worries about the impact of such an ambitious proposal on an important industry and on levels of employment and innovation within the EU more generally.

There are a number of factors that place the chemicals industry at the heart of the Community's sustainable development strategy. It plays a very important economic role, supplying materials to manufacturing industry, as well as stimulating innovation and supplying products needed to sustain and improve the quality of life.

(European Commission 2003A, Explanatory Memorandum, General Background)

The Commission then lists "improving the health and safety of workers and the general public" and "maintaining high levels of employment" as "key" political objectives of the EU's chemicals policy (European Commission 2003A, Explanatory Memorandum, General Background). The memorandum mentions after those two, the goals of REACH for the environment as most important, describing "the avoidance of chemical contamination of air, water, soil and buildings, as well as preventing damage to biodiversity are also major goals" (European Commission 2003, Explanatory Memorandum, General Background). As is clear from this introductory text, the Commission continued to integrate economic concerns with regulatory stringency at the heart of the proposal.

As proposed by the Commission, REACH incorporated three distinct regulatory elements: *registration* of chemical substances; *evaluation* of the substance for impacts to humans and the natural environment from exposure; and *authorization* of each particular use of a substance. First, REACH would require all chemical producers and importers of more than one metric tonne per year (>1 tpy) of any chemical substance to *register* the substance by submitting a dossier of information about all the properties of that

substance. As proposed, giving substance to the reform concept, “no data, no market” Article 19 of REACH would prohibit the selling of any chemical substance in the EU that is not registered (European Commission 2003A, Explanatory Memorandum §2.2). Registration and its costs would be the responsibility of chemical producers and importers, not the government regulator. Registration is required for all chemicals sold in the EU (above the de minimis 1 tpy threshold), not just “new” chemicals but the thousands of “existing” chemicals already on the market at the time REACH was enacted.⁹¹ As part of the work necessary for registration of any substance that sold more than 10 tpy, registrants were required to include in the dossiers a Chemical Safety Report (CSR). Each registrant would be obligated to communicate with downstream users of chemical products to determine all the ways that customers used their products. The CSR would capture the results of such inquiries to generate a thorough risk assessments of each use that its customers reported and the measures taken by various actors in the supply chain to manage risks of exposure and release. The Legislative Proposal was explicit about how registrants would be encouraged to form “consortia” to share data included in their registration and avoid duplication of costs and unnecessary animal testing (European Commission 2003A, Explanatory Memorandum §1.3).

Second, the Commission proposed to create EChA as a wholly new independent agency that would coordinate the work of member states to *evaluate* the dossiers based on risk priority. The Commission had studied alternatives, including expanding the existing ECB, but concluded that an independent agency was preferable.⁹² As an

⁹¹ The European Commission estimated that the total number of chemical substances then placed on the market was at least 30,000. European Commission 2003A, Explanatory Memorandum, General Background

⁹² European Commission 2003A, Explanatory Memorandum, §1.9

independent agency with its own staff of expert scientists, EChA, drawing on a constellation of expert bodies whose members appointed by Member States, would prioritize review based on preliminary checks of the registration dossiers and manage the evaluation work of the Member State competent authorities who would do much of the detailed work. EChA would then use the work of the Member States to make recommendations to the Commission that it act to place a substance on the “Candidate Lists for Authorization” or alternatively to impose restrictions on manufacturing, marketing and use necessary to keep risks to humans and the environment at levels “appropriate” to the high level of protection to which the member states had committed to follow. The Legislative Proposal delegated to the Commission the role of approving changes to various Annexes to REACH, including Annex XIV, the Candidate List for Authorization as Substances of Very High Concern (SVHC) and Annex XVI, the list of substances subject to restriction. If a registered substance is placed on the Candidate List, each registrant is required to apply for *authorization* of each particular use. Consistent with REACH’s application of the “precautionary principle” the burden of proof would be on the registrant to prove the substance is safe, not on the regulator to prove it is not. If the registrant cannot demonstrate that the risks can be adequately controlled (for example through worker training or labeling) or defend the benefits of continued use in the face of those risks that remain, then after a specified “sunset date” the producer will no longer be able to manufacture, market or use the chemical in the EU (European Commission 2003A. Explanatory Memorandum §1.2). The ultimate decision on authorization and restriction, however, remained with the Commission, and the Legislative Proposal was explicit that the Commission would exercise policy discretion to determine if the safety

measures proposed by industry were “adequate” to control the risks and if any risks that could not be controlled were nevertheless justified based on economic considerations (European Commission 2003A. Explanatory Memorandum §1.7).

The Legislative Proposal included a detailed Staff Working Paper titled the “Extended Impact Assessment” offering the staff’s view of the impact of the new law on the European chemical industry and the EU’s goals to maintain and enhance the international competitiveness of Europe as an exporter and as an attractive target of investment (European Commission 2003B). The impact statement addressed the Treaty requirements that EU regulation and Commission enforcement respect the principles of “subsidiarity” and “proportionality.”⁹³ The impact report emphasized the positive message that the Commission had listened to many of the comments and had already made significant changes to lessen the burden of the new regulation on business and mitigate the eventual impact of law on European competitiveness generally. According to a retrospective offered to the Environment Council the following year by Commissioner Olli Rehn, then in charge of the Enterprise portfolio, as a result of the consultations, the Commission:

modified our proposals and fine-tuned the impact assessment. These modifications were all done without hampering the objective of enhancing environmental protection. The changes resulting from this generated savings of about 80% -- or more than €10 billion of direct costs originally envisaged for the chemical industry.⁹⁴

⁹³ Article 5 of the EU Treaty requires that Union regulations not add to the overall regulatory burden if goals can be met by national and local regulation, and that when there is a Union interest in uniformity that Union regulations replace national and local regulations. The principal of “Proportionality” in Article 5, subparagraph 2 of the Treaty states that the Commission’s rules should be “proportionate.” European Commission 2003B at 5.

⁹⁴ Rehn, Olli. “Speech at Exchange of Views with the Environmental Committee of European Parliament” July 27, 2004 (archived at Commission website, accessed April 2021).

These changes to reduce projected compliance costs were made by the Commission before releasing the full legislative text and included among other measures slimming down the information required to be included Chemical Safety Reports, excluding polymers from needing separate registration from their monomer precursors and lightening paperwork burdens for registering “low volume” chemicals (i.e., sold at volumes between 1 and 10 tpy). These changes from earlier drafts circulated as part of the Commission’s discussion with EU co-decision partners stakeholders were all aimed at reducing the direct costs of compliance on enterprises, and especially SMEs.

Despite these considerable efforts to reduce direct costs of compliance, the Commission understood that it also needed to convince stakeholders that it had adequately accounted for the downstream economic effects, and especially the competitive impact, of the new law on European enterprise and future employment and investment in industries dependent on chemicals. Prior to issuing its legislative text, the Commission commissioned studies to put on more firm foundations the case for the benefits of a more stringent scheme for regulating chemical safety. DG Environment commissioned a private firm based in the UK, Risk and Policy Analysis Limited or “RPA”, to conduct a study to quantify the benefits of REACH (European Commission 2003B, 25). The RPA study concluded that the direct benefits from REACH in reduced costs from better workplace safety and improvements in community health alone could be as high as a discounted present value of €54,392 million over thirty years (RPA 2003). Another study commissioned by DG Environment from RPA and another UK-based consultancy, BRE Environment, looked at four different chemicals⁹⁵ whose phase out

⁹⁵ Nonylphenols (NPs), Short-chained chlorinated paraffins (SCCPs), Tributyltins (TBTs) and Tetrachloro-ethelene (Perc).

would be expected to benefit broader society and the natural environment (RPA & BRE 2003). This second report concluded that “even though the case studies may represent ‘worst case’ scenarios, they also highlight that there are clear benefits to society of avoiding such damage costs in the future.” (RPA & BRE 2003, 48). The German firm, Institute for Environmental Strategies or Ökopol, was commissioned to complete two studies: one to examine the so-called “Announcement Effect” referring to the idea that the announcement that a substance would be a candidate for REACH authorization would be sufficient to trigger substitution (Heitmann and Reihlen 2007) and another to survey existing studies discussing the benefits of REACH (Reihlen and Luskow 2007).⁹⁶ Further, DHI Water and Environment, a consultancy based in Denmark, looked at the anticipated impact of REACH on water quality and built a case for substantial economic benefits from lowered costs of water and sewage treatment (DHI 2005). Under great pressure from all sides to defend its chemicals strategy, the Commission did not rely only on its internal experts. Instead, it relied on policy consultants, many with clients in industry, to craft a professional, yet generally positive, assessment of the likely benefits of the proposal.

Co-Decision Part I: Council and Parliament Study the Proposal

Once the Commission presented its draft legislative text in October 2003, the two legislative branches of the Union sprang into action. On December 3, 2003, the

⁹⁶ The first study (Heitmann & Reihlen 2007) found evidence mixed in support of the “Announcement Effect.” While producers’ decisions about product development would take into consideration a substance being placed on the candidate’s list and that companies care about reputation, the authors concluded that the mere listing would not resolve controversy and that legislative pressure in the end would “be one of the most powerful in driving companies” to push towards substitution. The second (Reihlen & Luskow 2007) found the existing literature on REACH impacts informative, but had to conclude that accurate quantification of environmental benefits exceeded current methodologies.

European Parliament conducted the first reading of the proposed REACH law. Progress nearly grounded to a halt when a disagreement erupted about which Parliamentary committees would take the lead. At the time, there was growing partisan tension between the main party delegations in Parliament, with the center-right European People's Party (EPP) group accusing the center-left Party of European Socialists (PES) members of proposing too many amendments that would make REACH too expensive and hurt European competitiveness and SMEs. In practice European leaders, whether they hailed from the EPP, PES or the liberal ALDE political movements, had until this point worked closely together to guide the Commission's proposal and to apply gentle pressure on the Commission to follow its constitutional mandates and take care to reduce the socio-economic impacts of the new law.

Resolution of these jurisdictional issues would have to wait until the results of the European Parliament election in June 2004. In that election, the European voters in essence endorsed stability, as the center-right EPP and center-left PES groupings remained by far the two biggest delegations in parliament, with very little change in relative strength between them. Meanwhile, support for Green Parties declined slightly. On July 27, 2004 the lead role for REACH was assigned to the Environment, Public Health and Food Safety Committee, chaired by Guido Sacconi (Italy, PES). From this point until its enactment, Sacconi would be lead "rapporteur" and legislative coordinator in Parliament, but his charge was work cooperatively with the Chairs of the Committee on Industry Research and Energy (Lena Ek, Sweden, ALDE) and the Committee on the Internal Market and Consumer Protection (Hartmut Nassauer, Germany, EPP). The main legislative reports would be the collective product of all three Parliamentary committees.

Meanwhile the Council began a series of meetings on December 22, 2003 in both its Environment and Competitiveness (at that time officially “Internal Market, Industry, Research and Space”) Council configurations. In the months leading up to the European Parliament elections in June 2004, the Environment Council met three times and the Competitiveness Council once. During the same time, the Council hosted debates among member state representatives four times. After the election the pace of meetings accelerated, with the Environment Council meeting five times and the Competitiveness Council meeting six times in the months leading to final enactment of the law in December 2006. Council hosted five further debates during the final months of 2004 and the first half of 2005.⁹⁷

Intervention of the “High-Level Group”

The Commission sought to reserve its influence over the legislation when it became clear that the steps it had taken in the legislative proposal to preempt criticism, lighten the administrative burden, or to document more thoroughly the potential benefits of more stringent rules had not lowered the temperature of the political debate. The Commission perceived the need to put the impacts of the new law on European competitiveness and employment into better perspective to lower anxiety, especially among business trade associations, but also among politicians reacting to concerns raised about the impact of REACH on competitiveness, employment and SMEs. In March 2004, DG Enterprise and DG Environment entered into a memorandum of understanding with key industry stakeholders--the main confederation of European business

⁹⁷ This account is based on a variety of official documents that are maintained on the websites of the Commission and the Council. A brief history of REACH legislation and references to key documents are found at https://ec.europa.eu/environment/chemicals/reach/background/index_en.htm (accessed February 19, 2022).

associations (UNICE) and with CEFIC-- to undertake two major studies of the benefits and costs of the proposed law. The MOU set up a so-called "High-Level Group" to act as a forum for continued dialog between stakeholders, the Commission, Council and Parliament. The High-Level Group was chaired by Germany's Commissioner, Günter Verheugen, a prominent figure in the Social Democrat-led "Red-Green" government of Gerhard Schröder but also a former leader of the pro-business liberal Free Democrats, a member of the ALDE group in European Parliament. Verheugen, as Industry Commissioner, had prominent support from the Commissioner with responsibility for environmental policy, Stavros Dimas, a conservative politician from Greece. The first task of the High-Level Group was to commission a study from the accounting firm KPMG to examine the impacts of the REACH law on four sectors downstream from the chemical industry: autos, high-tech electronics, flexible packaging and inorganic material producers. KPMG concluded that there was "limited evidence" that higher volume substances would be vulnerable to withdrawal from the European market (KPMG 2005, executive summary). That danger was limited to the realistic probability that some lower volume substances might be rendered less profitable, and thus perhaps threatening low-cost supplies. Nevertheless, the study concluded that downstream users would face "little danger" of losing access to substances important to their businesses (KPMG 2005, executive summary). The study's authors essentially provided stakeholders and the legislative bodies within the EU meaningful but limited comfort that the Brussels Effect would discourage important defections from the European market. The KPMG report could not dismiss as easily the effect of any withdrawal which did in fact occur, which the study's authors concluded could lead to high costs of reformulation for some.

Moreover, disruptions would be more severe from SMEs and the impacts on users of inorganic raw materials would also need to be better understood. The second study, undertaken by the Commission's in-house Joint Research Center examined the impact of REACH on the "New Member States" from the former Soviet bloc. It looked at case studies of individual firms in Poland, the Czech Republic and Estonia (European Commission 2003B).

The High-Level Group publicly announced preliminary results of the studies in a fashion to emphasize the positive and generate favorable press.⁹⁸ In the press release issued in April 2005 announcing the preliminary findings of the studies, Commissioner Verheugen stated that:

These studies make an important contribution to better assess the changes needed to achieve a balanced and workable solution for REACH which will be compatible also with our Lisbon goals to improve the competitiveness of European industry, including SMEs. The Commission believes that these results should be taken into account in the co-decision process and to that end reaffirms its intention to cooperate closely with the European Parliament and the Council.

In the same press release, Commissioner Dimas stated:

The results of these studies are reassuring—the costs and impacts of REACH are manageable. There is, however, no reason to become complacent. We need to continue putting all efforts in development of specific guidance and tools to facilitate implementation, which will be helpful for all companies, in particular SMEs, and alleviate most of their concerns.

(Archived on European Parliament's website, accessed April 2021).

The European Union had adopted the so-called "Lisbon Goals" in 2000 to set ten-year development goals for the Union (European Council 2000B).⁹⁹ The Strategy was based

⁹⁸ "EU to reach compromise on chemicals rules," Xinhua General News Service, April 27, 2005.

⁹⁹ Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000. Copy can be viewed at the website of the Concilium) accessed April 2022
https://www.consilium.europa.eu/ueDocs/cms_Data/docs/pressData/en/ec/00100-r1.en0.htm.

on the notion that the EU's future could best be secured through encouraging technical innovation, the creation of a "learning economy" and "social and environmental renewal." The strategy was inspired by the work of Portuguese economist Maria Joao Rodrigues 2004 whose approach was notably informed by the active participation of several leading theorists of the "knowledge society", including Luc Soete a protégé of Chris Freeman a British academic and father of "innovation theory", and Manuel Castells, a sociologist who famously moved away from Marxism to become a widely influential theorist on the importance of "networks" and "knowledge" to the "21st century information economy" (Castells 2010). The basic concept behind the Lisbon Strategy was that Europe would do best to emphasize qualitative advantages based on its power of innovation and large investments in education and development of more environmentally sustainable products. Much of the discussion of REACH took place against the backdrop of this "information economy" strategy and the language of "sustainable development" more generally.¹⁰⁰ Implicit in much of the thinking as it applied to heavy manufacturing sectors like chemicals was a concession that Europe's labor and energy costs would not allow its traditional industries to thrive unless that industry were at the forefront of innovation, and particularly in the more niche areas of specialty chemicals where the payoffs for "knowledge intensity" of solutions tailored to customers' specific applications and the sophistication of the manufacturer's processing technology were the highest.

The larger the size of the economic enterprise, the more likely it was to support REACH. At various conferences discussing the impact of REACH representatives of larger industry groups would take critical but supportive position on the legislation. For

¹⁰⁰ For a discussion of the Lisbon Goals and their mixed impact and policy legacy, see Zgajewski & Hajjar 2005.

example, at one regional economic conference in North Lincolnshire, England, representatives of the UK's Chemical Industry Association criticized some aspects of the Commission's proposal but called REACH a "vital piece of legislation" that would after further refinement allow the "chemical industry to move forward."¹⁰¹ Various industry groupings, bringing in end-users of chemicals and retailers, studied REACH and reached conclusions that strengthened the case for continuing to cooperate. One such group called PRODUCE ("Piloting Reach on Downstream Use and Communication in Europe") concluded that "REACH is extremely time-consuming and hard to grasp in its entirety, but is not unworkable."¹⁰² Coverage in the industry press of the PRODUCE strategic partnership's conclusions highlighted that a number of small companies focused criticism on the failure of the report to include the views of SMEs who were reported to remain convinced that REACH was "unworkable."¹⁰³ These tensions within industry would remain but would not disturb the broad political consensus in Europe on the need for the regulation.

Co-Decision Part II: Parliament Pushes More Changes

The newly elected Parliament reflected essentially the same split among major political movements, meaning that REACH was still on the agenda despite the slight fall in the number of Green MEPs. Nevertheless, there was some delay in working out

¹⁰¹ "Industry chiefs reach better understanding" Scunthorpe Evening Telegraph, April 7, 2004. Lancaster also expressed the view that people in industry viewed the proposed regulations as "too tight." David Bowe a MEP (Labour—PES) for the region of England (Yorkshire/Humber) argued that REACH was a positive step because it "harmonized" the chemical industry across Europe. Meanwhile environmental activists present argued that the regulation did not go far enough. This one example of reflects a larger pattern in the debate over REACH where tensions between stringency and economic and competitiveness goals were acknowledged in a context where it was agreed that "different viewpoints are brought together" and an agreement reached.

¹⁰² "REACH compliance will be hard but workable" ICIS Chemical Business, March 6, 2006.

¹⁰³ "REACH compliance will be hard but workable" ICIS Chemical Business, March 6, 2006.

exactly how key leadership positions would be shared. Eventually, Sacconi and other MEPs in charge of the REACH legislation were able to pick-up where they left off in the last Parliament. The Sacconi-led Environment Committee issued a detailed report on REACH on October 10, 2005. The committee offered hundreds of separate amendments to the Commission's proposal. The overall architecture—precautionary principle, burden on industry to assemble data and prove safety, lead role for a new European Chemicals Agency – remained the same. The committee proposed strengthening the stringency of the proposed regulation in several important respects. The proposal stated clearly that businesses have a “duty of care” to place into the market only chemicals that minimize the risk of harm and the obligation to inform downstream users of risks in their products. At the same time the report made clear that this duty should not be imposed to burden SMEs with excessive red tape. There was some tension between the Environment and Internal Market committees on how far to go to strengthen the registration regime. The Committee reported out a compromise to lighten the information burden on registrants of substances produced in smaller quantities (between 1 and 10 tpy) but subject all registrations to systematic check to ensure full compliance with the rules. The Internal Market Committee proposed the threshold for qualifying for a lighter registration burden at below a higher threshold of 100 tpy rather than 10 tpy. The report contemplated that these differences would be worked out in plenary session. The Environment Committee proposed a series of measures to strengthen the principle that only one registration dossier would be assembled for each substance, reinforcing the encouragement of industry producers to cooperate and eliminate duplicate testing. Moreover, many MEPs proposed changes that ensured that REACH would not result in a new rounds of animal

testing, by mandating non-animal testing if such alternatives exist. MEPs also worried about confusion about who was taking the lead in evaluation authorization and restriction of chemicals and proposed amendments to clarify the lead role of the EChA and the complementary role to be played by national level “competent authorities” in the overall scheme. In a concession to critics of REACH in exporting countries and concerns among industry groups about raising raw material costs, the Committee backed an amendment to exempt many primary metals and minerals from registration requirements.¹⁰⁴ Finally, the Environment committee proposed a stronger mandate to identify substitutes for “substances of very high concern” (SVHCs) so they could be more quickly phased out over time. The committee also proposed a requirement that authorization decisions expire after five years requiring affirmative action to extend and, in any case, subjecting authorization to revision any time new scientific data establishing greater risk comes to light or substitutes became available.¹⁰⁵

On November 17, Parliament voted on and approved decisively a resolution based on the Sacconi report containing the vast majority of the committee-recommended changes, indicating that Parliament intended, as the legislative summary stated, to “achieve balance between the need to protect public health and the environment on the one hand, while safeguarding the chemical industry’s interests in terms of competitiveness on the other” (European Parliament 2005B). On the issue of thresholds for registration materials, Parliament proposed that registration be accomplished in tiers with the higher volume chemicals and the most dangerous substances going first and

¹⁰⁴ “European committee clears REACH with conditions,” Business News Americas, October 6, 2005.

¹⁰⁵ European Parliament. “Committee report tabled for plenary, 1st reading.” A6-0315/2005.

other chemicals produced in less than 1000 tpy registering later. On authorization, Parliament by a closer vote approved the recommendations of the Environment Committee to require authorization for any substance requiring it to be renewed every five years (European Parliament 2005B).

Political Intervention by Heads of State

The actions of Parliament triggered a political reaction, as industry groups and conservative politicians criticized as heavy-handed the changes made with strong support of the Sacconi committee and the PES bloc in Parliament. Observers at the time reported the strong role of Germany in forging a compromise that would be more acceptable to industry and would represent better the views of those in Brussels and in the member states who worried about the impact of REACH on Europe's competitiveness agenda.¹⁰⁶ Observers I spoke with explained that German concerns were fueled by the worries of industry but also the reluctance of prominent trade unions to support legislation that would harm industrial jobs.¹⁰⁷ A Dutch spokesperson for the EPP group in Parliament complained that PES-backed amendments introduced a "very complex system of authorization renewal at 5-year intervals, which means chemical products must go through the procedure again" (Rogers 2005). The United Kingdom at the time was serving as the rotating President of Council, and it was reported that Angela Merkel, the incoming chancellor and leader of Germany's center-right Christian Democrats, asked Tony Blair to delay the vote in Council until a compromise could be struck (Rogers 2005).¹⁰⁸ Merkel made this request with support from French President Jacques Chirac.

¹⁰⁶ "Germany succeeds in delaying deal on REACH" Greenwire, November 14, 2005.

¹⁰⁷ Author interview with Brussels-based public affairs consultant.

¹⁰⁸ The Rogers account of this extraordinary intervention by heads of state was confirmed in interviews I conducted with a Brussels lobbyist then actively engaged in the issue, a current official of

The official summary of the legislative procedure in the Parliament's legislative observatory describes the meeting of the Council on November 28, 2005 as a "policy debate" around a report from "the Presidency" (i.e. the United Kingdom permanent representative) outlining of the major issues. At the end of this "debate" Council instructed the Committee of Permanent Representatives (CoRePer) to examine the remaining issues with the goal of reaching a political agreement at the meeting of the Competitiveness Council. Facing broad criticism, the Council could have delayed or shelved REACH entirely. Instead, the Council reaffirmed its commitment to REACH, rejecting arguments that it cost too much and would exert a significant drag on EU competitiveness. Vice President of the Commission, Verheugen told the press that "we have succeeded in maintaining the competitiveness of EU industry and –a crucial point-- reducing the burden for small and medium-sized companies."¹⁰⁹ Lord Sainsbury, who chaired the Council and Lord Bach, who represented UK government, hailed the political agreement, thanking the Parliament, "all Member States" and Parliament. According to the UK representatives present "the agreement achieved here today offers the opportunity to achieve proper protection of humans and the environment whilst maintaining the competitiveness of European industry."¹¹⁰ The "Political Agreement for a Common Position" the Council released on December 13, 2005 recommitted the EU to the Commission's goals in the White Paper, but rejected several of the most important

EChA who was then working at DG Internal Market and a lawyer and chemist who was then advising clients on REACH. See also News Release from UK Department of Trade and Industry "UK Presidency Reaches Political Agreement on REACH" PR Newswire, December 13, 2005.

¹⁰⁹ "EU competitiveness ministers approve REACH bill", Environment and Energy News, December 13, 2005.

¹¹⁰ Press Release "UK Presidency Reaches Political Agreement on REACH, PR Newswire, December 13, 2005.

changes proposed by Parliament, including the mandatory sunset for authorizations after 5 years.

Co-Decision Part III: Parliament and Council Compromise on a “Common Position”

The intervention of heads of state and push back from Council set the ground for a second reading of the REACH law in Parliament in 2006. Meanwhile there began a series of meetings between the Commission and Council, culminating in the formal approval of the “Political Agreement” by the Environment Council at its meeting in Luxembourg on June 27, 2006. The political imperative behind the push for Environment Council endorsement was to address concerns raised by advocates for SMEs and critics in the less developed world. Commission Vice President Verheugen told the press that:

it was never a question of BASF or other large enterprises. Our concern was the many small chemicals companies and the many small companies that use chemical products and which we need in Europe too. Just imagine what happens if we do not think about the small companies. An average sized chemical company in Europe has just over 100 employees.¹¹¹

The Commission then adopted and formally communicated to Parliament the “Common Position” that emerged from these consultations on July 12, 2006. The Common Position adopted 180 of the 430 amendments proposed by Parliament in the first reading.

In July, Parliament began work on the second reading, with MEP Sacconi again leading the drafting.¹¹² There was widespread sentiment in Parliament to push back on the Common Position and restore some of the more popular amendments Parliament had voted for in the first reading. Nevertheless, a spirit of realism and compromise was also

¹¹¹ “Verheugen wants speedy resolution of REACH,” ICIS Chemical Business, June 19, 2006.

¹¹² “REACH: Second Half Kicks Off”. HT Media Ltd., July 13, 2006.

in evidence. Days ahead of the vote of the Environment Committee, MEP Sacconi told the press that Parliament was willing “to accept the common position as a basis for negotiation while making the necessary corrections” to improve the Council’s text.¹¹³ According to one report, Sacconi warned Carl Schlyter, a Green MEP from Sweden, to “keep his cool” and not “overload REACH with further obligations.”¹¹⁴ The Committee issued a report on October 10, 2006 which recommended changes in several areas. In particular, the Parliamentary draft strengthened requirements around mandatory substitution, stating clearly that dangerous substances should not be authorized unless three conditions are met: (i) suitable alternatives do not exist, (ii) social and economic advantages outweigh the risks of the substances to humans and the environment or (iii) if either (i) or (ii) are not met, the risk is “adequately controlled” for example by the manner in which the substance is incorporated into an article or otherwise used downstream. The second reading report also recommended strongly that authorization should not continue beyond five years unless renewed (European Parliament 2006). These changes prompted industry to voice concerns about potential threats of these measures for EU “competitiveness” in the media.¹¹⁵

The Parliamentary Committee report sparked a series of discussions between the Parliamentary rapporteurs and Council, now under a Finnish Presidency. Green Party MEP Schlyter accused colleagues from Germany and the UK of trying to “scupper” the mandatory substitution amendment.¹¹⁶ Nevertheless, talks lead to an agreement on a

¹¹³ “Debate on REACH ahead of Committee Vote,” HT Media Ltd., October 5, 2006.

¹¹⁴ “Debate on REACH ahead of Committee Vote,” HT Media Ltd., October 5, 2006.

¹¹⁵ “EU committee approves REACH substitution amendment,” Greenwire, October 10, 2006.

¹¹⁶ “Deadlock over EU REACH substitution amendment threatens act,” Greenwire, November 29, 2006.

compromise position a few days before the final vote in Parliament was scheduled.¹¹⁷ According to new text, manufacturers needed to prepare plans for substituting the most dangerous substances but there was no absolute deadline that needed to be met to avoid ban. On December 13, 2006, Parliament passed the compromise package, with the endorsement of the three major Parliamentary groups (EPP, PES, ALDE) and with additional support mostly of Irish MEPs within the more nationalist United European Nations (UEN) group. Many Greens denounced the compromise.¹¹⁸ The legislation was passed in a roll call vote with 529 in favor, 98 against and 24 abstentions. The compromise preserved to a degree Parliament's insistence on industry's duty of care and in favor of encouraging substitution and discouraging animal testing, but did not make mandatory substitution of all SVHCs in consumer products nor did it adopt a mandatory five-year sunset on authorization. The final compromise incorporated a timeline for implementation, including a tiered phase-in of registration requirements, starting with high-volume chemicals and dangerous substances and later registration for other substances below 1000 tpy. Council formally approved the compromise package a few days later. REACH was published in the official journal of the European Union on December 30, 2006. The legislation took effect on June 1, 2007.

Analysis.

Despite the apparent drama, it is remarkable how much of the Commission's original vision was realized in the final legislation; the universal registration system, the precautionary principle and the principle of "polluter pays" all survived. A story that too-

¹¹⁷ "EU negotiators work out differences on REACH act," Greenwire, December 1, 2006.

¹¹⁸ "Deadlock over EU REACH substitution amendment threatens act," Greenwire, November 29, 2006.

closely focuses on details surrounding the enactment of REACH, against the backdrop of the 2004 European elections, the delays in seating the Barroso Commission afterwards and the 2005 electoral victory of the conservatives in Germany, risks obscuring Commission's real achievement in getting the substance of its 2001 proposal approved.¹¹⁹

At the same time, the story of REACH reveals that a major reform of chemical safety laws was a highly political process, with much of the public leadership taken by career politicians whose positions on the European Commission and in Parliament owed to the operation of political institutions within their home countries. There were notable interventions by member governments, either through the formal and informal workings of the Council and apparently by direct efforts of national leaders acting through the institution of the rotating Presidency of the European Council. The leading figures in the REACH battle came from all the three leading mainstream political groupings—the center-right EPP, the center-left PES and the pro-business liberal ALDE.

All three movements were strongly pro-EU and had reasons to support REACH. The socialists were seeking to appeal outside of their traditional working-class base which was declining in number and to attract younger, educated urban voters who tended to be broadly supportive of stringent environmental regulations and saw their life prospects as less tied to defense of traditional manufacturing industries. The typical EPP voter, middle-class and educated, also tended to be concerned about safety of products and the quality of the environment and tended to be sympathetic to the notion that these goals could and should be integrated in such a way as to preserve economic prosperity

¹¹⁹ See, e.g., Puffendorf (2008) who deplores the influence of practical politics on the REACH proposal and specifically the influence of industry which causes him to predict that REACH would be a policy failure.

and support the “social market economy.” The liberals were attracted to the “information economy” theorizing that promised greater prosperity once traditional industrial patterns, and their entrenched interest groups, were transcended. All three movements could agree on REACH once it was framed in an aspirational guise as a “win-win” within the broad umbrella of “sustainable development.” Politicians from all three movements stated as reasons for support of REACH the Commission’s focus on balancing protection with concerns about Europe’s competitiveness and the reaction of the rest of the world through such institutions as the WTO. Early, tightening regulation of chemical safety was championed by a Swedish Social Democrat, Commissioner Wallström and concern for competitiveness of European industry a pre-occupation of pro-business liberals like Germany’s Martin Bangemann and Günter Verheugen and Finland’s Erkki Liikanen. The lead Parliamentary rapporteur, Guido Sacconi, was very aware that foreign governments, especially the United States were watching REACH carefully (Rogers 2005).

The eventual compromise between the Council and Parliament in December 2006 is not surprising in a world where aspirational politics and a keen eye on the international context prevail in legislative design. The evidence of political compromise-- the intervention of member-state governments and heads of state and the emergence of the “high-level group” to manage the issue of impacts on competitiveness to keep the REACH ship on course and the last-minute bargaining of the Commission and Council with Parliament-- is all much less surprising in a world where traditional politics and its focus on the material concerns of voters is at the center of the process than one where small groups of scientific experts or “values-based” advocates are driving the reform process. The ultimate success of REACH depended far more on the commitment of

leaders in Council and Commission to reach a political compromise between them and hold fast to it during negotiations with Parliament. MEP Sacconi's realism in steering a compromise between Parliament, on the one side, and the united voice of Council and the Commission on the other reflect his knowledge of how delicate were the structure of compromises necessary to the success of REACH.

Thus, the legislative history of REACH is more consistent with the expectations of the Global Political Strategy approach than the GCS approach. Scientists and other experts clearly informed the preferences of key actors, especially experts such as Bjorn Hansen within the Chemicals Section of DG Environment. Yet expert perspectives were diluted by the process of consultation undertaken by the Commission and involvement of outside groups (with ongoing ties to industry) calling into question a GCS interpretation that REACH reflected the consensus of networks of international experts or activists. There is little evidence that scientific debate on hazard-based vs. risk-based approaches to precaution influenced the position of key players in the legislative history.

The Commission's aspirational hope that stringency could support the economic goals of the EU never was never up for debate and served as a framing device for much of the "expert" work which was largely instrumental – measuring costs and benefits—and not "values-based" meditations on inherent let-alone insolvable dangers of modern industrial society favored by the scholars of the "Risk Society." REACH policy design reflected the influence of what Blowers (1997) called ecological modernism more than the worries expressed by "Risk Society" critics about the inherent limitations of expert systems (Giddens 1990; Beck 1992, 1999). REACH promised that a new set of EU institutions could create systems to identify the most risky chemicals that merited more

stringent regulation yet still allow many useful chemicals to stay in the market, encourage innovation and promote high-quality economic growth. The values that influenced REACH reflected the “modernist” faith in technical and administrative solutions to complex problems that in one way or another remained a strong reflex among leaders of the three mainstream European political movements.

EU Implements REACH

Phased Implementation

The projects of institution building and implementation that the Commission started well before formal enactment continued with renewed vigor after passage of the REACH regulation. The initial phases of implementation of REACH can be summarized as falling into three chronological phases:

- Phase 1: Preparation for registration, beginning with voluntary pre-registration in 2008 and continuing through several mandatory deadlines for registering in several tiers based on volume, with registrations for the most common chemicals occurring prior to the first deadline in November 2010.
- Phase 2: Compliance check of dossiers received in 2010 (SVHC and >1000 tpy) and referral to member state competent authorities for evaluation of substances. This procedure would be repeated on a smaller scale after the second registration deadline in June 2013 (100-1000tpy) and the third in June 2018 (10-100tpy).
- Phase 3: Prioritization of substances by EChA for evaluation by Member State “competent authorities.” The initial Candidate List for Authorization

(Annex XIV) had been published in 2008 based on pre-REACH risk evaluations but EChA expected to add other substances to the Candidate List as based on the health and safety data submitted by registrants.

For the Phase 1, there is abundant evidence from the publications of the EChA and independent observers that registration was a success, with a high level of compliance with the registration by European and international market actors alike. Many foreign manufacturers elected to register their products, partly because the required exchange of information and collaboration necessary to complete the Chemical Safety Report solidified ties with end customers in the EU. Large industry players who owned most of the existing health and safety data were best able to meet their responsibilities under REACH to close data gaps to meet standards on what needed to be included in a registration dossier, requirements that were spelled out in Annex XV and explained and refined in a series of guidance documents issued by the Commission and once it was up and running in 2007, EChA. The largest companies in each market had the duty to give access to their data in exchange for recovery of their costs, allowing smaller firms to access the European market but also permitting larger firms to offset their direct compliance costs with a new source of revenue.

Even before REACH took effect and the beginning of Phase I, the Commission had commenced numerous REACH Implementation Projects (or RIPs). The output of the first RIP was a widely-distributed of process flow diagrams based on the 2003 legislative proposal. The output of the second RIP was the development of an IT system (called REACH-IT) to handle registration. Subsequent RIPs focused on developing and disseminating guidance for industry on various topics, including the technical

requirements for registration dossiers, data sharing and compensation. Guidance was also issued to national regulatory authorities on implementation topics. RIPs were cooperative projects funded in part by the Commission but with roles assigned to industry trade associations and outside technical consultants.

As these RIPs rolled out, industry people on both sides of the Atlantic had many opportunities to attend conferences and meetings where members of CEFIC's in-house team of specialists (reorganized as an independent "service unit", ReachCentrum, that was eventually spun off¹²⁰) and a growing number of private consultants who seized on REACH as a boost for their own businesses gave detailed presentations and disseminated materials. At such conferences and webinars, large number of technical and compliance professionals from industry learned enough to become subject-matter experts in their own organizations with the expectation that they would circulate copies of presentation slides and make supplementary materials available to people within their own organizations. This flow of information facilitated by the RIPs often was presented in a more neutral way inside enterprises than the politicized messages that top decision-makers received at briefings by industry association staff. Industry representatives were actively engaged by the RIPs and once the Commission's revised thinking about phased implementation was published and technical guidance given, the level of industry anxiety fell. It was clear to many that the Commission was being thoughtful about the implementation challenges faced by industry and had set a time frame for compliance that allowed organizations to

¹²⁰ See "CEFIC sets up REACH info centre; European Union's Chemical federation establishes centre to coordinate information on REACH legislation". European Rubber Journal, May 1, 2006. REACH Centrum offered help desk, consortia management, registration, application for authorization and data management services. It competed directly with similar services offered by private consulting firms. Note that this dates to prior to REACH's formal enactment by co-decision in December 2006.

plan ahead and budget the necessary resources to make their efforts succeed. The Commission's strategy was rewarded by public announcements of key companies that they intended to seize the opportunities afforded by REACH and internationalize best practices developed while developing its risk evaluations for its products in the EU.¹²¹

Industry insiders I spoke to emphasized that enterprises most valued clear stable rules and long-lead times that supported long-term investment decisions. The preference for predictability was a strong motivator of industry behavior, often outweighing continued worries about the costs of compliance. The thinking was that if costs of compliance were imposed in an even-handed and transparent way, enterprises could build them into their business models and hope to not suffer negative competitive consequences. After all, competitors were subject to the same rules. An industry insider told me that one factor that influenced the mindset of in-house compliance experts, was that they had in their professional careers already passed through several waves of standard-based process changes. First there was post-Bhopal voluntary industry-sponsored product stewardship efforts around "Responsible Care." Then in the 1990s and 2000s implementation of ISO 9000 product quality standards, ISO 14000 environmental management standards, and ISO 45000 workplace safety standards. REACH was seen by compliance professionals as the next professional challenge, different in scope perhaps but not entirely different in quality from past efforts to comply with private standards and their third-party verification procedures. For companies whose other products were subject to more stringent regulations such as pharmaceuticals, insecticides and fungicides or were food ingredients, REACH built on pasty initiatives taken by regulators

¹²¹ See e.g. "BASF ready for REACH". Press Release of the BASF Group, May 31, 2007.

on both sides of the Atlantic. This variety of thinking was especially powerful to those large companies like BASF and Bayer in Europe and DuPont and Dow in the United States who had the luxury of devoting many tens of “full time equivalents” (jargon for a the time equivalent of one employee) to tackle the latest industry or regulatory initiative. Also at that time, large international companies began to publish sustainability reports and make decisions on how to present their performance in a manner that commanded respect. This required becoming signatory to UN initiatives like the UN Global Partnership and reporting sustainability performance against the UN’s Millennium Development Goals and report statistical information on environmental impact of operations following private standards such as the Global Reporting Initiative (GRI). Product stewardship and chemical safety compliance were necessary component of corporate sustainability programs. For example, Dow Chemical committed in its 2015 Sustainability Goals to publish Product Safety Assessments for all of its products and make them available globally, building its REACH compliance efforts into a global business strategy.¹²² Finally, the publication of the Candidate List for Authorization in 2008 and its subsequent amendments reassured many that for most enterprises, few products would face immediate threat of adverse regulatory action under REACH, lowering anxiety further.

Creating a New European Agency

EChA began formal operations on June 1, 2008. Almost immediately, many of the implementation workstreams initiated by the Commission transitioned to the new agency, which would be headquartered in Helsinki, Finland. Bjorn Hansen moved from

¹²² Dow Chemical Company, 2010 Sustainability Report, p. 84.

DG Environment to EChA to become its “director of operations” with a mandate to oversee its establishment. EChA’s organization reflects the EU preference for distributed power and shared decision-making.¹²³ The agency is overseen by a Managing Board, consisting of members appointed by each EU member state, four non-voting members appointed by the Commission and two non-voting members chosen and approved by European Parliament. Within the EChA umbrella there are a collection of agency bodies whose members are appointed by member states, a structural feature that further reinforces EChA’s multi-national character. The Member State Committee (also familiarly known as the “REACH Committee”) makes decisions by consensus on the prioritization of evaluation of chemical substances, which are memorialized in the “Community Rolling Action Plan” or CoRAP. Scientific opinions on the risk of chemical hazards are vetted and synthesized by a Risk Assessment Committee (RAC) which issues recommendations that influence Commission decisions on placing new substances on the Candidate List and on the imposing obligations under the Classification, Labeling and Packaging Regulation (CLP) enacted by co-decision in 2008 and added to EChA’s portfolio to manage.¹²⁴ EChA was delegated no power on its own to enforce REACH or CLP. Member States are responsible for enforcing these laws, which is handled by existing member-state agencies responsible for customs, food and environmental safety, transportation, and workplace safety.

¹²³ For a discussion about how REACH institutional design is built around “accommodation of input and expertise from different actors that allows for flexibility in response to the complexity and continuously evolving nature of the issue, as well as the political controversy that marked its adoption (quoting Selin 2007)” see Biedenkopf (2015), 4.

¹²⁴ Regulation (EC) No 1272/2008 (16 December 2008) on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and REACH itself, Regulation (EC) No 1907/2006

Compliance with First Registration Deadlines and the Role of SIEFs

REACH imposes adjustment costs on manufacturers outside the EU in that it applies to any chemical substance wherever produced if that substance is placed on the European market either on its own or as a component of an article. An international chemical company with operations in Europe faces the choice of compliance with REACH or exit from the European market. Registration entails internal administrative burdens and payment of fees to ECHA. More importantly, each registrant must submit a dossier that refers to all the data specified in REACH Annex XV as required for the authorities to evaluate the safety of the product in the context of each disclosed use. Duplication of existing studies was discouraged as part of the Commission's mandate to minimize incentives for new testing on vertebrate animals. If the manufacturer did not already own all the necessary data, it was expected to negotiate access from other firms. The Commission anticipated the scramble for data and built into REACH and its RIPs detailed rules and non-regulatory guidance to encourage data sharing and how companies should calculate the value of data and negotiate schemes for data compensation with each other. The scheme gave owners of existing data the incentive to make the data available to others by giving them the means of realizing the value of past scientific efforts. For some, data costs made REACH registration expensive. For others, like most big international companies, the costs of registration could be offset by income generated from selling data access to others seeking it for use in their registration dossiers.

The impact of REACH on international trade and the adjustment costs imposed on international actors can only be properly assessed when one takes into account how data

sharing and data compensation actually worked.¹²⁵ To facilitate negotiations on data in advance of the first registration deadline in 2010, REACH offered cost and procedural advantages to producers if they would “pre-register” two years early. Upon pre-registration, each filer was assigned to a Substance Information Exchange Forum (SIEF) specific to the relevant substance through which they were expected to negotiate data sharing arrangements. Many assigned to SIEFs negotiated full-blown “consortium agreements” with their fellow members which formally appointed one chemical producer “lead registrant” and hired an outside party, usually a firm of industry consultants, “administrator.” Thus, the visible form that “adjustment” to the initial implementation of REACH took in a typical enterprise, beyond paying filing fees, was countless hours of scientists, consultants and lawyers dusting off old data sets, submitting them for scoring on criteria included in the REACH guidance, negotiating data sharing agreements and managing antitrust risk that is the ever-present by-product of competitor dealings. At the same time, many international chemical companies already owned expensive studies (from earlier initiatives such as the US “biocides initiative” and the EU’s “existing substance” regulation) which suddenly had a “market value.” Consortia were typically formed first around a tight constellation of the largest chemical companies, with the recognized “market leader” often acting as “lead registrant.” These founding firms would constitute themselves as the voting members, setting rules for those who came after.

After registration, a consortium often generated significant revenue from granting letters of access to smaller firms seeking access to the European market. In some cases,

¹²⁵ The account in this section is based on author’s interviews with regulatory personnel then active in international chemical manufacturers, as well as the author’s own experience negotiating data-compensation and consortium agreements as a lawyer working inside one such manufacturer.

this income would offset a significant share of initial out-of-pocket costs of REACH compliance for the lead firms. The net costs of adjustment to Europe's new chemicals regime for a major chemical producer, accordingly, were not significant compared to the benefits of continued participation in the European market. Many smaller producers chose to register despite having no data of their own, as REACH rules prohibited consortia from charging access fees that unfairly discriminated against late entrants. That did not stop smaller companies, the SMEs, and especially smaller importers from the developing countries, from complaining about some lead registrants abusing their power and charging unjustified fees for data access. These shortcomings were noted by the Commission in its 2013 Report on REACH (European Commission 2013). These complaints were also aired at WTO meetings, as will be explored further in Chapter 4.

Compliance with the registration deadlines was by basic measures impressive. According to EChA's first progress report (EChA 2011), by the first deadline (November 2010) over 25,000 dossiers had been filed on 4,300 substances. While over 87% of the dossiers were filed by what EChA referred to as "large companies" nearly 19% were filed by non-EU parties. (EChA 2011, 9). EChA concluded that "the successful submission of these dossiers illustrates that the process was understood by the majority of companies, including those in third countries, as shown by the high rate of registrations coming from ORs [i.e. 'only representatives' appointed by non-EU manufacturers to meet their REACH obligations]" (EChA 2011, 9). The report observed that "assistance from EChA in various forms made a large contribution to this success." Most major chemical producers, whether based in the EU or outside, decided that the costs of exit from the EU market were greater than the costs of adjustment. Smaller exporters and those more

generally in the developing world had been able to find resources that allowed them to continue to participate in the European market. Once the chemicals they exported to Europe, either directly or through articles exported by their customers, were registered under REACH, these firms had less incentive to oppose the regulation or invest efforts in promoting alternative international regimes by petitioning U.S. Congress or demanding IGO intervention.

In 2013, the Commission issued a report on REACH and CLP as required under the original REACH legislation. The Commission reiterated the positive evaluation of the registration process included in the progress report EChA two years earlier. The Commission reviewed progress towards realizing the benefits of REACH and attempted to take account of the costs that the system imposed on key stakeholders, especially industry. The Commission acknowledged that quantifying the benefits that come from increasing environmental stringency is difficult using known methodologies. Rather than attempting its own estimate, it claimed a number of tangible benefits for which abundant evidence was available (European Commission 2013, 4). First, the increase in the amount of health and safety data for existing chemicals had already resulted in new standards that increased stringency and therefore would result in lower exposures and lower risk. Second, supply chain communications had increased and had resulted, the Commission insisted, in “more appropriate” risk management generally. Finally, the Commission claimed that the listing of substances on the Candidate List had already increased the rate of substitution. Nevertheless, the Commission reported some gaps in performance against its own expectations. The Commission complained about the poor quality of some registration dossiers and particularly when it came to information filed

regarding hazards and risks posed by persistent, bio-accumulative, and toxic materials (so-called PBTs). The Commission also regretted the challenges reported by industry on the slowness of companies to incorporate new safety information generated for REACH dossiers into their risk communications with end-customers and other users of chemicals. (European Commission 2013, 5).

On the side of direct costs and social and economic impacts, the Commission's own assessment was on balance positive. It noted that during the period from 1999-2009 the EU's chemical industry grew slightly faster than the average for all manufacturing sectors. The Commission stated that while Europe had slipped from the largest market for chemicals in 2001 to the second largest (after China) at the time of the report, the European industry still represents a significant positive trade balance and the performance of its specialty chemicals sector had remained especially strong. The Commission found reasons for optimism on the power of "California effect" -type benefits deriving from the EU's coordinated move towards stringency based on consultations with industry. The Commission stated that "industry acknowledges the positive economic effects [of REACH] for its businesses even though some problems remain" (European Commission 2013, 5). In an acknowledgment of the Commission's real concern about the strength of Brussels Effect economic logics, it noted that:

Some countries are adopting certain principles of REACH in their chemical legislation; [the Commission] acknowledges that regulatory discrepancies between EU and key markets remain, which may have an impact on the EU's external competitiveness; [it] will continue to promote REACH-compatible legislation internationally (European Commission 2013, 6)

At the time of this report the debate in the United States over chemicals reform had not yet overcome a partisan impasse in 2013 and many commentators were predicting continued wide divergence between Europe and the US (Sachs 2009; Vogel 2012).

The Commission issued a second report on REACH in 2017. The Commission declared REACH “fully operational and delivering results towards achieving its objectives (European Commission 2017, 2). The Commission lamented that the achievement was taking a bit longer than originally anticipated. Also, it found that the direct costs on industry reported in its 2013-2016 impact assessments were higher than the Commission predicted— €2.3-2.6 billion as opposed to predictions in the range of €1.7 billion. Nevertheless, the Commission concluded that benefits of the legislation still justified the higher costs. REACH had positioned the EU as “frontrunner, in achieving the goal set for 2020 at the World Summit for Sustainable Development.” Further REACH had also “influenced legislation in third countries (e.g. Korea and China) although significant differences still exist and there is room to further exploit the potential of REACH to serve as a global model for chemicals legislation” (European Commission 2017, 2). The Commission could have added by 2017 Russia, Vietnam, Turkey and Taiwan to the list of countries implementing modern chemical safety regimes inspired by REACH. The report reveals that the Commission had abandoned some of its earlier methodologies for attempting to quantify the benefits for improvements in human health and environmental safety in numerical terms. No effort was made to compare realized benefits with the benefits that were predicted in the early impact assessments. The Commission instead sought proof in the form of Europe’s success in driving convergence around a more stringent approach to chemicals policy, a degree of convergence that may be better measured by *de facto* changes in how influential private parties handle chemical safety than *de jure* changes in domestic laws.

The conclusions reached by the Commission in its reviews are not controversial among the industry insiders I interviewed for this study. Industry was not happy with the original design for REACH but the leading trade associations at the EU level, notably CEFIC, made an early decision to “get in front” of the issue and cooperate with the Commission in the design of REACH. The Commission gave CEFIC a prominent seat at the table, especially in the execution of the various RIPs that were initiated before the co-decision process was completed and the law enacted. CEFIC did not really have an option in that the receptivity of mainstream politicians to their complaints about the legislation only extended as far as the industry presented itself as raising practical concerns about implementation rather than questioning the aspirational goals set for the reform in the White Paper. CEFIC leadership took pains to mediate with members whose management were more sympathetic with American-style critiques of ambitious and expensive regulatory schemes with lots of moving parts.

Once registration was complete, CEFIC took the position that the umbrella organization would not take any public position on substance-specific issues. If enterprises wished to push back on scientific summaries issued by EChA’s Risk Assessment Committee or lobby member states to take different positions in substance evaluation, the enterprises were expected to organize and finance their own efforts within their specific sector. This policy also extended to umbrella chemical federations with the member states. Industry federations concentrated on big-think issues that affected the entire chemicals industry and wished to steer clear of conflicts between regulators that affected only some of its members.¹²⁶ Better keep powder dry and not gain the reputation

¹²⁶ Author’s interviews with senior Europe commercial manager for medium-sized international chemical company and representatives of French chemicals industry.

as obstructionist, was the usual explanation for this pattern. This attitude certainly suited large chemical conglomerates who could afford to redirect resources to innovative areas of chemistry that would appeal to the goals of regulators for more innovation, “green chemistry” and the search for more sustainable substitutes for more hazardous substances. Smaller companies whose investments were more concentrated in certain product classes that were subject to regulatory pressure were less well served by the policy. Several of my sources expressed dissatisfaction with how this dynamic worked in particular situations but their complaints were tempered with recognition that an alternative more combative pattern of advocacy was not in the industry’s broader interest. Overall, enterprises run by North American managers were seen as less supportive of CEFIC’s “realism” and more quick to adopt sector-specific strategies that challenged the technical conclusions of science-based committees and active campaigns to sell the public on the benefits of existing chemistry. On the other hand, lobbies whose members consisted of manufacturers of consumer-products like automobiles, electronics, white goods and household products tended to favor positions friendly to the goals of the REACH program. At the end of the day, CEFIC was afforded the political space by its members to maintain its position of critical support for REACH and defended its reputation as a “progressive” problem-solver with the Commission and the technocrats at EChA.¹²⁷

Other institutions in the EU were asked to weigh in on aspects of REACH during the early years as well. The European Court of Justice took on referral two questions regarding interpretation of key provisions of REACH and its related laws. First, in 2015

¹²⁷ author interviews with Brussels-based lawyers and public affairs consultants.

the ECJ ruled on an appeal from the French *Conseil d'Etat* challenging original Commission guidance on the “right to know” provisions of REACH. According to Section 33, any article containing more than 0.1% by weight of an item on the Candidate List had to make that information available to the general public. EChA guidance had been that a complex article like a jacket need not disclose the presence of a SVHC in a button or a zipper at greater than 0.1% if the amount of SVHC substances were less than 0.1% of the entire jacket. As explained by Vaughan (2015), the ECJ interpreted REACH literally to invalidate the guidance given by EChA. Later in 2019, the ECJ reversed the Commission’s rule on how to calculate the reporting requirements under the Commission’s separate Waste Framework Directive (WFD).¹²⁸ The WFD established a database of articles that contained more than 0.1% of substances on the Candidate List. The Commission worked with industry to define “complex” articles that could be combined for purposes of calculating the 0.1% threshold. In this case the Commission’s method was challenged and the ECJ sided with six member states who challenged the Commission’s compromise in 2021. The rulings, questioning the efforts of the Commission and EChA to lessen the burden of EU law on manufacturers point to the fact that political contestation on chemical safety has not disappeared but has merely been institutionalized within REACH and its related regulations and directives.

Analysis

The careful steps taken by the Commission and EChA to roll out REACH with the maximum amount of buy-in from industry is not surprising in a world where Brussels Effect factors were assisting its efforts. There were strong economic reasons for large

¹²⁸ Directive (EU) 2018/851

chemicals enterprises to quickly shift from political opposition to marshal the resources to tackle the practical challenges of assembling data, submitting dossiers and working with customers and users to communicate around the risks and hazards of their products. This behavior is also predicted by the institutionalist literature (see e.g. Newman & Farrell 2010) which highlights the role of sequencing and first-mover advantages in “locking in” parties to predictable patterns of behavior. This is also consistent with theoretical expectations in Posner (2009) that the EU will more success in international rulemaking to the extent that its regulatory power is “centralized” and it can speak with one voice. The evidence for these mechanisms is consistent with the expectations of the Global Political Strategy approach where it is not surprising that after the success of a political strategy carefully designed to anticipate the concerns of economic actors, Brussels Effect and institutionalist mechanisms would change behavior and shift preferences. Few companies were dissuaded by the adjustment costs from registering their products or working with their suppliers to get substances they used or incorporated into their products regulated. The market for chemicals proved to act the way the Brussels Effect theory said it would—its non-divisibility and inelasticity meant that most enterprises had plenty of material incentives to comply with the regulation rather than flee the European market and the decisions to comply in Europe resulted in changes in management preferences for stringency outside of Europe as well. The particular behavioral features of the REACH roll-out, the enlisting of industry experts in RIPs, the use of language and concepts from the voluntary standards movement, the carrots offered by the SIEF process to big enterprises with large existing investments in safety and environmental data and the embrace by major corporations of the language of sustainability, all made REACH

seem less “foreign” to professionals within enterprises. Bounded rationality and “satisficing” logic played a role in moving the conversation away from industry’s favored path without the pressure of reform – self-regulation and hoping to win public “trust” without transparency—towards a more costly and people-intensive strategy of making the most of REACH to achieve competitive goals, increase the potential rewards from innovation, answer activist pressure and secure a “seat at the table” in regulatory matters. The GCS approach is not significantly falsified by the abundant evidence that REACH’s design actively encouraged adjustment by industry. However, close relationship that RIPs established between the Commission, EChA and industry representatives in solving the many practical problems associated with REACH did not appeal to activists, who maintained a wary distance from these happenings and periodically expressed worries about regulatory capture. This skepticism is typified by the public statements made by activists in the press and at stakeholder forums documented in this Chapter. It is also reflected in worries expressed by academics with an ear tuned to the messages of the activist community like Pessendorfer (2006) and various reports issued by activist groups themselves such as Corporate Europe Observatory (2005).

What is striking when reviewing the history of REACH’s implementation is the degree to which the EU’s substantive regulatory agenda remained unknown to any of the participants. This had nothing to do with the Commission hiding the ball, but rather the fact that the reform was designed to establish a structure that balanced activist concerns about safety with materialist concerns for European competitiveness, growth, and innovation. This desire to appeal to a wide constituency and balance interests is evident in the tactical decision to delay choices about what substances to subject to authorization

until the registration dossiers for high volume chemicals were filed and regulatory priorities set by the various bodies within the EChA orbit. This long process of deciding how to proceed on substantive matters of policy is surprising if one accepts as primary the pressure brought by “epistemic communities.” In the paradigmatic case of CFCs relied upon by Haas (1992B), only months stood between the initial call to action and binding international decisions to phase out certain chemicals. Nothing similar happened in the case of REACH. Slow processes of scientific re-evaluation of risk assessment and the emerging toxicological interest in new modes of action—such as persistent non-toxic and highly-bioaccumulative particles and nano-materials—merely continued its slow progress. The pace of new science did not suddenly leap forward once REACH was enacted.

Conclusions

Chemical safety regulation turned out to be a good candidate for regulatory entrepreneurship by a single economic power that had the political skills to pull it off. The political strategy adopted by the Europeans proved crucial in allowing REACH to be adopted and implemented, giving the European “strategy for chemicals policy” the opportunity to become the de-facto model for chemicals policy throughout the globe. REACH swept up and integrated key elements of Europe’s pre-REACH legislative enactments and replaced them with a system sold to the public using easy-to-digest phrases such as “polluter pays” and “no data, no market.”

The evidence of how European leaders launched their strategy by setting aspirational goals, involving a wide variety of actors and building its case based on existing language of international proclamations and treaties is consistent with the theoretical expectations of the Global Political Strategy approach. So is the fashion by

which the Commission divided responsibility between different European institutions and changed course to accommodate objections by national politicians and powerful industry trade groups. These particular features of European institutions and mindset of its leaders combined decisively into a force which gave Europe a strategic edge in crafting global rules that allowed it to “punch above its weight class” as defined by the size of its economy alone. Among global economic powers, Europe was best positioned to capitalize on the informational efficiencies that only could come from erecting a comprehensive system for closing the “data gap” on the safety of existing chemicals. Once the coalition had been built from ostensibly opposing forces, EU could gain first-mover advantage and benefit from the logic of path dependency, as predicted by institutionalists like North (1990) and Pierson (2000). Unlike Drezner’s example of genetically-modified organisms (Drezner 2007), immediate costs of adjustment were not so great that major players exited the European market or exercised the option of “voice” to convince the US to push to internationalize a more permissive model of regulation. Having won the day in the realm of EU politics, REACH then was able to take advantage of economic forces theorized by Vogel and Bradford and the timing-dependent mechanisms theorized by institutionalists to inspire a meaningful shift towards universal obligations, more protective standards and greater data transparency. REACH succeeded where Europe’s efforts to tightly regulate genetically modified organisms (GMOs) in the agricultural supply chain failed. In the case of GMO’s, Europe’s an ill-fated attempt at adopting precautionary ban was followed by the emergence of competing regulatory standards rather than global coordination around Europe’s chosen policy (Pollack & Shaffer 2009).

REACH's incorporation of concepts, processes and language from private governance regimes such as the international standards movement where Europeans tend to dominate. This evidence is consistent with the institutionalists and in particular the "institutional complementarity theory" in Mattli and Büthe (2010).

The perceived interests of chemical companies shifted as they participated in REACH implementation projects. Whether it is a result of the influence of the "Porter Hypothesis" (Fröhwein and Hanjürgens 2005) or not is not clear. Active belief that a "race-to-the-top" is in a producer's interest as a matter of commercial strategy is neither necessary nor sufficient for producers to decide that opposition and the uncertainty that exists in a world of competing standards, or worse no standards, is not a risk worth taking. All that is necessary is a rational belief that REACH is likely the "wave of the future" and it was best to "get ahead of the problem" by participating in RIP projects and forming consortia rather than betting on the unlikely prospect of the regulation being abandoned or modified to eliminate the "polluter pays" and "no data no market" features. Bounded rationality of the sort theorized by Simon (1986) and behavioral economists, predict that decisions made in imperfect information do not have to be perfectly rational in the sense that economists typically mean when they speak of "maximizing behavior." REACH turned out to be perfectly designed to take advantage of the way real-world states and private parties make decisions about their interests in a world of imperfect information.

CHAPTER 4: INTERNATIONAL RESPONSE TO REACH-- FROM CHALLENGE TO ADJUSTMENT

From the beginning, European political leaders who established the EU's chemicals strategy had the international context clearly in mind. These leaders understood that the political demand for regulatory stringency could be satisfied over the long term only if steps were taken to safeguard the competitiveness of European industry and encourage wealth-creating innovation. This required that REACH impose adjustment costs on non-Union enterprises who exported to Europe their chemical products or who exported articles containing chemical products. This imposition of costs on non-European parties was necessary so that the "playing field" would remain "level." The "polluter pays" principle embedded in REACH meant that non-Union companies and individuals would have to, like their European competitors, pay costs associated with registration and testing and ultimately bear the costs and risks associated with restrictions and bans of chemical substances in the European Union. In *The Brussels Effect*, Bradford (2020) offered the prediction that under likely conditions non-Union actors will accept these burdens as a price for continued access to the European market. As it turned out, the decision to adjust to the reality of REACH was not as easy as that, at least initially, for non-Union actors. Some were recruited by a well-coordinated campaign to stop the regulation or, at least, radically pare it back.¹²⁹ This chapter is organized into four sections in addition to this introduction. Section 1 tells the story of strong international opposition that emerged shortly after the publication of the White Paper. The first part of

¹²⁹ The campaign was led by the United States but opposition was widespread among exporters, especially in Asia and Latin America. See "Exporting Countries Concern Over EU's REACH System" *Malaysia Economic News*, June 1, 2005.

this section recounts the story of how international opposition to REACH was organized by industry groups operating in close cooperation with the United States Government. This campaign was intense and involved a level of official lobbying of European member governments and non-governmental actors that was seen as unprecedented at the time. Its failure to stop REACH was not a foregone conclusion. The second part tells the story of how the EU used one particular international forum, the Technical Barriers to Trade (TBT) Committee of the WTO, to respond to critics and gradually win grudging diplomatic acceptance of REACH. European diplomats did this in part by patient explanation but also by taking seriously the complaints of leading trading partners and making key changes to REACH that addressed these concerns without fundamentally altering the EU's strategy. Section 2 shows how the EU's determination to enact and implement REACH helped change the politics of risk in the United States enough to cause the US to move towards a more comprehensive regime for regulating chemical safety. This result is surprising and defies predictions of widening divergence between Europe and the United States offered by Vogel (2012). Section 3 offers a high-level survey of the regulatory response of countries other than the United States, with a closer look at two examples-- Korea and China.

International Opposition and EU Diplomacy

US Orchestrates International Opposition to REACH

An abundant documentary record exists to show that while opposition to a regulatory program as ambitious and extensive as REACH was inevitable, the sharpness and breadth of such opposition owes a great deal to a coordinated international effort by the leading lobby of the chemical industry in the US, the ACC, working very closely with

a variety of cabinet-level appointees of the George W. Bush Administration. During the 2001-2007 period, US diplomats, including Secretary of State Colin Powell himself, undertook as a matter of official diplomacy an advocacy campaign against REACH based closely on ACC-scripted talking points. Vogel offers a concise yet useful history of the efforts (Vogel 2012, 162-165). The minority members of the Government Oversight Committee of the U.S. House of Representatives conducted an investigation into the extent that US diplomacy acted in service of the chemical industry and published a report with abundant references to internal government documents.¹³⁰

In January 2002, American government officials met at the offices of the ACC to develop a coordinated political strategy to oppose REACH. US Department of Commerce prepared an official position paper that claimed that, if REACH were enacted as proposed, hundreds of Americans could be thrown out of their jobs and repeated estimates published by the ACC that REACH would cost American firms “\$8 billion in additional testing costs over the next decade.”¹³¹ The US position paper claimed that examination of just four commercially-important chemicals on the authorization list shows that \$8.8 billion worth of downstream products were at risk of ban or severe restriction. The US raised concerns that the “precautionary” approach proposed by the EU would cause authorization decisions to be taken that were based on “unsound science.” Furthermore, the Secretary of State Colin Powell signed a cable sent to U.S.

¹³⁰ In September 2004, a special issue of the *Multinational Monitor* featured an investigation by Joseph di Gagni uncovering evidence of the degree of industry domination of the US diplomatic response to the REACH proposal (DiGangi 2004). A coalition of environmental NGOs brought the results of these investigations to Congressional Democrats. Democratic House member Henry Waxman used the DiGagni evidence as the basis for a minority report of the House Government Reform Committee. See US House of Representatives Committee on Governmental Reform – Minority Staff Special Investigations Division 2004 (“Minority Report 2004”).

¹³¹ Vogel (2012, 163) quoting Harpers Magazine, 315, no 1889, October 2007.

embassies in each member state of the EU, as well as to its embassies 35 other countries, warning about the dangers of REACH. The cable claimed that REACH “would be significantly more burdensome to industry and government than current U.S. and EU regulatory approaches.”¹³² It claimed that REACH could cost American chemical producers “tens of billions of dollars in lost exports.”¹³³ Powell urged embassy officials to communicate industry criticisms to European government officials, business associations and media outlets. The US diplomatic effort especially targeted countries with big chemical sectors as well as European multi-nationals that were big end users of chemicals. US officials organized meetings between ACC leaders and American ambassadors to Italy, Ireland, Spain, Austria and Portugal. US Department of Commerce officials held several meetings with EU officials and lobbied European Parliament. US State Department sought the support for its opposition to REACH from governments of states like Hungary, Poland, Estonia and Czech Republic who were then candidates for EU membership. The US State Department urged countries that were heavily dependent on exports to the EU, such as Brazil, India, Japan, Malaysia, and South Africa to join with the US in a coordinated lobbying strategy. As a result of this unprecedented lobbying effort, 14 countries issued a joint public statement that urged the EU to adopt a “risk-based” authorization process—which had the goal of making Europe’s approach more similar to the US template under TSCA. At the time REACH was nearly ready to be passed, ACC claimed that intervention by it and the US government “helped to build an aggressive position worldwide, and brought about significant concessions in the draft

¹³² DiGagni 2004.

¹³³ DiGagni 2004.

now being considered by the European Parliament.”¹³⁴ Vogel (2012, 165) attributes to Bjorn Hansen an observation that the unprecedented lobbying by the US was understood by European diplomats to breach a tacit understanding about government lobbying of private citizens of another country. Although the ACC reported to its membership that its efforts had been instrumental in paring back the EU’s plans, the blunt attempt by the Bush Administration to influence European debate was widely understood by Europeans to have backfired.¹³⁵ Despite some of the commentary in the Minority Report, the US effort may have stiffened the backs of European leaders and ensured REACH’s passage relatively intact.

EU Uses WTO Committee to Respond to Critics

In its public statements the US contended that REACH was “protectionist” and potentially violated international trade treaties. Although its sharp rhetoric and legal objections led many to expect the US to use WTO mechanisms to block REACH, it never took the step of asking the WTO to investigate REACH by invoking the formal dispute resolution mechanisms at the WTO.¹³⁶ Instead the US used TBT Committee meetings to voice criticisms of REACH and encourage other countries to do the same. A thorough review of TBT Committee minutes reveal that EU diplomats used the TBT Committee as

¹³⁴ Minority Report 2004, 15.

¹³⁵ Vogel (2012, 166) and author interviews with industry and outside public affairs officials.

¹³⁶ World Trade Organization. 2004. “Understanding Concerning Dispute Resolution.” Geneva. TBT Treaty contains rules which distinguish cases where states legitimately seek to regulate product markets for reasons of the protection of human health and the environment or conformity with legitimate technical standards from cases where these regulations act to undermine international trade. Article 2 of the TBT Treaty requires that members’ domestic products “be accorded treatment no less favourable” to “similar” foreign products and prevents members from adopting technical regulations that are not “prepared, adopted or applied with a view to or with the effect of creating unnecessary obstacles to international trade.” Article 9 requires that members give notice to other members of objections at regular meetings of the TBT Committee. If a member believes that another has violated the terms of the TBT Treaty, the member can invoke dispute resolution mechanisms spelled out in the Understanding on Dispute Resolution that is an appendix to the WTO Treaty.

a forum to reduce opposition among its trading partners to REACH and to gain a degree of buy-in for the European approach to governance in this contentious policy area. The EU did not simply respond to its critics but sought actively to push the discussion in directions that were favorable to its interests.¹³⁷ Over the nearly six years that extended from the issuance of the White Paper to enactment of REACH, Europe was increasingly confident in confronting critics of REACH within the framework of its chosen language, debating fine technical points of the regulation and its implementation rather than the legality of REACH under WTO rules or the legitimacy of a unilateral assertion of European global regulatory leadership itself. Significantly, at no time did the United States or any other nation offer a detailed proposal to counter REACH. The US trade representatives instead offered criticism and suggested strongly that Europe had ignored its obligations to negotiate with its main trading partners a multilateral alternative to REACH, presumably through the OECD. Nevertheless, the US never used its power within the TBT Committee or its influence in other international fora to push its own agenda or institutionalize its preferences for less costly “risk-based” system based on “sound science” on the international level. And as previously stated, the United States never filed any complaint under the WTO dispute resolution procedures.

Minutes of the TBT Committee during this early period reveal the high level of anxiety about REACH that then prevailed among Europe’s trading partners.¹³⁸ These

¹³⁷ For a discussion of how the EU extended and opened up internal EU processes to non-EU actors in an exercise of “external governance” see Biedenkopf 2015.

¹³⁸ The section that follows is based on review of the official minutes of the WTO TBT Committee which are publicly available at the World Trade Organization’s Website. https://docs.wto.org/dol2fe/Pages/FE_Browse/FE_B_009.aspx?TopLevel=8318 (accessed February 19, 2022).

concerns were also widely publicized in contemporary press accounts.¹³⁹ US officials had been publicly criticizing the White Paper for some time in various forums.¹⁴⁰

In March 2003, the US trade representative summarized these objections in comments voiced at the TBT Committee meeting.¹⁴¹ The US office of trade representative argued that REACH would be a costly, complicated, and possibly unworkable system that was out of proportion with, and thus poorly designed to address, the risks posed by hazardous chemicals in commerce. Moreover, REACH would distort trade, giving European manufacturers advantages in their home market because REACH would act as a de-facto protectionist barrier. At this meeting, the minutes reveal that US criticisms were supported by numerous other members, from industrial countries with close ties to the US such as Canada, Japan, and South Korea to developing countries like China, Brazil, Mexico, Argentina, and Chile. The latter group worried that REACH's complicated universal registration scheme would act as a particularly effective barrier to imports from poorer countries. Chile was especially worried about its exports of copper.¹⁴² EU defended its proposal as being in strict conformity with WTO rules and promised the TBT Committee that it would file formal notice of the legislative proposal once the Commission finished work and submitted it to Parliament and Council for co-decision.¹⁴³

¹³⁹ "Exporting Countries Concern Over EU's REACH System," Malaysia Economic News, June 1, 2003; "Government, Mining Council join Forces against REACH" Business News Americas (Brazil), November 10, 2005.

¹⁴⁰ See the previous section of this Chapter.

¹⁴¹ TBT Official Minutes of the Meeting of 29 March 2003 released on 19 May 2003 (03-2662) G/TBT/M/29 (the "March 2003 Minutes").

¹⁴² "Cochilco; REACH could spark copper substitution," Business News Americas (Brazil), November 11, 2005.

¹⁴³ March 2003 Minutes.

In May, the EU submitted a document informing the TBT Committee that prior to finalizing the draft legislation the Commission would be conducting a “stakeholder consultation” on the Internet and encouraged the governments of its trading partners to submit comments and follow the proceedings online.¹⁴⁴ The EU did not submit the document as formal notice of trade-impacting legislation under Section 2.9.2 of the TBT Treaty and the notice now appears in the WTO’s online archive filed under the generic “working paper” category rather than as a formal notice under the treaty. This choice to delay formal notice of the proposed legislation and encourage instead member participation in the “stakeholder consultation” elicited from some TBT Committee members pointed complaints about the EU failing to abide strictly by WTO formalities. Drawing particular criticism were the tight deadlines published for participation in the online “consultation.” Despite the objections, numerous governments submitted comments during this process and in the end the EU extended the consultation past the original timeframe and continued to consider comments received from trading partners and private parties outside of Europe well after the formal deadlines had passed.¹⁴⁵

At its meeting in July, the TBT Committee again heard complaints about REACH from a wide variety of members, led by the United States.¹⁴⁶ Comments largely echoed earlier objections and worries. The Internet consultation was then scheduled to close within several days and several countries, notably Japan and China, expressed appreciation for the EU’s “transparency” in its decision to give an opportunity for

¹⁴⁴ Communication from the European Communities, “Registration, Evaluation, Authorization of Chemicals under Article 2.9.1 of the [TBT] Agreement”, dated 22 May 2003 (G/TBT/W/208). (“EU Communication”).

¹⁴⁵ See European Commission 2003A, Explanatory Memorandum, Results of Public Consultations and Risk Assessments.

¹⁴⁶ TBT Official Minutes of the Meeting Held on 2 July 2003 dated 19 August 2003 (03-4305) G/TBT/M/30 (“July 2003 Minutes”) §50-61

trading-partners and non-EU individuals to take part in the stakeholder consultation.¹⁴⁷

The EU promised to keep incorporating useful suggestions brought to its attention during the consultation and to continue considering suggestions for improvement brought forward by trading partners after the close of the official comment period.¹⁴⁸

At the meeting in November, Japan raised a comprehensive set of objections to REACH which were supported by the US and other countries.¹⁴⁹ By this time, the Commission had submitted its legislative draft to Parliament and Council. The minutes reveal that the EU explained that in response to the many constructive suggestions EU received from stakeholders, the Commission had made significant changes to the legislative draft that would address the concerns raised by members of the TBT Committee. The EU promised that it would soon submit notice of the legislative draft in strict conformity with the TBT Treaty. Indeed, the EU filed formal notice of the REACH Legislative Proposal under Section 2.9.2 of the WTO Treaty in January 2004.¹⁵⁰

Minutes from TBT meetings in 2004 reveal new patterns. First, member criticisms of the scope and complexity of the reform proposal were now tempered with a more resigned if not exactly conciliatory tone. Second, countries other than the US took the lead in making detailed presentations seeking to influence particular aspects of REACH to make it less burdensome on their export businesses but which omitted wholesale attacks on the legitimacy of the proposal. In March, Japan raised three principled objections to the legislative proposal, targeting particular features of REACH

¹⁴⁷ July 2003 Minutes, §§ 53-54,

¹⁴⁸ July 2003 Minutes §62.

¹⁴⁹ Official Minutes of the Meeting of 7 November 2003 dated 9 December 2003 (03-6492), G/TBT/M/31 §§23-33.

¹⁵⁰ Notification from the European Communities to the WTO TBT Committee under Article 10.6, dated 21 January 2004 (G/TBT/N/EEC/52).

rather than the nature of the legislation itself.¹⁵¹ First, Japan objected to the EU's universal registration requirement.¹⁵² This would be unworkable, the Japanese argued, because the scope of registration obligations faced by non-EU manufacturers was not clear. Japan worried that it would be nearly impossible for Asian exporters to manage these obligations as doing so would require detailed knowledge of long supply chains which would be difficult if not impossible for Asian exporters to obtain. This was particularly difficult given that chemical substances that were contained in manufactured articles would need to be registered above very low content thresholds. Second, Japan objected to the proposed requirement to register both polymers and their monomer precursors as duplicative and inefficient. Finally, Japan raised concerns about how the EU would handle authorizations of chemical substances that were suspected to be endocrine disruptors given that the state of the science was, according to Japan's representative, preliminary. The US supported Japan's comments and stated that while its detailed comments would be filed in the context of the Internet consultation, it reminded the committee that the EU proposal, from the US perspective was "overly expensive, lacked focus and priority-setting, and did not adequately address the economic implications of the proposed approach." The US did hold out the hope that "there were still opportunities to make the proposal more streamlined and effective."¹⁵³ Governments including both China and "Chinese Taipei" (i.e. Taiwan) as well as Chile and Thailand expressed appreciation for the EU's transparency about REACH.¹⁵⁴ The effects of the EU's

¹⁵¹ TBT Official Minutes of the Meeting of 23 March 2004 dated 19 April 2004 (04-1740) G/TBT/M/32 (the "March 2004 Minutes").

¹⁵² March 2004 Minutes, §§30-33.

¹⁵³ March 2004 Minutes, §34

¹⁵⁴ March 2004 Minutes, §§36, 38-40.

extraordinary efforts at persuasion and consultation begin to be evidenced in the tone of statements recorded in the minutes during this period.

The TBT meeting in July 2004 again included a great deal of discussion about REACH.¹⁵⁵ Singapore, speaking for itself and also acting as representative of the views of other members of the Association of South East Asian Nations (ASEAN) offered detailed proposals on how REACH could be improved to provide more clarity for exporters, especially smaller exporters and traders from Asia. As recounted in the minutes, Singapore stated:

On behalf of the ASEAN countries, Singapore supported the rights of its trading partners to take measures to protect health, safety and the environment. While Singapore welcomed the improvements in the revised draft REACH regulation, it remained concerned about the potential adverse impact of such a complex and broad regulatory initiative on international chemical and downstream trade. Singapore was particularly concerned that the requirements under REACH, though non-discriminatory in appearance, could be discriminatory in practice, as non-EU producers and suppliers would face greater difficulties in complying with the complex requirements as compared to their EU counterparts.¹⁵⁶

Singapore called for the EU to take the following steps to improve REACH: (i) reform its current legislation on sharing of information to ensure that smaller and non-EU companies had easier access to the necessary information; (ii) explicitly state that all substances need only be tested once; (iii) adopt a risk-based approach based on prioritization and “sound science”; (iv) streamline the various processes in a single agency; and (v) reduce the scope of REACH, for example by providing for “broader, clear-cut exemptions” to reduce the burden of downstream producers and traders. Singapore’s comments reflected the reality of home-grown chemical manufacturers in

¹⁵⁵ TBT Committee Official Minutes of the Meeting of 1 July 2004, dated 31 August 2004 (04-3498). G/TBT/M/33 (“July 2004 Minutes”).

¹⁵⁶ July 2004 Minutes, §33

Asia who often lacked stable commercial networks outside of the region.¹⁵⁷ Asian exporters often relied on trading companies to find market outlets for products they could not sell profitably closer to home. Singapore's request for clarification on testing is an important idea that would come to be expressed as part of a growing demand for a "one substance, one registration" solution. In the end, the EU refused to enact this solution in totality, but as explained in Chapter 3, offered guidance, and made alterations to the regulatory text that encouraged a high degree of coordination among competing manufacturers to decide on terms under which data access would be granted and divide up the cost of the required studies among the many parties that needed to rely on them to support their registrations. Europe's promises to address this issue gave comfort to trading partners that "discrimination" against non-Union actors would not be permitted and was an important element that allowed the EU to gain a measure of acceptance for its contention that REACH would not erect protectionist barriers. The cost-sharing rules eventually included as Annexes to the regulation were designed to ensure a degree of transparency and comfort even if fears that the rules always work for those drafting them persisted and the actual results were not universally viewed as fair.

At the same meeting, the United States prefaced its comments by recognizing EU's transparency, praising it for the manner in which it formally notified the legislative proposal prior to the Council announcing its "common position" on changes the Commission's proposal it would require before REACH could be approved.¹⁵⁸ The US repeated its characterization of the Commission's REACH proposal as "a particularly

¹⁵⁷ July 2004 Minutes, §34.

¹⁵⁸ July 2004 Minutes, §37.

costly, burdensome and complex approach, which could prove unworkable in its implementation, disrupt global trade and adversely impact innovation.”¹⁵⁹ In comments that echoed the points the US had already posted on the website of its trade mission to Brussels, the US representative urged the EU to make substantial changes to the proposal reduce the impact of REACH on trade and better fit it with existing international treaties and protocols through which the international community had agreed on cooperative measures to address chemical safety.¹⁶⁰ The minutes report these comments:

In view of the scope, the far-reaching implications and the global interest in this extensive regulation, the United States urged the European Communities to provide for meaningful consideration of the comments received and requested that the TBT Committee be kept informed as the draft regulation continued to move forward through the EU's decision-making process.¹⁶¹

In addition, the US continued to insist that REACH was incompatible with the EU's obligations under the WTO regime, but while the EU continued to debate changes, it held back making a frontal assault by filing a formal complaint under the Treaty.

To address these substantive criticisms and counterproposals, the EU made a detailed presentation on REACH at the next TBT meeting in November 2004.¹⁶² EU had already replied directly to several individual countries who had offered written comments, including Japan, US, China and Australia, but offered more comprehensive statement of its rationale for updating its chemical laws to the entire forum. It explained that the previous system, like TSCA, discouraged innovation because new chemicals

¹⁵⁹ July 2004 Minutes, §37.

¹⁶⁰ The minutes do not show that the US representative was confronted by the fact that the US itself had not ratified many of these treaties.

¹⁶¹ July 2004 Minutes §38.

¹⁶² TBT Official Minutes of the Meeting of 4 November 2004 dated 5 January 2005 (05-0024) G/TBT/M/34 (the “November 2004 Minutes”).

were subject to stringent review while existing chemicals were not.¹⁶³ The EU explained that REACH was designed to create a single system to force the chemical industry to better manage the risks of all chemical substances.¹⁶⁴ The EU representative then addressed some of the leading criticisms of its proposal, including the potential that the universal registration requirement would discriminate against non-European products especially and the standards that would be applied in the authorization step would not reflect science but European political preferences in favor of “precaution”. The EU representative explained that the Commission had considered a “one-substance, one registration concept” but that it rejected this proposal as unworkable. Nevertheless, the representative explained that “REACH encouraged manufacturers and importers to come together in voluntary consortia to provide joint registrations.”¹⁶⁵ On authorization, the EU representative assured the Committee that authorization would only be required on a relatively small subset of “substances of very high concern” (SVHCs) and that prioritization for evaluation and authorization would be based on risk.¹⁶⁶ An even smaller set of substances whose risks could not be addressed through controls or marketing restrictions would be considered for restriction, but only “where this was scientifically justified, based on risk.”¹⁶⁷ Finally, the European Union reassured less developed countries that it recognized the need for guidance and assistance to ease the burden for their exporters to continue to access the European market.¹⁶⁸

¹⁶³ November 2004 Minutes §§14-32.

¹⁶⁴ November 2004 Minutes §§14-18.

¹⁶⁵ November 2004 Minutes §25.

¹⁶⁶ November 2004 Minutes §27.

¹⁶⁷ November 2004 Minutes §26.

¹⁶⁸ November 2004 Minutes §31.

During 2005, the EU continued to update the TBT Committee on the status of REACH and hear complaints from members who continued to have concerns and urge their questions be answered. In June, Cuba, Australia, Japan and Canada each shared additional concerns on REACH with the TBT Committee.¹⁶⁹ EU Informed the Committee that that Parliament and Council were then examining the legislative draft under co-decision, and that changes were probable. The EU promised to update TBT on major changes from the previously disclosed terms of the legislation as they emerged.¹⁷⁰ In November, US raised concerns about the extent of recent changes proposed by Parliament.¹⁷¹ The US stated that it was “premature” to assert that REACH would pose no problems under WTO rules but expressed the hope that efforts by leading member governments to pare back the proposed changes would improve the final law.¹⁷²

Japan submitted detailed comments on REACH document at the March 2006 meeting of the TBT Committee.¹⁷³ The representative stated that while the “one substance/one registration” issue and its questions on the scope of registration obligations had been addressed by the EU in its previous answers, Japan sought more clarity on the treatment of polymers and monomers in the registration step. Japan wanted to avoid registration of a polymer if its related monomer pre-cursor was registered.¹⁷⁴ Australia reiterated its position that REACH “needed to be brought into fuller consistency with TBT principles and that it was more trade restrictive than necessary to achieve the

¹⁶⁹ TBT Committee Minutes of the Meeting of 16-17 July 2005, dated 4 August 2005 (05-3512), G/TBT/M/36 (the “July 2005 Minutes”)

¹⁷⁰ July 2005 Minutes §16.

¹⁷¹ TBT Committee Minutes of the Meeting of 2 November 2005, dated 22 December 2005 (05-6247) G/TBT/M/37 (the “November 2005 Minutes”).

¹⁷² November 2005 Minutes §§ 25-26,

¹⁷³ TBT Committee Minutes of the Meeting of 15 and 17 March 2006, dated 23 May 2006 (06-2502), G/TBT/M/38 (the “March 2006 Minutes”).

¹⁷⁴ March 2006 Minutes §66.

objectives enshrined in Article 2.2 of the Agreement.”¹⁷⁵ The United States, Chile and China all made statements asserting that REACH was too “trade restrictive” and not TBT compliant.¹⁷⁶ China and Chile additionally expressed the hope that the EU provide technical assistance to developing country members.¹⁷⁷ Cuba and Mexico also called for more technical assistance in their comments.¹⁷⁸ At this meeting, EU informed TBT that “political agreement” had been reached unanimously by the European heads of state (the European Council) on December 13, 2005 and that the Commission had endorsed the basic framework and was working with co-decision partners in Council on a text for a “Common Position.”¹⁷⁹ The Common Position would include a provision on registration of polymers that would give Japan what it was looking for. The Common Position also removed any requirement to register minerals or ores, a major concession to minerals and metals exporters like Chile, South Africa, and Peru.¹⁸⁰ Concerns that had been raised had taken hold among organized interests in Chile and other developing nations who remained worried about the possibility of REACH in forcing substitution of copper for other materials made from organic substances, like PVC, without any scientific justification.¹⁸¹

At the November 2006 meeting, Singapore raised concerns endorsed by members of ASEAN and APEC at these organization’s recent meetings.¹⁸² Concerns included the

¹⁷⁵ March 2006 Minutes §67.

¹⁷⁶ March 2006 Minutes §§68-70.

¹⁷⁷ March 2006 Minutes §70.

¹⁷⁸ March 2006 Minutes §§71-72.

¹⁷⁹ March 2006 Minutes §§73-76.

¹⁸⁰ March 2006 Minutes §75.

¹⁸¹ “Cochilco; REACH could spark copper substitution,” Business News Americas (Brazil), November 11, 2005.

¹⁸² TBT Committee Minutes of the Meeting of 9 November 2006, dated 26 January 2007 (07-0361), G/TBT/M/40 (the “November 2006 Minutes”).

issue of monomers and polymers and a mandatory substitution requirement which had been included in some of the amendments to the proposal considered by Parliament in the legislation's second reading. Singapore praised the EU for its consultations with industry and others. It expressed support for right of WTO members to take measures to promote human and environmental health and safety.¹⁸³ Singapore's comments were supported by Japan and other members.¹⁸⁴ Costa Rica, Canada, United States, China, Chile, Cuba and Taiwan all raised concerns about various aspects of REACH, including its effects on developing countries. The EU representative expressed that it was in no position to respond to any specific concern as REACH was close to passage but would communicate these concerns to the legislators and civil servants who were negotiating the final package.¹⁸⁵

In March 2007, the EU representative made a presentation to TBT describing the passage of REACH, which had been passed by Parliament and endorsed in its final form by the Council in December and published in January 2007.¹⁸⁶ The representative described in some detail the processes for registration and prioritization of substances of very high concern.¹⁸⁷ They also addressed expressly the worry stated by many that European manufacturers would be favored in the new regulatory system.¹⁸⁸ The representative emphasized that the same duties applied to the registration of substances placed on the market in the EU, either on their own or incorporated in articles, regardless

¹⁸³ November 2006 Minutes §43.

¹⁸⁴ November 2006 Minutes §§45-51.

¹⁸⁵ November 2006 Minutes §52.

¹⁸⁶ TBT Committee, Minutes of the Meeting of 21 March 2007, dated 2 June 2007(07-2448), G/TBT/M/41 (the "March 2007 Minutes").

¹⁸⁷ March 2007 Minutes §§26-28.

¹⁸⁸ March 2007 Minutes §§30-31.

of where they are manufactured.¹⁸⁹ If the substance was intended to be released, it needed to be registered but if it was not intended to be released the requirement would only apply to substances of very high concern. The EU expressly addressed the TBT requirement that non-tariff barriers be “least restrictive.”¹⁹⁰ The EU insisted that REACH was compatible with all WTO rules and were complementary to, not competitive with, obligations under existing international treaties and protocols on chemical safety to which the EU was a party. The representative highlighted that minerals and ores were exempted to the extent that they had not been chemically altered, responding to concerns raised by Chile and Australia.¹⁹¹ The representative informed the Committee that last minute changes were made to the legislation to address concerns raised by trading partners. In the final legislation, progressive substitution was encouraged, but not mandated.¹⁹² Monomers were to be registered not their polymer derivatives.¹⁹³ EU would help developing nations comply by offering a robust technical support effort. Israel stated that it was mostly satisfied with the presentation but had continued concerns about effect on SMEs. Korea supported Israel’s comments.¹⁹⁴ A variety of countries (Korea, US, Brazil, Australia, Japan Chile and Canada) reacted to the EU presentation, expressing a mix of appreciation for the explanation of certain features but continued concerns, in particular about continued impacts on SMEs.¹⁹⁵ Brazil expressed interest in guidance documents.¹⁹⁶ Japan expressed continuing concerns over guidance issued on registration of monomers

¹⁸⁹ March 2007 Minutes §32.

¹⁹⁰ March 2007 Minutes §35.

¹⁹¹ March 2007 Minutes §38.

¹⁹² March 2007 Minutes §39.

¹⁹³ March 2007 Minutes §40.

¹⁹⁴ March 2007 Minutes §42.

¹⁹⁵ March 2007 Minutes §§43-55.

¹⁹⁶ March 2007 Minutes §46.

and polymers.¹⁹⁷ Australia shared its continued concerns that minerals were not categorically exempted from registration but appreciated that under the final law in practice most ores would not need to be registered.¹⁹⁸ The EU representative responded by highlighting that SMEs exporting lower volumes would have less information burden and that they would benefit from the assistance programs.

At this point, REACH had been adopted members compelling them adjust to the reality that further changes would require additional legislation. Nevertheless, several TBT meetings would receive comments by members on REACH implementation issues. In July 2007, Canada offered comments on EU implementation documentation.¹⁹⁹ Canada regretted that the EU draft guidance documents had not been notified formally.²⁰⁰ Canada's representative stressed that Canada had "an interest in seeing a workable REACH in Europe and looked forward to the continued cooperation and dialogue with the Commission authorities as REACH moved into implementation."²⁰¹ Japan praised EU's past briefings and willingness to consider changes on some matters but took the opportunity to encourage the EU to amend its laws to adopt of all of Japan's expressed concerns.²⁰² Korea expressed its concerns about the "discriminatory effect" of responsibilities to register shared by foreign manufacturers up the supply chain.²⁰³ The United States sought more clarification on implementation and worried about differences in enforcement among EU member states.²⁰⁴ Chile's representative reported that its

¹⁹⁷ March 2007 Minutes §48,

¹⁹⁸ March 2007 Minutes §47.

¹⁹⁹ TBT Committee, Minutes of the Meeting of 5 July 2007 dated 6 August 2007(07-3341), G/TBT/M/42 (the "July 2007 Minutes").

²⁰⁰ July 2007 Minutes §§85-85.

²⁰¹ July 2007 Minutes §85.

²⁰² July 2007 Minutes §86.

²⁰³ July 2007 Minutes §§87-88.

²⁰⁴ July 2007 Minutes §89.

exporters found guidance documents confusing.²⁰⁵ China praised past briefings but continued to express worries about the impact of REACH on its producers.²⁰⁶ Australia worried about the impact of recent classification of borates and nickel as dangerous chemical substances.²⁰⁷ The EU defended its failure to notice guidance information and emphasized that the new EU agency, EChA, was responsible for technical interpretation and implementation guidance.²⁰⁸

At the November 2007 meeting, TBT Members continued to raise concerns about REACH.²⁰⁹ Argentina expressed concerns about the effect of REACH on exporters from developing countries, echoing earlier comments by China and others. It contended that REACH would put such firms at a disadvantage as compared to exporters from rich countries.²¹⁰ The US framed its comments with a statement that it recognized the right of members to adopt measures to protect health and environment, but repeated its oft-stated concerns about the uncertainties that accompanied the safety standards under REACH and the likely “chilling” effect of a EU decision to put a substance on the authorization list.²¹¹ The US positioned itself as a defender of the concerns of Malaysia and other ASEAN members about the trade effects of REACH and urged the EU to be responsive to critical voices among its trading partners.²¹² Comments were heard from representatives of Korea, Japan, Canada, Taiwan and Chile all expressing worries about

²⁰⁵ July 2007 Minutes §90.

²⁰⁶ July 2007 Minutes §91.

²⁰⁷ July 2007 Minutes §92.

²⁰⁸ July 2007 Minutes §93-96.

²⁰⁹ TBT Committee, Minutes of the Meeting of 9 November 2007 dated 21 January 2008(08-0293), G/TBT/M/43 (the “November 2007 Minutes”).

²¹⁰ November 2007 Minutes §§23-28.

²¹¹ November 2007 Minutes §28.

²¹² November 2007 Minutes §29.

the impact of the implementation of REACH on their economies.²¹³ China raised similar concerns as Argentina about the low technical level of many manufacturers in the developing world and the trade impact from developing nation producers potentially losing access to the European market.²¹⁴ Mexico expressed appreciation for the recent visit of an EU delegation to Mexico to disseminate information on REACH, but emphasized the need for EU redoubling its efforts to offer technical advice and support on REACH to help developing nation exporters.²¹⁵ Australia, Brazil and Thailand shared concerns about REACH expressed by other members.²¹⁶ The EU answered by stressing the importance of developing country exports finding their own ORs to act on their behalf or working with European customers to become active in SIEFs or join consortia. The EU representative highlighted the detailed guidance the EU offered on the sharing of data costs through SIEFs and it suggested that this guidance would help SMEs by lowering costs of accessing data necessary to meet registration requirements.²¹⁷

Discussions of REACH continued for many years as a feature of every WTO TBT Committee meeting, with comments dwindling in scope and in the range of members bringing comments but with member comments on REACH only disappearing from the official record after 2014.²¹⁸ Unlike discussions prior to enactment, members tended to

²¹³ November 2007 Minutes §§30-34.

²¹⁴ November 2007 Minutes §35.

²¹⁵ November 2007 Minutes §36.

²¹⁶ November 2007 Minutes §37.

²¹⁷ November 2007 Minutes §39-40.

²¹⁸ WTO Official Minutes of Meetings of 20 March 2008 dated 10 June 2008 (08-2721) G/TBT/M/44; of 1-2 July 2008 dated 9 September 2008 (08-4232) G/TBT/M/45; of 5-6 November 2008 dated 23 January 2009 (09-0330) G/TBT/M/46 (“November 2008 Minutes”) §§145-202; of 25-26 June 2009 dated 29 September 2009 (09-4537) G/TBT/M/48 §§87-108; of 5-6 November 2009 dated 22 December 2009 (09-6688) G/TBT/M/49 §§45-78; of 24-25 March 2010 dated 28 May 2010 (10-2960) G/TBT/M/50 §§37-63; of 23-24 June 2010 dated 1 October 2010 (10-5023) G/TBT/M/51 §§39-68 (“June 2010 Minutes”); of 3-4 November 2010 dated 10 March 2011 (11-1228) G/TBT/M/52 (the “November 2010 Minutes”) §§74-112; of 24-25 March 2011 dated 26 May 2011 (11-2608) G/TBT/M/53 (March 2011 Minutes”) §§142-164; of 15-16 June 2011 dated 20 September 2011 (11-4529) G/TBT/M/54 §§ 143-164,

focus on specific aspects of implementation, while continuing boilerplate complaints about the complexity of regulations, worries about inconsistent interpretation, lack of sufficient guidance and the like. Complaints also continued, especially from developing country representatives but also from US, Canada, Australia, and Japan, about the disproportionate effect of REACH complexity and “opacity” on SMEs. Increasingly comments were directed to the mechanics of SIEFs and consortia agreements and the details of dossier submission and appointment of only representatives in Europe. Particular decisions about classification and labelling under CLP were also raised by members.²¹⁹ Members also raised objections about EU directives that affected certain products, such as the classification of borates and nickel under the Dangerous Chemicals directive, and these concerns bled over to comments on REACH.²²⁰ The TBT Committee remained until 2014 a primary forum the international community used to raise concerns about legislation but the tone and substance of comments gradually shifted to complaints about implementation as REACH was perceived as a permanent fixture. The scope and volume continued to recede gradually until the comments disappeared entirely after 2014.

This evolution also can be interpreted in light of the fact that initial implementation was then proceeding without significant upsets through the voluntary pre-registration deadline in November 2008 and through the first rounds of mandatory

of 10-11 November 2011 dated 9 February 2012 (12-0786) G/TBT/M/55 §§58-68; of 20-21 March 2012 dated 16 May 2012 (12-2640) G/TBT/M/56 §§51-54; of 13-15 June 2012 dated 18 September 2012 (12-5032) G/TBT/M/57 §§80-87; of 27-28 November 2012 dated 6 February 2013 (13-0617) G/TBT/M/58 §§2.49-2.50; of 6-7 March 2013 dated 8 May 2013 (13-2438) G/TBT/M/59 §§ 2.85-2.86; 17, 19, 20 June 2013 dated 23 September 2013 (13-5051) G/TBT/M/60; §§3.62-3.67 of 30-31 October 2013 dated 5 February 2014 (14-0699) G/TBT/M/61 §§2.44-2.48; of 18-19 March 2014 dated 20 May 2014 (14-3038) G/TBT/M/62 §§2.74-2.79; of 18-19 June 2014 dated 19 September 2014 (14-5262) G/TBT/M/63 §§3.50-3.53.

²¹⁹ June 2010 Minutes §§88-109.

²²⁰ The November 2008 Minutes §§46-127.

registration in November 2010 and June 2013. As subsequent official evaluations confirmed, in a pure numbers sense REACH registration was a success and that many registrations had been completed by non-EU parties.²²¹ The representative of the EU referenced this success in its responses to comments at the March 2011 meeting.

According to the minutes, the EU representative reported that:

REACH had passed another significant milestone with reference to implementation, since the deadline for registrations for certain classified phase-in substances, and for substances manufactured or imported in quantities of a thousand tonnes or more annually, had recently passed (30 November 2010). She informed Members that registration had gone smoothly, and that no major problems had emerged in the process. She stated that 24,675 registration dossiers had been received by 30 November 2010, covering a total of 4,300 substances, which had been in line with the volume expected. She also said that to date approximately 86 per cent of registrations had come from large companies and 14 per cent from small and medium enterprises, and 19 per cent of registrations had been made by "Only representatives". She explained that the numbers highlighted that, contrary to comments made by Members at meetings of the TBT Committee, the registration process was not overly complex or burdensome, that the SIEFs were functioning and that SMEs and non-European companies had been able to submit their registrations. Additionally, she noted that work by ECHA in the evaluation phase had proceeded well. She reported that by the beginning of March, registration numbers had been granted for 20,175 dossiers submitted by the deadline, resulting in a total of 3,483 phase-in substances registered.²²²

Based on the fact that nearly 1/5 of all registrations had been accomplished by "only representatives," a significant share non-EU producers, including at least some SMEs, must have succeeded in registering substances under REACH so their products would be allowed remain in the marketplace. Evidently, developing nation exporters ended up either accessing the safety data required for their own registrations through negotiating data access letters or reaching the conclusion that their individual exports to the EU would fall below the 1000 tpy *de minimis* threshold required for registration in the first round or 100tpy in the second. There is no evidence to show a significant change in the

²²¹ European Commission 2013.

²²² March 2011 Minutes §155.

level of chemical imports to the EU nor a shift in share from exporters located in less developed economies.

Through a combination of patient explanation, offering guidance and technical assistance, and making relatively minor but important concessions, the EU had outlasted its critics in an important international forum. By 2008, enough international companies had assigned internal teams and engaged with their competitors to begin the challenging process of putting together registration dossiers. Occupied by the various workstreams REACH and official guidance had created, the technical and compliance professionals could reassure corporate leadership that they were “on track.” Anxiety in executive suites about REACH receded and as a consequence political pressure on governments and membership pressure on industry organizations like ICCA, CEFIC and ACC to do something to stop REACH reduced. Nevertheless, WTO members felt continued lobbying pressure from domestic actors and continued to push forward an active policy of influencing EU’s implementation of REACH in order to minimize impact on their constituent’s export opportunities. To push back, the EU began commenting on the failure of the US to notice an early House bill (HR 2820) to reform TSCA²²³ and a California regulation aimed at encouraging substitution to safer chemicals.²²⁴ Korea announced its decision to implement K-REACH and was rewarded with some critical comments from the US and others and praise from the EU at the TBT Committee.²²⁵ Asymmetrical adjustment occurred but it did not happen quietly, at least not at meetings of the WTO TBT in Geneva.

²²³ November 2011 Minutes §§24-25.

²²⁴ November 2011 Minutes §§48-56.

²²⁵ Official Minutes of Meeting of 5-6 November 2014 dated 10 February 2015 (15-0853) G/TBT/M/64 §2.103; 4-6 November 2015 dated 3 February 2016 (16-0724) G/TBT/M/67 §2.89.

Analysis

The events summarized in this Section – vociferous opposition expressed through US-led lobbying campaign in Europe and then a similar campaign mounted against the proposed law in the WTO TBT Committee—are surprising for advocates of the GCS approach and for an analysis based on Brussels Effect factors alone. If a scientific consensus had been reached surrounding the inadequacy of existing national and international laws governing chemical safety the news of that consensus did not reach the diplomats shuttling from European capital to capital and attending TBT Committee meetings in Geneva. Opposition had been mobilized by the dissemination of political talking points that bent the European’s statements around “precaution” into a caricature where risk of harm and economic impact of regulatory decisions were utterly ignored. This was decidedly not the case, as the Europeans were able to explain in responses to comments aired at the TBT Committee Meetings. In fact, European leaders had deferred most of the difficult decisions about what substances required formal authorization until after the regulators were able to review the dossiers that the first registration deadlines had dropped in their lap. TANs were active in many of the advanced countries and their views on the importance of stringent regulation undoubtedly influenced the positions of advanced trading partners like Canada, Japan and even the US. The fact that diplomats began taking more care to praise the goals of REACH and the EU’s transparency before launching into their trade-based complaints is not surprising in a world where TAN campaigns are able to modify the positions of governments. But the mechanisms at work within the TBT show that the skill of the diplomats deployed by DG Trade was not their ability to persuade based on ecological “values” behind Europe’s preference for stringency, but more about the steps taken to maintain a level playing field that would

continue to provide export opportunities for the EU's trading partners, whether they be advanced or developing nations. The degree to which the EU had to persuade shows too that Brussels Effect economic factors may operate at a slower pace than required to dissuade others from proposing an alternative means of governing the policy area. It is easy to imagine a counterfactual where Europe had not given as much thought to learning the lessons from the debacle over GMOs (*see* Pollack & Shaffer 2009) and taken so much care to bullet-proof REACH from challenge under WTO rules. The effort to sideline challenges easily could have failed and the EU could have felt pressure to remove key features of REACH (like the universal registration requirement) or abandon the reform completely before the implementation process changed preferences of enterprise managers from hostility to an understanding that REACH, if not exactly a business opportunity, was a problem that could be managed. That realization would never have gotten a chance to settle in if the EU had not deployed a political strategy to overcome initial opposition.

The US “Blinks” and Reforms TSCA

For some time, pressure had been building within the US to reform its chemical safety laws. The way this pressure expressed itself within US political institutions meant that its impact was very different than the manner this same pressure expressed itself in the European Union the decade before. Differences aside, the result of the process in the US was a reform of existing laws in the direction of more stringency and at least the potential for the creation of a more comprehensive system to fill the “data gap” that developed under TSCA and to take action to ban or restrict chemical substances, either

existing or new, that posed “unreasonable risk” to human health and the environment.²²⁶ The Frank Lautenberg Chemical Safety for the 21st Century Act (“21st Century Act”) was passed by a bi-partisan majority Congress and signed into law by President Barack Obama in July 2016, a Presidential election year.²²⁷ The story of how it passed holds lessons on how transnational forces, both ideational and economic, can overcome institutional differences to achieve at least a measure of policy convergence. It also reveals the limits of these forces and how they can be redirected by structural features of political systems, in particular constellations of power between business lobbies, environmental activists and other political actors as mediated through existing political institutions.

TSCA treated “new” chemicals differently from “existing chemicals.” It also delegated to the EPA a key role in initiating investigations towards restrictions or bans based on information filed by chemical companies it regulated and information brought to its attention by other means, such as by activists or as a result of improvements in scientific knowledge. Administrative law as interpreted by federal courts in the United States placed several obstacles in the path of regulatory agencies. TSCA required the EPA to base its decisions on the “best” scientific information. Agencies like the EPA could not rely on outside experts unless the experts were formally constituted as advisory committees in accordance with certain procedures established by statute.²²⁸ Furthermore,

²²⁶ For evidence of the potential of the reformed TSCA to re-awaken EPA chemicals policy see “EPA Readies 150 SNURS Regulating PFAS Approved before TSCA Reform,” *Inside TSCA*, April 18, 2022. The article also explains that the agency is preparing order that will mandate toxicity tests of as many as 24 PFAS.

²²⁷ Pub L. 114-18 (June 22, 2016).

²²⁸ Federal Advisory Committee Act (Pub. L. 92-463), 5 U.S.C. App.

TSCA required the EPA to balance benefits and costs even in early decisions to request information from industry. It should not have been a surprise, therefore, when in *Corrosion Proof Pipe Fittings v. EPA*, the U.S. Court of Appeals of the 5th Circuit struck down the phased-in asbestos ban that the agency had issued after a painstaking decade of work.²²⁹ The appeals court found the EPA's order under Section 6(a) of TSCA to be flawed on a number of grounds, but particularly because EPA had failed to prove it had a "reasonable basis" to impose a phased-in ban on all uses as opposed to less drastic remedies. Particularly important in the court's analysis were the TSCA requirement that the agency base its regulatory decisions on "substantial evidence" and that it choose the "least burdensome" remedy required to achieve its regulatory goal. The chief result of this decision was to require the agency to justify its decisions to initiate early-stage investigations and to require industry to generate new information and conduct new testing programs even if there already existed strong scientific evidence to suggest that existing uses of chemicals posed "unreasonable risk" to human health and the environment.

The EPA responded to its asbestos defeat by halting any serious effort to restrict or ban chemicals under TSCA. The EPA had banned nine substances under TSCA prior to the *Corrosion Proof* decision, and banned zero substances afterwards. The regulators behavior suggested the influence of something like the following rationale: *if EPA cannot prevail in a phased ban of asbestos, a substance whose severe adverse health effects are well-known, what was the point of trying to ban any chemical?* The halt of investigations under TSCA raised the stakes for industry. The chemical industry had responded to past

²²⁹ 947 F.2d 1201 (5th Cir. 1991)

scandals such as the tragic gas leak at a plant owned by a Union Carbide subsidiary in Bhopal, India in 1984 by instituting a system of voluntary product stewardship safeguards called “Responsible Care.” The Chemical Manufacturers Association (CMA, the predecessor to the ACC) announced the industry’s voluntary efforts in an information campaign designed to convince the public that the industry “got it” (i.e. the public’s concerns about chemical safety) and that its voluntary program would be sufficient under existing US and local laws to manage the risks of accidental releases, workplace exposure and unsafe products.

As explained in earlier chapters, in the 1990s several well-known scandals generated widespread press involving chemicals and chemical products. These scandals raised public and scientific concerns about whether existing laws and the industry’s voluntary commitments were sufficient to manage the dangers that the scandals highlighted. This led to numerous people within industry and among outside experts who advised the industry on safety and health to worry that the lack of a comprehensive regulatory regime with the power to assess the safety of all chemicals products was leading the public to reject the reassurances issued by “experts” entirely and seek out alternatives to “man-made chemicals” in the products they used. Well-known companies-- with brand-images crafted to appeal to their customers, whether they be chemical manufacturers with trade-marked ingredients such as DuPont, Dow and Bayer, consumer-products companies who supplied grocery-store shelves with products that were formulated using man-made chemical ingredients such as Proctor & Gamble, large automakers like GM or retailers such as Walmart-- began to worry that industry needed

to “get ahead” of the consumer fears or lose in the marketplace.²³⁰ With TSCA, the chemical industry and its big customers could not argue with any credibility that its products had been reviewed by government regulators and found to be safe or even that the public had ready access to information it needed to judge the safety of chemical products. All the industry could say is that since 1976, its new products had been disclosed to the EPA but not that the thousands of well-known chemical substances in everything from bread to baby toys had been reviewed by independent scientists and found to be safe or safe enough for independent and reliable experts to recommend against restrictions or bans.

As TSCA became less relevant in the 1990s and 2000s, environmental NGOs stepped up their public campaigns, calling out several families of widely-used chemicals as unsafe for human health and the environment. The focus instead shifted from lobbying in favor of increased enforcement of existing laws and campaigns for new more stringent laws to direct campaigns designed to influence consumer behavior and punish industry for alleged misbehavior in the marketplace. The scandal involving lead-based materials in children’s toys and the worries about long-term exposure to such chemical additives as bisphenol-A in baby bottles and other household products were used effectively by environmental NGOs such as Environmental Working Group, WWF and Greenpeace to push their agendas. Retailers could not ignore these public campaigns and began to ask more their suppliers for more information regarding the safety of chemical substances in their products. Under the Clinton Administration, US trade officials sided with US producers in pushing back on European attempts to ban phthalates in several

²³⁰ Author interviews with former and current public affairs officials at large companies in the United States.

consumer products, but public concerns about the ingredients remained. Several large retailers led by Walmart announced initiatives to tighten their procurement policies and force their suppliers to sign pledges to reduce or eliminate known hazards from their products. These successful programs worried industry and a debate was initiated in many companies and industry organizations about the advantages that might come from the chemical industry “getting in front” of calls for reform of chemical safety laws.

The lack of any meaningful federal regulation of the safety of chemical products also did not mean that the chemical industry enjoyed freedom from regulatory or legal pressure on the use of its products in the United States. Progressively more restrictive state and local laws banning phosphates in household products, first in home-laundry detergent and later in automatic dishwashing soap, caused the cleaning industry to reformulate to replace phosphates with materials that did not promote algae growth in streams and ponds and choke out wildlife. In 1986 a ballot initiative called Proposition 65 gained support of the majority voters in California.²³¹ The initiative required the state to keep an inventory of chemical substances that presented known risks of cancer and reproductive toxicity and required anyone selling or using these chemicals to provide labels or post prominent notices warning the public of the hazards. Proposition 65 is widely acknowledged to have influenced decisions by manufacturers and retailers in the design of their products not just for California and have led to expensive settlements for violations that have gained the attention of business globally (Heinrich & Melman, 2020).

²³¹ The California Safe Drinking Water and Toxic Enforcement Act of 1986 gained as a ballot initiative support of 63% of voters expressing a preference in the general election that year.

Despite the defeat of EPA's ban, asbestos was systematically removed from the marketplace. In the absence of federal action, coalitions of private personal injury lawyers brought action on behalf of those who developed a dangerous form of lung cancer called mesothelioma after years of exposure, successfully challenging earlier industry decisions to hide the known hazards of asbestos from the public. First asbestos manufacturers like Johns-Manville and W.R. Grace & Co. then building materials companies like Armstrong Tile Co., were driven to seek bankruptcy protection to relieve the financial pressure of litigation. In the 1990s and 2000s the personal-injury bar continued to pursue mesothelioma claims against a variety of companies who had incorporated asbestos-containing components in their products or exposed their workers to asbestos in the workplace. The specter of a "new asbestos" to emerge from public campaigns against chemical products haunted chemical executives and their advisors during the years leading to the re-igniting of the movement to reform TSCA.²³² Scientific journals were now publishing peer-review studies exploring new ways that chemicals could cause harm. Acute toxicity and carcinogenicity had been the focus of past regulatory scrutiny, but nothing was known about the potential for long-range effects of otherwise low-toxic materials that persisted in the environment and was stored in human tissue over a lifetime. These low-dose exposure scenarios suddenly looked risky as studies emerged showing relationships between certain families of substances and reproductive fertility and human endocrine systems. These new risks were hard for industry to rebut because so few studies had examined the theories with any rigor.

²³² Author interviews with industry officials, regulatory affairs and public affairs, outside lawyers and a lawyer at an environmental NGO.

Early Efforts to Build a Reform Coalition

REACH, especially its “no data, no market” approach, had an immediate impact on the debate on chemical safety reform in the United States.²³³ Reaction in the US to Europe’s REACH proposal should be judged in light of independent trends that had convinced both activists and industry insiders that TSCA as it then existed did not serve anyone’s needs. Activists decried EPA inaction in the face of adverse court decisions and cited REACH as a model.²³⁴ Industry wanted to avoid a move in the United States to enact a REACH-like law.²³⁵ But at the same time, it wanted to counter the threat posed by regulatory efforts like California’s Proposition 65 and reign in the threat of personal injury lawsuits. Industry was convinced that the Commission’s REACH proposal would create a ruinously costly and possibly infeasible administrative monstrosity. Industry leaders were divided, however, on whether the best way to prevent a US REACH was to acquiesce to a reform of TSCA or continue the industry’s strategy of relying on its self-regulatory efforts as a good argument for why TSCA reform was unnecessary.²³⁶ The former group included key public affairs, scientific and regulatory personnel in large companies, both in chemical manufacturers and in key industries who relied heavily on chemicals as ingredients in the manufacture of their products. In the 2000s, a small group of such officials began meeting with key figures in the environmental NGO

²³³ “New European disclosure law shifts ‘burden of proof’ to industry,” Greenwire, June 23, 2008.

²³⁴ Richard Denison, science director of Environmental Defense Fund (EDF) stated that in suing the “no data, no market” concept, “REACH has acknowledged that there are tens of thousands of chemicals that have never been assessed or tested” and “recognized that the legacy of old chemical policy needed to be tackled and addressed.” “New European disclosure law shifts ‘burden of proof’ to industry,” Greenwire, June 23, 2008.

²³⁵ Mike Walls of ACC complained at the time that “its unfortunate that there’s this perception that REACH is now the gold standard in chemical regulation.” “New European disclosure law shifts ‘burden of proof’ to industry,” Greenwire, June 23, 2008.

community. First these meetings were exploratory and informal. They evolved into a more structured format, with a regular schedule and formal agendas. The cast of characters shifted, but according to insiders a core of officials from DuPont, Dow, Procter & Gamble, BASF and Bayer actively pursued “back-channel” discussions with environmental NGOs such as the Environmental Working Group (EWG), the Environmental Defense Fund (EDF), Greenpeace and WWF.²³⁷ According to several insiders, Richard Denison, senior scientist at EDF emerged as a key player for the environmental NGO’s in their dialogs with industry.

The group of self-styled industry “progressives” who sought this dialog had to contend with powerful forces within their own organizations who were receptive to the notion that industry should continue to block reform of TSCA or, if reform could not be blocked entirely, delay it as long as possible. This latter view reflected the judgment of top officials at ACC and influential members of its Board. More general business advocacy organizations such as the Business Roundtable, the U.S. Chamber of Commerce and the National Association of Manufacturers stayed out of the debate, deferring to the expertise and competence of the ACC on issues that impacted its members most. The “informal” dialogue with environmental NGOs was not undertaken by the institutional leadership of the largest organizations representing chemical manufacturers, but rather a self-selected minority from within industry. Nevertheless, insiders report that the fundamental architecture of what became the 21st Century Act was established in these private meetings in the years leading up to 2008 US Presidential Election.

²³⁷ Author interviews with current and retired industry officials and former Congressional staffers now active as public affairs consultants.

ACC Tacks Toward Reform

The United States had early taken the lead in challenging the European Union diplomatically on its REACH plan. The ACC, as the leading lobby of the chemical industry, was heavily involved in the effort. Without actively promoting its TSCA model or pursuing alternate designs in international forums, the US had convinced others to view REACH skeptically as an expensive and infeasible system that also represented an unprecedented international power grab and a protectionist threat from Europe. In the years after the period during which the George W. Bush Administration had been most active in opposing REACH (2001-2005), politics had shifted in the United States. First, the Democrats had retaken both houses of Congress in the mid-term elections in 2006. The 2008-2009 financial crisis had further weakened the prestige of prominent business leaders on Wall Street and for the moment tempered the influence of pro-business lobbying in Washington. Seen in this context, the victory of a junior Democratic Senator Barack Obama in the 2008 Presidential Election was not a surprise once he won the Democratic nomination and it was not particularly good news for the traditional industry lobbying strategy of resisting federal reform entirely and convincing the public that self-regulation by industry was all that was needed to keep them safe. In the early days of the new administration, top EPA officials hinted that the US would reform its laws in ways designed to accommodate REACH. Lisa Jackson, the new EPA Administrator spoke to the press at an OECD meeting on May 29, 2009 and stated that “there is some likelihood that there will be a new law [on chemical safety]” and that the reason was international commercial pressure inspired by REACH.²³⁸

²³⁸ “Jackson Says New Chemicals Law Likely, Hints at EU Cooperation,” Risk Policy Report, June 2, 2009.

The ACC surprised only those with no knowledge of the roiling debates within the chemical industry when it released its Ten Principles for TSCA Reform in 2009.²³⁹ The sense that the industry “had to get in front” of its public perceptions issue had overcome the reluctance of senior ACC staff and cautious board members to acknowledge that anything was broken. The ACC principles were hardly bold and visionary, but the fact that they were published at all signaled a level of flexibility that was genuinely new. Of particular note, in light of REACH, were Principles 2 and 3. ACC stated its belief that “EPA should systematically prioritize chemicals for risk evaluations” and that the risk evaluations should be “executed in an expeditious and efficient manner.” Principle four made clear that chemical companies and users of chemicals should be required to “provide EPA with relevant information to the extent necessary for EPA to conduct risk evaluations.” This addressed the key bottleneck in the investigation of “existing” chemicals under Section 6 of TSCA and signaled ACC’s

²³⁹ The 10 Principles were:

1. Chemicals should be safe for their intended use.
2. EPA should systematically prioritize chemicals for risk evaluations.
3. EPA should ensure its risk evaluations are executed in an expeditious and efficient manner.
4. EPA should complete risk evaluations within set timeframes. Companies that manufacture, import, process, distribute, or use chemicals should be required to provide EPA with relevant information to the extent necessary for EPA to conduct risk evaluations.
5. Potential risks faced by children should be an important factor in risk evaluations.
6. EPA should be empowered to impose a range of risk management controls to ensure that chemicals are safe for their intended use.
7. Companies and EPA should work together to enhance public access to chemical health and safety information.
8. EPA should rely on scientifically valid data and information, regardless of its source, including data and information reflecting modern advances in science and technology.
9. EPA should have the staff, resources, and regulatory tools it needs to ensure the safety of chemicals.
10. A modernized TSCA should encourage technological innovation and a globally competitive industry in the United States.

openness to a much more systematic regulation, if one that did not adopt the universal registration requirement in REACH. The Ten Principles to be clear did not endorse any version of the “precautionary principle.” Principle eight returned to long-standing themes in industry lobbying efforts to the effect that EPA should rely on “scientifically valid data and information.” ACC thus implicitly rejected the notion that EPA should regulate in absence of conclusive information “just to be safe.”

The EPA had already publicly released its “Six Principles” which it hoped would be addressed in any legislation aimed at reform of TSCA. These principles had a different intent than the ACC principles but there was substantial overlap. They were intentionally not bold (compared to Administrator Jackson’s comments to the press) nor did they break new ground. They set out broad themes but made an obvious point of leaving to Congressional staff much of the detailed work required to turn them into legislative proposals. The EPA principles were created with an awareness of the existence of the dialog initiated by industry “progressives” that at this point involved several large environmental NGOs. In a theme echoed in ACC Principle eight, the EPA principles stated that any reform should ensure that safety standards be based on established principles of science. This was only of limited assistance to the process because “science” itself had become an arm-wrestling match, with industry pushing back broadly against what they viewed as “junk science” on the health threats of toxic materials published in many peer-reviewed journals. EPA argued that TSCA should be reformed to address the information gap that had developed by encouraging industry to provide more information to the agency. Further, EPA believed that acceptable legislation should take explicit steps to ensure that the safety standards be crafted to protect more sensitive sub-populations,

such as small children and those with particular sensitivities to certain substances. EPA recommended that any constructive reform should establish a clear system for addressing “priority” chemicals in a timely matter. Any new law should encourage the growth of “green chemistry” by not putting any measures in place that would block industry efforts at innovation in that direction. Finally, protecting its own institutional role, EPA weighed in that any future legislation should provide a sustainable revenue source for agency review of industry-submitted material by raising significantly applicant fees and dedicating these fees for exclusive use by EPA’s chemicals programs.

Neither set of principles, it should be clear, called for the filling of the “information gap” on existing chemicals by creating a comprehensive registration system such as REACH. They only stated that “priority chemicals” be addressed in a “timely manner” not that all chemicals on the marketplace be subject to risk assessment by a certain date. EPA also did not take a position on the “precautionary principle” which was the conceptual centerpiece of REACH from the beginning. Its language stating that safety standards be based on science was open to interpretation and certainly was not designed to rule-out industry arguments that standards be based on “risk” not on “hazard” interpreted without regard to the type of likely exposure and other factors that could reduce theoretical hazards of exposure of a substance to an acceptable level of risk to human populations and the environment. Nevertheless, EPA intended to nudge the reform train forward, particularly by addressing the need for industry to provide more and better information. With its 10 Principles, ACC in essence signaled that it agreed with EPA on the need to address the data gap.

Industry had long used provisions in TSCA to successfully shield “business confidential information” they filed with the agency from public scrutiny. Court decisions following *Corrosion Pipe* had placed the agency in the position of needing to justify on a cost-benefit basis the issuing of even the most preliminary regulatory actions, such as those designed to gather more information on toxicology and environmental safety from industry at an early stage of an investigation. What this meant is that the members of the general public and environmental NGO activists were often not able to access good information regarding the safety of chemicals, even if the substances had been included in Section 5(b)(4) “concern” list under TSCA. EPA was targeting this aspect of the existing law because without a new way of requesting information before it had done enough work to complete a risk assessment that satisfied court-imposed requirements, EPA’s hands were tied. This circular “snake swallowing its tail” aspect of TSCA – the agency was prevented from requesting information because it lacked sufficient information on which to base the request—was addressed head on in both sets of principles and reflected some of the discussions that had already taken place between environmental NGOs and industry “progressives.”

US Congress Gets into the Act

The 111th Congress was sworn in on January 3, 2009 and soon put into key leadership positions Democratic politicians with a history of interest in chemical safety. Frank Lautenberg chaired the subcommittee of the Senate Committee on Environment and Public Works (EPW) with responsibility for overseeing TSCA. Senator Lautenberg had returned to the Senate in 2002 after retiring in 2000 and was keen, according to many observers, to make an impact in an area important to public health. He had expressed

pride in his prominent role in raising the national drinking age to 21 to address the crisis of teenage drunk-driving and his role in personally championing a ban on smoking on airplanes. He instructed his senior staff to ensure that among new hires were individuals with policy experience in matters relevant to public health. As part of this push, Senator Lautenberg hired Ben Dunham, a lawyer who had begun his career at Friends of the Earth. Dunham would play a prominent role in negotiations among staffers that led to the 21st Century Act. The chair of the Senate EPW Committee during this period was Barbara Boxer of California. She and Lautenberg had worked together on TSCA reform in previous Congresses and the expectation was that the Lautenberg Committee would push a reform agenda that would move the US significantly in the direction of stringency.

Progress was not swift, however as rescue packages for the financial system and the auto industry, healthcare and banking reform dominated the Congressional agenda in 2009. Lautenberg introduced in April 2010 the Safe Chemicals Act (S. 3209). The text of the bill proposed that the EPA develop a list of 300 priority chemicals for review, industry submit detailed information regarding their safety and then carry the burden of proof that these substances were safe in order to avoid restriction or ban.²⁴⁰ The new proposal fell short of proposing a full REACH-style registration and authorization system but moved substantially towards closing the information gap on substances that were suspected to cause risks to humans and the environment and shifting the burden of proof to industry.²⁴¹ The Lautenberg bill was read twice and referred to the Senate EPW. Early

²⁴⁰ Safe Chemicals Act of 2010, S. 3209, 111th Congress, April 15, 2010. (Accessed at congress.gov on February 19, 2022).

²⁴¹ Substances would be listed at the discretion of the EPA administrator “based on available scientific evidence, and consideration of their risk relative to other chemical substances, based upon presence in biological and environmental media, use, production volume, toxicity, persistence, bioaccumulation, or other properties indicating risk.” (2010 Bill, Section 6(a)(i))

in 2010, an election year, the prospects for passing a bill in the 111th Congress were seen as dim, a view expressed publicly by the head of toxics at EPA.²⁴² No further action was taken on the Senate side and there are no listed co-sponsors in the record. Apparently, Lautenberg's goal was to get the ball rolling and inspire tough legislative work that was expected to commence on the House side.

Chairman of the House Committee on Energy and Commerce Henry Waxman co-sponsored a TSCA reform bill, HR 5820, with five other Democratic members as co-sponsors in July 2010. The bill was referred to the subcommittee with responsibility for EPA's chemicals program chaired by Rep. Bobby Rush of Illinois. In March, a discussion draft based on the Lautenberg bill had been circulated and it framed discussion that took place at ten "listening sessions" to which various stakeholders were invited to give their views on "potential improvements to the technical and policy parts of the draft legislation."²⁴³ After wrap-up of the stakeholder sessions, the Rush subcommittee held hearings on HR 5820 in July. The consultation process was described by the ranking minority member, Rep. Joe Barton (R. Texas), in his testimony to the subcommittee:

[...] I want to commend you, Chairman Rush, and the full Committee, Chairman Mr. Waxman for the process. To your credit you have put your discussion draft out, you have listened to stakeholders, you have had meetings with myself, and Mr. Whitfield, and other Republicans, and you have indicated that you are not going to have a rush to judgment and no pun intended, Chairman Rush on this legislation. We have got an expert panel here today including the Administrator of the program at EPA. I suggest that we re-listen to them before we decide what to do.²⁴⁴

²⁴² EPA Toxics Chief Says Action on TSCA Reform 'Unlikely' this Congress," Superfund Report, April 5, 2010.

²⁴³ Hearing before the Subcommittee on Commerce, Trade and consumer Protection of the Committee on Energy and Commerce of the House of Representatives, "The Toxic Chemicals Safety Act of 2010", July 29, 2010, H.Rpt. 111-151, 11 ("Report of July 2010 Hearing").

²⁴⁴ Report of July 2010 Hearing, 12-13.

Nevertheless, Rep. Barton expressed skepticism that based on the nature of the legislative draft the current Congress could accomplish anything in an election year other than a “clean re-authorization,” meaning a re-authorization of TSCA without amendment.²⁴⁵

The environmental NGOs present at the hearing appeared happy with the process and testified in favor of the bill. Prominent among environmental NGO witnesses was Richard Denison of EDF, who focused in his testimony on the weaknesses of TSCA and the lack of credibility of industry self-regulation as a substitute. According to Denison’s testimony, environmental NGOs working as a coalition called “Safer Chemicals, Healthy Families” helped committee staff shape the Waxman bill through a consultative process that involved “all stakeholders” including industry. Denison strongly backed the bill as a necessary improvement to the flawed TSCA framework and was supported by fellow NGOs who testified, including representatives of the Environmental Working Group and the Connecticut Coalition for Environmental Justice.

Industry was strongly opposed to the bill. Industry “progressives” evidently had a difficult time influencing the shape of the Waxman bill and their companies had generally fallen back into line with ACC leadership in opposing the legislation. The transcript of the 2010 hearing reveals that Cal Dooley, the Executive Director of ACC, and Richard Denison engaged in an active debate, each asking for permission to “respond directly” to what the other said in striking departure from normal protocol where questions are posed by members not by other witnesses.²⁴⁶ The ACC’s position in

²⁴⁵ Report of July 2010 Hearing, 12-13.

²⁴⁶ Report of July 2010 Hearing. The hearing was dramatic, with exchanges like the following: “Mr. DENISON. Congressman, maybe I could respond to Mr. Dooley? I do think there is a fundamental misunderstanding of the bill. He said in his oil [*sic*] statement and again just now that somehow company—an individual company would have to go out and assess the exposure not only to their use of the chemical but to everybody else on the market. That is a fundamental

opposition to the Waxman Bill was supported by a wide array of organizations representing industry, including general business associations such as the National Association of Manufacturers as well as organizations representing retailers and manufacturers of consumer products that use chemicals. The ACC made sure to state that it did not oppose all efforts at TSCA reform, but strongly believed that the bill would impact jobs and innovation in the United States. This position seems to have been nuanced enough to prevent an open split among industry players.

Supporters of reform had to answer worries about jobs and innovation that had been raised by industry lobbyists. When Denison was asked by subcommittee chairman Rush how he would respond to concerns expressed by witnesses from industry groups and minority members in their opening comments that TSCA reform would destroy US jobs and weaken innovation, he had a response ready. Denison referenced the example REACH and explained how more stringent regulation would offer an opportunity for companies with sufficient human and capital resources to differentiate themselves through innovation. Denison testified:

The U.S. has fallen well behind much of the rest of the world in its chemicals policies and practices. And I think that one of the things that this bill will do is to raise the standards in the U.S. to those of other areas of the world including the major markets of the chemicals industry. The motivation behind the improvement in those standards in other parts of the world has been as much to promote sustainability and create a more sustainable chemicals industry as it has to protect health and the environment. And I fear

misunderstanding of the—that is a role for EPA under this legislation, not for an individual company to do those assessments. I just want to set that straight.

Mr. DOOLEY. Mr. Chairman, if I can respond to that is our reading of the legislation it is a clear statement that the burden of proof lies with the manufacturer. When you look at the safety standard and the obligation to assess aggregate exposures to a chemical that is bringing into the market, in no way does it state clearly that that is the responsibility of EPA. Now if that is the intent of the authors, then that is something that we would be more than pleased to work with you. But as we read the legislation today, that is a burden, and an obligation, and a responsibility on the industry.” Report of July 2010 Hearing, 173.

This exchange was mentioned again by Dooley in his testimony to a House Sub-committee in late 2013 as evidence of how far everyone had come towards bi-partisanship. See Report of November 2013 Hearing, 47.

that the industry in this country right now is in a similar place to where the auto was a decade or more ago where it fails to recognize where the rest of the world is going and where its own markets are going. We need to have therefore, an industry that is driven toward innovation, yes, but innovation that includes safety as a critical, central element of that innovation. I couldn't say it better than a member, a representative from DuPont, one of ACC's companies that said in response to the REACH regulation in Europe that they would—they as a company that invested heavily in R and D and innovation saw REACH as a business opportunity to innovate the new chemicals that would be [sic] restricted under REACH, and be out ahead of the current in terms of creating the jobs, and creating the new products that will satisfy the growing demand globally for safer chemicals.²⁴⁷

The author's interviews with industry representatives active on the "progressive" side confirm that the logic described by Denison influenced the thinking of their organizations only in part.²⁴⁸ The main worry was of the company's reputation and the main motivator of reformers was for their organizations to be seen "getting in front" of reform so that the ultimate design reflected their interests. The dialog between industry "reformers" and "activists" like EDF's Denison had created a common language and a set of shared assumptions among participants that was reflected in Denison's comments and in particular his reference to DuPont's view of REACH. The latter probably reflected the views of Linda Fisher, who was at the time Vice President and Chief Sustainability Officer of DuPont. Also during this period, relations between individuals at the companies engaging in consultation with environmental NGOs and the senior staff at ACC were tense and was characterized by a level of distrust that several recall vividly.²⁴⁹

The Failure of the Democratic Bills Opens the Path for Bipartisan Reform

In the end, confirming early doubts, the House failed to act on the Waxman Bill. There was no vote in the subcommittee or on the floor that year. As Representative

²⁴⁷Report of July 2010 Hearing.,170.

²⁴⁸ From author interviews with current and retired public affairs officials at large multinational firms who were participants in these consultations.

²⁴⁹ Author interview with public affairs official at leading consumer products company.

Barton hinted in his comments to the House Committee in July 2010, the majority's draft was opposed by industry and, given that opposition, the minority had no interest in reforming TSCA during an election year. The November 2010 midterm elections would not turn out well for the Democrats. The 112th Congress would be substantially different than the 111th. The Democrats lost control of the House of Representatives and, only by a one-vote margin, maintained control of the Senate. These dynamics now put industry in a powerful position to make TSCA reform happen on terms favorable to it.²⁵⁰ Some NGO leaders adopted a more optimistic stance in public, with Daniel Rosenberg of the Natural Resources Defense Council writing in a blog post that "now may be the best time for the chemical industry to try and honestly address" the problems with TSCA.²⁵¹ The task now became finding enough Democrats to make reform happen in the Senate.

Within weeks after new the Congress was sworn in, Frank Lautenberg put TSCA reform on the agenda of his subcommittee.²⁵² At a March 2011 hearing, Lautenberg stated that he was strongly considering introducing a revised version of the Chemical Safety Act. In July he indeed introduced S. 847, a revised bill which he described as incorporating the many suggestions he had received over the past year. Meanwhile, David Vitter emerged as the point-person for the Senate minority on chemical safety reform. Fred Inhofe had served as Ranking Member of EPW in the prior Congress but he was interested in becoming ranking member of the Arms' Services Committee rather than staying on at EPW. Sources I interviewed report that Vitter needed to restore credibility

²⁵⁰ "Divided Congress Could Hinder Prospects for Moving Toxic Reform Bills" Defense Environment Alert, November 9, 2010.

²⁵¹ "Environmentalists See New State, EU Rules Driving TSCA Reform in 2011," Risk Policy Report, November 16, 2010.

²⁵² For a contemporary account see the client report from the law firm Beveridge and Diamond archived at <https://www.bdlaw.com/content/uploads/2018/06/hope-for-tsca-reform-in-the-112th-congress.pdf>.

with leadership after personal scandals, meaning that Vitter was not in a position to say “no” when asked by Republican leadership to work with Lautenberg and ACC to see what could be accomplished on chemical safety reform. Prior to the March subcommittee hearing, Vitter had presented his own set of principles for reform, which expanded on the themes included in the ACC principles from 2009. He instructed his staff to work with Lautenberg’s to see what could be accomplished. At some point that summer, Senator Lautenberg’s staff signaled a degree of flexibility on the issue of confidential business information (“CBI”), a previous sticking point in stakeholder sessions. Industry insisted that companies would be discouraged from filing safety information if filing had the potential for compromising trade secrets, an important source of competitive advantage in the market for industrial chemicals where patents were often not available and public disclosure of technology through patent filings are contrary to commercial strategies. Environmental NGOs had been arguing that offering chemical manufacturers broad protection for CBI prevented the public from learning anything about the safety of chemicals that industry had reported under TSCA.

Despite the progress towards closing gaps made during negotiations among legislative staff, by early 2012 Lautenberg’s bill still had no Republican co-sponsors. Key observers had predicted little progress in an election year.²⁵³ Many believed that Senator Vitter’s strategy was to run out the clock before the 2012 elections.²⁵⁴ This did not mean that industry, especially those who had to face consumer resistance, had lost

²⁵³ “US Congress is not likely to reform TSCA before 2013,” ICIS Chemical News, March 21, 2011.

²⁵⁴ Author interviews with Senate EPW staffers.

interest in fixing TSCA.²⁵⁵ Industry leaders apparently understood that it needed to work with Democrats to get the reform they desired.²⁵⁶ In the summer of 2012, Harry Reid discouraged Lautenberg from bringing S.847 to the floor, essentially killing any chance for a vote that could be used to put political pressure on Republicans before November.²⁵⁷ In the end no votes on S. 847 occurred in the 112th Congress.

The 2012 elections were another mixed result. President Obama was reelected; the Democrats narrowed the Republican majority in the House of Representatives and widened their majority in the Senate. Nevertheless, the result did not change the reality that bipartisan compromise was required for any TSCA reform legislation to move forward. At this stage, both sides sensed the need to compromise.²⁵⁸ Joe Manchin, Democrat from West Virginia, initiated a series of meetings with David Vitter to see if there was any room for movement on bipartisan reform. Manchin was able to get a commitment from Vitter to instruct his staff to continue to work closely with Lautenberg's staff until a compromise was struck that ACC could accept. Once such a compromise was reached on main points at the staff level, the hope was that draft legislation reflecting those compromises could finally attract Republican co-sponsors.

²⁵⁵ "Upcoming Lautenberg Bill Could Be Key Test for TSCA Reform This Congress," Superfund Report, March 21, 2011. According to the reporter, Ernie Rosenberg, the head of the American Cleaning Institute (lobby representing the soaps and detergent industry) complained that "[t]he loss of public confidence [means] we're going to increasingly have retailers that are regulators, like Wal-Mart and Target." According to the press account:

Rosenberg went on to explain that industry wants 'to reduce deselection that is not based on a likelihood of injury, i.e., risk. This is a problem throughout the value chain, but especially at the retail level,' he said. 'The brands are the most important, so [companies] will often drop chemicals even if' there is no proven risk. He added that industry also needs to "reduce the proliferation of state and local programs that are fracturing the national market.'

²⁵⁶ "US Chemicals sector must deal with enviros in order to get TSCA reform," ICIS Chemical News", March 5, 2012.

²⁵⁷ Author's interviews with Senate EPW staffers.

²⁵⁸ "Vitter Eyes Piecemeal TSCA Reform To Counter Democrats Overhaul Bill," Toxics Regulation News, February 27, 2013.

Insiders I spoke to recall that engagement of industry trade associations and environmental NGOs at this stage was intense and constant. Industry representatives I interviewed reported that most of their time and effort was spent with Senator Lautenberg's staff, as Vitter could be counted on to support any compromise that won the support of ACC leadership and any wider industry coalition that ACC could assemble to lend support for reform.

The intense involvement of staff and the reputational stake of Senators Vitter and Lautenberg yielded results. In May 2013, Lautenberg and Vitter introduced a bi-partisan bill, the Chemical Safety Improvements Act of 2013 (S.1009) with 13 Democrats and 12 Republicans as co-sponsors. In a stunning development, Lautenberg died in early June from viral pneumonia. The fate of bipartisan chemical reform hung in the balance. Efforts were made to entice Senator Kirsten Gillibrand of New York to take over as point person for the Democrats to pursue bi-partisan chemical safety reform. Gillibrand declined the role, forcing the mantle to be passed to Tom Udall, Democratic Senator from New Mexico.²⁵⁹ Udall was a Senator with strong liberal credentials but also someone who needed to prove he could work constructively with Republicans on environmental and other issues important to Western States.

Meanwhile, Senator Boxer, chair of the EPW Committee, was championing a different legislative draft (S. 696) reflecting much more closely the pattern of chemical safety bills sponsored by Democrats in recent Congresses. This bill had a safety standard that was a closer fit to the preferences of environmental NGOs and contained pre-emption language that protected the power of states to adopt more stringent regulations

²⁵⁹ Author's interview with Democratic Senate staff at EPW.

than EPA. The EPW subcommittee in charge of the EPA toxics program held hearings on chemical safety reform on July 31, 2013, with both the bipartisan and Boxer drafts on the table.²⁶⁰ The hearing featured a set of witnesses assembled by Boxer and Vitter and the tone from the outset was very different than previous hearings. Neither of the principal antagonists from past battles, Cal Dooley of the ACC nor Richard Denison of EDF testified at this hearing. Senator Boxer presented statements by states' attorney general, state legislators and members of civil society in order to demonstrate the existence of a "wide range of voices" that remained in opposition to S.1009. In response, David Vitter presented S.1009 as a compromise crafted over many months that had support not only of industry but also past EPA administrators, several unions and citizen groups with a record of supporting more stringent standards for health, safety, and the environment. Vitter also revealed that he was working closely with Tom Udall and that they and their staffs had been meeting with many of the witnesses that were testifying with the goal of improving the bi-partisan bill. Senator Udall offered brief opening statements and read a statement into the record from Senator Lautenberg's widow urging support for completing her husband's work. Senator Manchin was invited to the hearing and his statement delivered after the first panels of witnesses had concluded openly addressed whispered doubts about Senator Lautenberg's capacity in negotiations with Vitter, stating his view that Lautenberg was in full possession of his faculties until the end and his active involvement had strengthened the bi-partisan bill in important ways. Many of the witnesses and much of the discussion by members and witnesses on the record focused

²⁶⁰ Hearing before the Committee on 'Environment and Public Works of the United States Senate, July 31, 2013. "Strengthening Public Health Protections by Addressing Toxic Chemical Threats." S. Hrg. 113-724 ("Report of July 2013 Hearing")

on the issue of “preemption”, i.e. the likely effect of the proposed reform to TSCA on states’ power to enact more stringent laws and regulations. Senator Boxer and the witnesses she had invited to the hearing expressed fears that S.1009 would make state action to control hazardous chemicals as well as private litigation against manufacturers of hazardous products much more difficult. At the center of this concern of course was California’s Proposition 65. In response, Senator Vitter expressed his view that neither he nor Frank Lautenberg intended to “neuter” Proposition 65 and promised to work together with Tom Udall and stakeholders to draft compromise language to make that point even more clear.²⁶¹

Health and environmental advocates were split on the merits of the bi-partisan bill. Natural Resources Defense Council (NRDC) and the EWG testified against the then current draft of S.1009 as “worse than the current law.”²⁶² Also testifying against the bipartisan bill were individual trial lawyers and various groups advocating on behalf of various public health causes such as an organization that advocated for victims of asbestosis. Also testifying in the final panel was an official of the Breast Cancer Association on behalf of Safe Chemicals Healthy Families, which now presented itself as a coalition of 450 organizations dedicated to reforming chemical safety laws. No one from Richard Denison’s organization, EDF, offered any testimony.

Senators Vitter and Udall invited two former assistant administrators at EPA to testify in favor of the bi-partisan bill: Steve Owens, then partner at a leading corporate law firm; and Linda Fisher, who then served as Vice President and Chief Sustainability Officer at DuPont. Steve Owens had served at EPA under the Obama Administration and

²⁶¹ Report of July 2013 Hearing, 138.

²⁶² Report of July 2013 Hearing, 348.

helped EPA Administrator Lisa Jackson draft the 2009 Six Principles. Owens testified that in his view the bi-partisan bill met the criteria the EPA had set in its Principles. Linda Fisher summarized the factors that had brought the industry “progressives” to support TSCA reform:

Without effective EPA regulation, we do see increasing numbers of State by State, chemical by chemical bans and restrictions. That makes it very difficult and introduces a lot of uncertainty into our business. In addition, consumers are more and more asking for data around the safety of products. Many of our customers are responding to concerns by doing their own bans. So we as an industry are subject to a lot of “private regulations” which are taking over because of the lack of a strong Federal program.²⁶³

Senator Vitter focused his remaining remarks and questions with an intention to counter arguments voiced by critics of the bi-partisan bill’s safety standard, which several of the witnesses had described as either no improvement or in several respects “worse” than the current standard. Vitter highlighted the fact that the proposed standard made clear that decisions on prioritization for review would not depend on a cost-benefit analysis.

Witnesses Owens and Fisher answered that this change from the TSCA standard would significantly enhance EPA’s powers and result in real improvements in the EPA’s work on chemical safety. This testimony did not impress Senator Boxer who emphasized that witnesses for the “minority” (the Senator’s term for those testifying for the bi-partisan bill) currently work for chemical companies whose operations would be impacted by the reformed TSCA. Senator Udall offered his defense of the proposed safety standard in careful language. He explained that as he understood the bi-partisan bill, it would allow the EPA to initiate investigations and then make decisions to regulate hazardous chemicals based on scientific evidence of hazard alone, and that regulators would only

²⁶³ Report of July 2013 Hearing. 183.

need to weigh risks of these hazards causing harm against economic benefits at the step of deciding on the scope of any necessary restrictions or bans. This somewhat chaotic hearing would be the only public hearing on TSCA reform held by the Senate in 2013.

Meanwhile the subcommittee of the House Committee on Commerce, Energy and Consumer Protection with jurisdiction over the EPA's chemicals programs had been holding hearings on TSCA reform.²⁶⁴ Rather than wait for the Senate to act on S. 1009, Republican House leadership wanted to keep things moving to maintain pressure on fence-sitting Democrats in the Senate. Rep. Stephen Shimkus, the Republican chair of the subcommittee of invited Senators Vitter and Udall to testify on the bi-partisan bill. Also invited to testify were Jim Jones, the then current assistant administrator for toxics at EPA and representatives of key stakeholders, including both industry and industry critics. The hearing took place on November 13, 2013 and its tone of was very different from similar hearings in front of this subcommittee in 2010. Significantly, ACC was now firmly on board in favor of TSCA reform. Reflecting a stunning shift, Richard Denison of EDF also testified in favor of S.1009. Denison offered this qualified endorsement of the bipartisan bill:

In May of this year, we saw a breakthrough with the introduction of CSIA[Chemical Safety Improvements Act]. The bill is both a promising start and far from perfect. It contains many elements of TSCA reform that need significant changes to actually deliver those reforms. I am convinced the problems can be addressed and bipartisan support needed to pass legislation.²⁶⁵

²⁶⁴ Hearings were held on different aspects of TSCA June 13 (history and impact of Title I), July 11 (Section 5 new chemical reviews) and September 18, 2013 (Section 6 restrictions and preemption). See Rep. Shimkus opening statement in Hearing before the Subcommittee on Environment and the Economy of the Committee on Energy and Commerce of the House of Representatives, "Regulation of Existing Chemicals and Role of Preemption under Section 6 and 18 of the Toxic Substances Control Act." H.Rprt. 113-83, September 18, 2013, p. 1.

²⁶⁵ Hearing before the Subcommittee on Environment and the Economy Committee on Energy and Commerce House of Representatives. "S.1009, The Chemical Safety Improvement Act." November 13, 2013. H. Hrg 113-92, 67 ("Report of November 2013 Hearing")

For his part, ACC managing director Cal Dooley noted the welcome change in tone and recalled:

You know, that [past contentiousness] all changed just this last year when, thanks to the leadership of Senator Lautenberg and Senator Vitter, they brought together diverse constituencies to work out some of our differences, and develop not a perfect bill by either of our perspectives, or any of our perspectives, but develop a balanced approach that could provide for meaningful improvements to TSCA regulations.²⁶⁶

Deputy Administrator Jim Jones offered testimony that was essentially supportive of the compromise even while withholding formal Administration endorsement of the bill itself. The environmental NGO community was split, however. The EDF had made a strategic decision to back the reform compromise, but other environmental NGOs for the moment continued to express serious reservations. A representative of the Safer Chemicals Healthy Families coalition testified against S.1009. Representatives of industries that use chemicals, such as electronics and cleaning products, endorsed the bi-partisan bill. Representative Fred Upton filed a written statement reflecting the hopes of the Republican leadership that the bi-partisan reform be enacted as a memorial to Frank Lautenberg. Henry Waxman, now Ranking Member of the Energy and Commerce Committee, filed a statement endorsing the idea of bi-partisan compromise on chemical safety reform but expressed opposition to S.1009 in its current form.

As the year concluded, the bi-partisan compromise struck by Frank Lautenberg and David Vitter was at an impasse. Barbara Boxer had successfully blocked Senate action on S.1009 and her opposition had dissuaded more Democrats from joining as co-sponsors. The Republican leadership in the House was keen on pushing TSCA reform

²⁶⁶ Report of November 2013 Hearing, 47.

forward now that industry was in favor, but without effective coalition for reform coming together in the Senate, this effort could not succeed.

Letter from “Moderate” Democrats Breaks Stalemate

The prospect for TSCA reform in early 2014 was generally seen as not good.²⁶⁷ Yet industry still knew that its members needed a deal, and made a public case that US leadership in reform was needed to counter REACH.²⁶⁸ A top Republican staffer on the House side, David McCarthy, gave a speech urging chemicals reform on the rationale that it would help American industry with exports if the US were close the gap between TSCA and the rest of the world, presumably including who were lining up behind REACH.²⁶⁹

The stage was set for a new set of actors to break the impasse. In early 2014, a group of eleven Democratic Senators²⁷⁰ led by Senator Tom Carper of Delaware issued a letter setting forth a set of changes that they sought in exchange for their support of the bi-partisan bill.²⁷¹ Capitol hill staffers I spoke to report that this was an attempt to corral

²⁶⁷ “Insight: Congress facing an Olympian task in reforming TSCA,” ICIS Chemical News, March 13, 2014.

²⁶⁸ Congress urged to move on TSCA reform to counter REACH,” ICIS Chemical News, March 5, 2014. In a speech to an industry-sponsored conference, ACC President Cal Dooley stated, “[r]ight now, some countries are making plans to create or amend their chemical systems. It is crucial that the US provides the leadership and guidance on the right path forward.”

²⁶⁹ “Economics driving bipartisan reform in Congress,” ICIS Chemical News, March 4, 2014.

²⁷⁰ In addition to Carper, the letter was signed by Senators Brown, Bennett, Coons, Heinrich, Levin, McCaskill, Murphy, Shaheen, Stabenow and Udall.

²⁷¹ Letter from Eleven U.S. Senators to Senator David Vitter, dated February 5, 2014 archived on Senator Carper’s website at <https://www.carper.senate.gov/public/cache/files/3/0/30325fa7-dde5-426b-9739-9c1c326beba2/B91E81FA645EF8693F64DBD768BFBB1A.tsca-letter-udall-vitter-inhofe.pdf> (accessed February 29, 2022). The letter listed nine points to improve S. 1009:

1. safety standard must be based on risk to health and environment not cost;
2. protect vulnerable populations;
3. enforceable schedule for priority chemicals;
4. EPA must have power to order studies before science is “in”;
5. standards for prioritization not too burdensome;
6. aggressive and achievable deadlines mandated;

the objections of fence-sitters in the Democratic caucus who had been intimidated into silence by Senator Boxer and her allies. Members were asked to clarify their objections to the bi-partisan bill, so that the combined staffs of Udall and Vitter could negotiate a set of changes that met these members stated objections and still win ACC's approval.

There was tremendous pressure on fence-sitting Democrats. Richard Denison published an op-ed defending the bi-partisan approach to reform taken by Vitter and Udall.²⁷²

Senator Boxer's influence against bi-partisan reform was also powerful. She acted as an advocate for a powerful networks of trial lawyers who feared that any compromise on federal pre-emption embedded in the bi-partisan language would harm their plaintiffs and not incidentally their own interests as well-paid advocates.²⁷³ The prospect of EPA getting to work and making affirmative findings that chemicals were sufficiently safe to avoid regulation would make private personal injury litigation more difficult. Senator Boxer's influence over EPW meant that reform would not happen in 2014.²⁷⁴

-
7. Customs must be able to block imports of materials banned by EPA;
 8. specify what constitutes final agency action (for appeals);
 9. EPA has dedicated resources from fees.

²⁷² "Whither TSCA Reform Post-Election?" by Richard Denison. States News Service, November 18, 2014. The essential point of his is that the best reform is TSCA is the one that can be passed by the current Congress and signed by the sitting President. Hope for a more protective or universal approach is to be captive to vain hopes and lose a tremendous opportunity.

²⁷³ Author interviews. Trial lawyers were and continue to be an important source of campaign funds for many Democrats. Senator Boxer's husband, Stewart, is a founding partner of a leading workers compensation and personal injury law firm in California. Experts I spoke to who were insiders to discussions in this period attribute much of Boxer's opposition to the bipartisan bill as a result of these ties to the personal injury bar.

²⁷⁴ "TSCA reform deal deteriorates," *Plastics News*, September 29, 2014. According to this account, Senator Boxer's refusal to advance the bi-partisan bill owed to her fears that it would take regulatory initiative away from the States, like California who wanted to adopt more stringent regulations.

Shift to Republican Control and Final Passage

The results of the 2014 midterm elections were not good for the Obama Administration or Congressional Democrats. The Republicans gained control of the Senate and increased their margin in the House of Representatives. The Republican margin (54 seats to 44 Democrats and 2 independents caucusing with Democrats) was not sufficient to overcome a filibuster. Cooperation with moderate Democrats in the Senate remained the only option for Republicans interested in passing a chemical safety bill that met industry approval, the only hope for which being to move forward with the bipartisan framework embodied in S.1009. In a surprising post-election move, Senator Boxer announced in January 2015 that she would not run for another Senate term in 2016. This early announcement of retirement removed what many participants saw as a real risk that she would continue to use her influence to achieve her oft-stated goal of preventing Senate action on the bipartisan bill.

As the new year began, to many observers, the issue of preemption of state law remained the biggest stumbling block to advancing the legislation.²⁷⁵ Senators Vitter and Udall introduced S.697 in March 2015. The short title of the legislation now carried the name of Frank Lautenberg, the late champion of the reform cause. The legislative text represented continued refinements to S.1009 that had been negotiated by Senators Vitter and Udall and their staffs. The draft contained an elaborate compromise on preemption that preserved many existing state toxics laws, but made clear that once the EPA had completed rulemaking either to enact restrictions or to make a finding that a chemical substance should not be restricted or banned, that decision would preempt conflicting

²⁷⁵ “Despite GOP gains, preemption remains major hurdle for TSCA reform,” Inside Washington (EPA), January 9, 2015.

state action. The real drama was on the Democratic side.²⁷⁶ Senator Boxer was in the minority and had announced her retirement. This meant that despite her not being satisfied with the compromises in the new text, the Senate EPW Committee could hold hearings on only one bill, S.697. An important dynamic making progress on the legislation more likely in 2015 was an understanding that had developed that industry would be willing to pay higher user fees to EPA under reformed TSCA in exchange for stronger federal preemption of state law. This trade had appeal both to industry and to those in the environmental movement that wanted progress on review of dangerous chemicals.²⁷⁷

The hearings, which took place on March 18, 2015, reflected a completely different dynamic from the committee's June 2013 hearings and featured a balance of testimony that much more closely resembled the November 2013 hearings in the Republican-controlled House.²⁷⁸ Senator Boxer, as ranking minority member, made a statement against the Udall-Vitter bill as she called it, and stated that she had not been permitted to put her competitive bill on the Committee's agenda. The witness list reflected the preferences of the bill's bi-partisan sponsors. Again, EPA's Jim Jones gave testimony favorable to the bipartisan framework. Richard Denison of EDF renewed the endorsement he offered in the November 2013 House subcommittee hearing. Industry had organized an umbrella group, called the Alliance for Innovation, that brought together chemical manufacturers with a wide array of industry groups representing

²⁷⁶ "Fate of Senate TSCA Reform Bid Hinges on Democrats' Uncertain Support," Risk Policy Report, January 20, 2015.

²⁷⁷ "'Gift' of Preemption could secure industry backing of TSCA reform fees," Environmental Policy Alert, February 18, 2015.

²⁷⁸ Hearing before the Committee on Environment and Public Works United States Senate. "Legislative Hearing on the Frank R. Lautenberg Chemical Safety for the 21st Century Act (S.697)." March 18, 2015, S.Hrg. 114-25.

customers and retailers. Evidence of wider support for bipartisan reform was provided by testimony from the March of Dimes, whose President testified that his organization believed the bi-partisan reform would improve the health of children. The testimony offered by the Safe Chemicals Healthy Families coalition at this hearing was more conciliatory in tone than in 2013, offering the coalition's hope that with continued adjustments to the bi-partisan framework its members might be willing to endorse it. In April, EPW approved a set of amendments to S. 697 that were designed to meet the requirements of the Democratic Senators who had signed the January 2014 letter, enticing four additional Democratic Senators to sign on as co-sponsors.²⁷⁹ Eventually, four labor unions (but not larger federations nor the politically influential United Steelworkers) offered letters in support of bi-partisan reform.

The full EPW committee issued a report on S.697 on June 18, 2015 that recommended floor action on the bi-partisan bill. Included in the report were minority views, signed by Senators Boxer, Cardin, Gillibrand, Markey and Sanders. These Senators cited numerous flaws in the bill and highlighted continued opposition to the legislation by the following organizations: the Safe Chemicals Healthy Families Coalition, the Asbestos Disease Awareness Network, Breast Cancer Fund, AFL-CIO, Center for Environment and Health, Environmental Working Group and the California Attorney General. Their statement also included a demand for comprehensive set of changes to S. 847 if they were to change their position of opposition.

²⁷⁹ Senators Booker, Carper, Merkely and Whitehouse.

On the House side, the Shimkus subcommittee held hearings in April 2015 on a proposed legislative text closely modeled on the bi-partisan S.697.²⁸⁰ Republican leadership introduced H. 2576 in May 2015 with bi-partisan co-sponsorship with revised language reflecting the committee's work. The House compromise on federal preemption was expressed in more concise language than the Senate version but preserved key features such as the express provisions protecting Prop 65 and tort litigation while making clear that final EPA action on a chemical would preempt conflicting state action.²⁸¹ After a vote 47-0-1 in favor, the House Committee on Energy and Commerce issued a report on June 23, 2015 recommending floor action.²⁸² The House passed H. 2576 on the same day by "yeas and nays" (398—1).²⁸³

Floor action on H. 2576 on the Senate side did not come until December, which took the form of a voice-vote with an amendment. Reconciliation of the two versions of the bill was therefore required which was completed in June 2016. A key stumbling block had remained in the form of two different versions of the preemption language in the two bills.²⁸⁴ The House passed compromise language based closely on the Senate version with an additional amendment by yeas and nays (403-12) which was later approved by unanimous consent in the Senate. The bill was sent to President Obama who signed it on June 22, 2016.

²⁸⁰ Hearing Before the Subcommittee on Environment and the Economy of the Committee on Energy and Commerce, House of Representatives. "H.R. _____, The TSCA Modernization Act of 2015." April 14, 2015. H.Hrg. 114-30.

²⁸¹ "House Democrats Say New, Narrower TSCA Bill Could Win Backing," Risk Policy Report, January 27, 2015.

²⁸² Report from the Committee on Energy and Commerce, US House of Representatives, "TSCA Modernization Act of 2015." June 23, 2015. H.Rpt. 114-176.

²⁸³ Roll No. 378.

²⁸⁴ "Chemical Sector Upbeat on TSCA Reform as States Advance Toxics Bills" Environmental Policy Alert, March 30, 2015.

Analysis

The passage of the 21st Century Act has interesting lessons to teach. First, it is broadly consistent with the expectations of the Brussels Effect. Industry became a strong advocate for tightening chemical safety laws in the United States. There was at least some evidence (Richard Denison's and Linda Fisher's testimony for reform) that industry embraced "California Effect" trading-up logic and actively welcomed being regulated by an EPA that had the power to compel evidence and perform "systematic" priority for "expeditious" review of the safety of existing chemicals and new chemicals alike. Yet industry did not rush to endorse Democrat-sponsored reforms in the 111th Congress when such legislation could have passed without Republican support. All it would have taken was for industry to have signaled to enough moderate Senators that they were willing to live with the Waxman Bill and it would likely have passed in 2009 or 2010. Industry instead took a bet that it didn't need to accept a bill that went too far in its safety standard and set a statutory pace for evaluating substances that threatened to be expensive for industry and give a platform for activist concerns. They opted instead to delay until the 2010 elections gave industry a Congress more responsive to their interests.

One reason why industry temporarily stepped off the reform train in 2009 is that industry was split between "traditionalists" and "progressives" and institutionally traditionalists held most of the power. Activist NGOs were initially enthusiastic about reform even though none of the Democratic bills sought to create a US version of REACH. REACH may have reflected the realistic hopes for US legislation of networks international activists who had taken part in the early planning of REACH and influenced the debate in European Parliament. But there was no consensus among scientists to bolster the case for US REACH. EPA's principles for reform were deliberately

conservative, reflecting the “risk-based” thinking common among government scientists regardless of their individual partisan inclinations. The lack of any serious effort to enact a US REACH is surprising in a world in which tight networks of scientists and activists had reached common understandings that reflected common values. The “precautionary principle” and “shifting the burden to industry” had supporters among activists but few supporters at EPA. There is not surprisingly, little evidence for the existence of an “epistemic community” with sufficient force to move large objects in American political life: powerful trade associations, trial lawyers, anti-regulatory fervor among Republicans and “conservative” jurists, and the rules of the US Senate. Interestingly a panel of experts convened with support of major industry associations came to favor a more far-reaching proposal for creating a “no data, no market” “polluter pays” model, but it was environmental activists who opposed any system where industry would be in charge of risk assessments.²⁸⁵ The ACC initially promoted the recommendations which were included in a speech written by John Graham, a veteran of the second Bush Administration and a professor of risk management at the University of Indiana. Graham’s proposal for a Canada-like system of “prioritization” with a big role for industry in generating data and performing risk assessments on substances identified by EPA as priority for review was rejected by Senator Boxer who likened it to the “fox guarding the hen-house.” Richard Denison also opposed the idea expressing his belief that in the US, any system run by industry would reduce EPA’s role to a “rubber stamp.”²⁸⁶ The irony is that Graham’s policy design was more like REACH and arguably

²⁸⁵ “TSCA Reform Push For Industry-Led Risk Assessments Faces Opposition.” Defense Environment Alert, March 10, 2015.

²⁸⁶ “TSCA Reform Push For Industry-Led Risk Assessments Faces Opposition.” Defense Environment Alert, March 10, 2015.

placed a bigger burden on industry than the bi-partisan blueprint that was being hammered out in Congress.

TANs were active on the margins, but what is striking is how the large international environmental organizations like Friends of the Earth, Greenpeace and WWF played a much smaller role at least on Capitol Hill. The Safer Chemicals Healthy Family Coalition included well-known environmental NGOs as members, but the structure seemed designed emphasize grass-roots connections within the United States and to downplay the degree that its networks overlapped with the those who advocated chemical reform at an international level. The special role that Dr. Richard Denison played in setting the agenda and bringing together different interests poses some challenges for analysis. Denison, a veteran negotiator of EPA's voluntary high-volume chemical "challenge", knew REACH intimately. As his Congressional testimony showed, REACH was clearly an inspiration for reform proposals and influenced his choice to build a coalition for chemicals reform in the United States that included industry. This push towards dialog outside the activist community and sympathetic politicians coincided with the gradual switch of industry preferences towards some sort reform of TSCA. Denison was committed to this vision, yet his NGO counterparts showed less enthusiasm and many organizations within the broad Safer Families Coalition stayed at a critical distance from bipartisan reform, especially before Senator Boxer lost her position as chair of the EPW Committee and announced her retirement from the Senate. In the end, Denison's EDF supported the bi-partisan reform even without the support of usual NGO allies such as the Sierra Club, NRDC and Environmental Working Group. This surprising trajectory for an activist does not follow the mechanisms that Keck and

Sikkink (1998) theorized nor does it show the signs of the power of “epistemic communities.” Rather it is a story that sits more comfortably in a world anticipated by theories that emphasize the role of politics and center the shift in preferences among industry advocates caused in large part by Europe’s strategy for promoting REACH as a sensible focal point for global reform. EU was able to prevail in large part because its comprehensive framework institutionalized conflict over chemical safety into a framework with consistent rules of broad applicability and long-lead times. This reflected the political strategy hammered out early by EU leaders, emphasizing that different stakeholders all had different roles but should come together around the aspirational banner of “sustainable development”

Overall, the story of chemical reform in the United States reveals the continued importance of domestic political variables in explaining outcomes. As such it is confirmation of the existence of institutionalist mechanisms expected within a world in which the Global Political Strategy approach (Farrell & Newman 2010; Newman & Posner 2010, 2016) prevails. The influence of political variables does not mean that the political strategy used by the European Union did not mold the debate. When ACC put TSCA reform on the bi-partisan agenda in 2009 this was in the push up to the first registration deadlines in November 2010. Most large American chemical companies had identified resources and implemented systems to achieve compliance with REACH’s registration deadlines. Some like Dow Chemical had announced that once having complied with REACH in Europe they would use it as the basis for their voluntary standard managing chemical risks in its global business.²⁸⁷ The EU political strategy had

²⁸⁷ Dow Chemicals 2010 Sustainability Report, p. 84.

already changed the world and ACC's Ten Principles reflected the new comfort that chemical companies had with higher regulatory stringency, at least if it was part of an overall framework that supported business needs for predictability and was open to its input.

Key EU Trading Partners Upgrade Their Chemicals Laws

A variety of countries have responded to EU's leadership in chemical safety by enacting new laws and regulations to implement more comprehensive regimes that put the burden on producers and sellers to prove that their chemicals and chemical-containing products are safe and move the governance approach towards the direction of "no data, no market." The degree of convergence with REACH has varied, but a clear direction towards more stringency in general and REACH concepts and procedures is evident. This section will not attempt a comprehensive survey of chemicals reforms passed since REACH was enacted in 2006, let alone attempt to analyze the politics of chemical reform in each country. Katja Biedenkopf (2013) has suggested in her analysis of South Korea's reform that the factors that lead to a decision to adapt local laws to REACH reflect a variety of processes. In the Korea case, Biedenkopf found that evidence exists for economic logics of asymmetric adjustment, idea-based logics of policy learning and diffusion, and institutional factors specific to internal Korean political dynamics. Korea is very dependent on the success of its manufactured exports to Europe and North America. It is a net importer of chemicals, many sourced from Europe, especially specialty chemicals needed to produce sophisticated manufactured products, but Korea is also a significant net buyer of commodity chemicals from Japan and China and to a lesser

extent the United States. Korea had already shown signs of moving towards more environmental stringency before the EU enacted its innovative REACH and actively sought to export it to mitigate any competitive losses. Yoshiro Naiko (2010) noted that Japan's 2008 reforms in chemical safety did not implement key REACH elements such as placing risk assessment burdens on industry. Rather it more closely followed the prioritization approach taken by Canada, in part due to industry's role in shaping the amendments. A fine-grained analysis of the politics of chemicals reform in key countries such as China, Turkey, Russia, Taiwan and Vietnam would shed more light on the relative weight of various economic, idea-based and local political and institutional factors that played a role. In this section, I will only offer a brief survey of the developments in key countries in the hope to inspire others to study these cases further. This section serves a useful purpose in bringing into broad focus the degree to which REACH has inspired *de jure* changes in chemicals regulation commensurate with the scale of *de facto* changes in chemicals management within export-oriented industrial sectors.

Canada and Japan, advanced industrial countries with long history of democratic governance and of enforcement of relatively stringent environmental standards, made limited reforms to their laws. Japan adopted a law requiring notification of new chemicals in 1973 and has continued to amend this law, most recently in 2017.²⁸⁸ Japan has preserved the distinction between “existing” and “new” chemicals for purposes of notification but now requires all producers and importers (including of substances included in articles imported into Japan) to report on the volumes of chemicals placed in

²⁸⁸ Act on the Regulation of Manufacture and Evaluation of Chemical Substances, Act No. 117 of 1973, Amendment of Act No. 53 of 2017

the Japanese market. Japanese regulators have also embarked on programs to prioritize investigations of certain classes of chemicals and impose restrictions and bans (Naiki 2010, 184-190). The new categories of priority chemicals were designed to pull under scrutiny existing chemicals that have dangerous properties, including bio-accumulative and persistent non-toxic substances. These categories partially reflect European priority categories like PBT, but Japan has also resisted European scientific consensus on the need to prioritize investigations in other fields such as nano-materials. Canada adopted new initiatives under its existing laws²⁸⁹ most notably in 2006 publishing a priority list of chemicals subject to evaluation as part of its Chemical Management Plan (CMP). The CMP is a joint responsibility of two Canadian ministries-- Environment Canada and Health Canada. Within this structure, Canada began a process of “categorizing” of existing chemicals and by 2017 Canadian authorities made an affirmative finding that 85% of the chemicals evaluated under the CMP did not require additional evaluation or authorization steps in order to remain on the market. In 2016, Canada published a list of 1550 substances that were high priority for further action to be completed by 2020.²⁹⁰ Thus in both cases, Japan and Canada responded to REACH by reforming their regulations to give authorities the ability to address risks posed by existing chemicals even if they did not institute a full-blown universal registration system for all chemicals.

Countries in East Asia with significant trade exposure to Europe adopted regulations that were more closely modeled on REACH. In these countries, which had a weaker tradition of enforcing strict environmental standards in a consistent fashion, the

²⁸⁹ Canadian Environmental Protection Act, 1999 (CEPA 1999)

²⁹⁰ Government of Canada, Chemicals policy website <https://www.canada.ca/en/health-canada/services/chemical-substances/chemicals-management-plan.html> (accessed March 2, 2022).

political demand for increased stringency could be met by a more wholesale adoption of the REACH approach. In 2013, the Korean Ministry of the Environment issued a regulation titled “The Act on Registration and Evaluation, etc of Chemical Substances” which most observers called “K-REACH” because of its many similarities with the European original. Biedenkopf (2013) found that REACH concepts and language were reflected in many aspects of the legislative design of K-REACH. Virtually all substances chemical substance placed on the Korean market, whether new (greater than 0.1tpy) or existing (greater than 1tpy) need to be registered. Thus, Korea’s reforms fully adopted the “no data, no market” approach taken by the EU as well as effectively shifted the burden of proof to businesses who wish to keep on the market chemicals whose hazards create a risk of exposure to humans or environmental damage. Taiwan has reformed its chemical laws and its Environmental Protection Agency imposed a universal registration requirement in 2019 for all chemicals through its Regulation on New and Existing Chemical Substance Registration.²⁹¹ Vietnam also reformed its chemicals laws in 2007 and has attempted to build a comprehensive list of all chemical substances in Vietnam which will serve as a basis for prioritization of further regulatory action. By 2020 Vietnam had made progress but had not yet completed its inventory of chemical products in use in Vietnam.²⁹²

Nations on Europe’s periphery which are highly integrated economically with the European Union also enacted reforms in their chemicals policy. The Turkish Ministry of

²⁹¹ See a summary of Taiwan’s legislation at <https://chemical.chemlinked.com/database/view/723> (accessed March 2, 2022).

²⁹² See the REACH 24H website report on Vietnam regulations at <https://www.reach24h.com/en/news/industry-news/dynamics-of-vietnamese-regulations-on-chemicals-and-the-national-chemical-inventory.html> (accessed March 2, 2022).

Environmental Protection in 2017 issued its comprehensive regulation for Registration, Evaluation, Authorization and Restriction of Chemicals (known by its acronym in Turkish of “KKDIK” but also familiarly as “Turkey REACH”), creating a system that very closely follows REACH in most details, including provisions related to the creation of SIEFs to share data and limiting animal testing.²⁹³ Members of the Eurasian Economic Union (EAEU) made up of former Soviet republics who are closely tied politically and economically to the Russian Republic in March 2017 issued in The Technical Regulation of Eurasian Economic Union (EAEU) on Safety of Chemical Products to implement a registration system designed on the European model.²⁹⁴ This regulation commonly referred to as “Eurasia REACH” or “TR041” seeks the implementation of mandatory compliance procedures required for chemical products placed on the EAEU. Implementation had taken longer than anticipated and the date that had been announced for its effectiveness (in 2023)²⁹⁵ is clearly in question given recent geopolitical events.

China began a process of revising its environmental laws in the 2000s in the period of rapid trade growth after its entry into the World Trade Association. China started late in establishing a system for chemical risks—first addressing known hazardous substances with its Hazardous Chemicals Regulation in 2008. China had expressed a great deal of anxiety about the effect of REACH on its exporters, many of which are relatively small operations whose ability to navigate the technical aspects of REACH registration were limited. China established a “help desk” for its exporters and received

²⁹³ See the summary of Turkey REACH at the website of consultant REACH 24H at <https://www.reach24h.com/en/service/chemical-service/kkdik-turkey-reach.html> (accessed March 2, 2022).

²⁹⁴ TR.No.041/2017 approved on March 3rd, 2017

²⁹⁵ See the summary of the EEUU (*Russia, Armenia, Belarus, Kazakhstan and Kyrgyzstan*) at <https://www.reachlaw.fi/eurasia-reach/> (accessed March 3, 2022).

support for the EU through training and technical assistance (Festel, Evans and Jackson 2008, 22-23). China implemented its first regulation of the safety of most chemicals when the then Ministry of Environmental Protection issued its Order No. 7 (“MEP 7”) in 2010. Like TSCA, MEP 7 instituted a system requiring manufacturers, importers and only representatives of foreign manufacturers to pre-notify authorities prior to putting new chemicals on the market. In 2015, China published a new “Catalogue of Hazardous Substances” listing chemicals which were subject to registration requirements and subject to possible evaluation and restriction.²⁹⁶ In 2018 the newly revamped and expanded Ministry of Ecology and Environment (MEE) issued its Order No. 12. In 2020, China amended MEE 12 and repealed MEP 7, creating with the issuance of a new guidance document a comprehensive regulatory program that reflected many elements of REACH. The revised regulations went into effect only in 2021 so there remain questions about how stringent Chinese regulation of chemical safety will turn out to be in practice. Nevertheless, the direction of Chinese reform towards stringent rules and comprehensive disclosure systems is noticeable. All of this was enough for some industry observers to see evidence that China had adopted the EU’s “race-to-the-top” rationale for pushing innovation by use of regulatory stringency.

Interestingly, there are some indications at least parts of China’s governments hold the Porter hypothesis to be true. Individual chemical parks such as the one in Shanghai are now taking the lead with regard to global regulation, applying limits which in some cases are even below those applicable in Europe or the US. It seems that the Chinese government has recognized that becoming a regulatory leader can eventually turn into a competitive advantage with regard to innovation. This is part of a broader trend of China trying to be at the forefront of research rather than an imitator, as it is clear China aims to be with regard to graphene versus its earlier position in silicone. Once China has the lead, it is no longer sufficient for global chemical companies to just apply their global best practice in

²⁹⁶See a summary of the registration requirement on the CRIS website at <https://www.cirs-group.com/en/chemicals/hazardous-chemicals-registration-in-china> (accessed March 2, 2022).

China (which they tend to do anyway)—instead, they need to come up with real innovation. Particularly if China’s regulation is extremely tight, this innovation may well have to be radical rather than just incremental.

(Elsevier R&D 2016)

Nevertheless, China still has not implemented a universal registration regime that covers all “existing chemicals” above a minimal volume threshold and the English-language pronouncements of its Ministry of Ecology and Environment favor splashier coverage of the speeches of top leaders on broad topics over any content that is useful to international enterprises seeking to comply with the new regulations.²⁹⁷ For such guidance, interested parties are obliged to engage one of several private sector consultants who specialize in such matters.²⁹⁸

Analysis

A more complete and satisfying exploration the politics of chemical regulation among the EU’s trading partners would clarify the mix of economic, ideational and politico-institutional forces at work in each case. That exploration is beyond the scope of this project. However, some conclusions already are worthy of noting from only this cursory survey. First, the sequence of events—a flood of new regulations and new regulatory initiatives under existing authorization immediately following the enacting of REACH—is consistent with a conclusion that REACH played an important role in these countries subsequent regulatory trajectory. At that level, Europe’s bid for international leadership has to be judged at least a limited success. Second, trade intensity with Europe clearly played a role the various countries. Korea had direct experience with

²⁹⁷ See China’s Ministry of Ecology and Environment website at <https://english.mee.gov.cn> (accessed March 2, 2022).

²⁹⁸ See for example, the website maintained by CRIS at <https://www.cirs-group.com/en/chemicals/measures-for-the-environmental-management-registration-of-new-chemical-substances> (accessed March 2, 2022)

European product regulation in the form of the rules around hazardous materials in electronics and its demand that disposal of wastes from electric equipment be built into the design of products. As a net importer of chemicals, Korea was concerned not just with access to the European market for chemical materials but primarily the role of its companies in complex supply chains whose endpoint is final consumption and waste disposal in Europe. Like Korea, Taiwan is a net importer of chemicals and an important exporter of manufactured goods, especially technically sophisticated components of consumer electronics and computers. Future investigations could reveal the extent to which competitive ambitions drove these exporters of sophisticated manufactured goods to use tight integration with European regulatory standards as a differentiator from rivals like China and Vietnam. China is a net exporter of chemicals and the trade balance in chemicals with Europe is slightly positive. Like Korea and Taiwan, China has a much larger trade exposure to Europe in basic manufactured goods, many of which contain chemical materials as inputs. China quickly adopted European standards around electronic wastes in the early 2000s (Naiki 2010, 179). China has been a huge recipient of foreign direct investment and many plants built with FDI are built with developed-country technical and regulatory standards built in, whether it be private standards such as ISO 9001 (quality management), 14001 (environmental management) or 45001 (workplace safety). Interviews with industry officials in Asia promise to reveal the role played by familiarity with ISO standards that have proliferated in international procurement policies contributed to an acceptance of “race-to-the-top” towards stringency as a competitive differentiator. Anecdotal evidence hints, notably in China, that this logic was indeed powerful in convincing governments to help more of its

domestic firms climb the ladder of quality by setting a firm floor on minimum practices through mandatory regulations on health and safety.

Conclusions

The Global Political Strategy approach offers a compelling explanation to what would otherwise be a puzzling set of events. Europe proposed an innovative reform of global chemical safety policy that was greeted with outright opposition by the United States and widespread skepticism by trade officials of many nations. Europe overcame this opposition by showing transparency and responsiveness to criticism. Meanwhile, REACH implementation projects involved a wide variety of international actors in the work of making the new system of universal registration work. The successful completion of registration changed preferences among key private and state actors around the world. This change of preference led to changes in national laws to better align domestic policy with the reality that REACH was already a focal point of compliance among chemical enterprises focused on the international market. This particular story is not well explained by the GCS approach. The decisive actors in driving this shift of preferences were not global activists (Keck & Sikkink 1998) nor credentialed scientists “speaking truth to power” (Haas 2014) but compliance professionals at international chemical companies and legions of paid consultants to industry acting within the practical constraints of a linchpin global industry under significant pressure from domestic political critics and emerging rivals in China. The contrast with the paradigmatic case of CFC bans (Haas 1992B) or cases cited by Keck & Sikkink (1998) as evidence of their “boomerang effect” mechanisms is dramatic.

The factors theorized as leading to the Brussels Effect (Bradford 2020) all make their appearance in the record. However the particular sequence of events – from opposition to accommodation—also shows that political strategy played a role at several key junctures. Once EU enacted REACH and moved to the implementation stage, economic logics reinforced decisions by influential actors to accommodate their practices to Europe’s standards and processes rather than exit from Europe or attempt to challenge REACH and replace it with something more favorable to their interests. There is evidence that California effect logic played a role in shifting preferences in the United States and among big exporters in Asia. Yet Europe would not have gotten to the stage of influencing preferences through its implementation efforts if the international community had united in opposition to REACH and a more significant challenge brought at the WTO. Europe first had to use its diplomatic skills to convince the world that opposition to REACH was not the most important item on the world body’s trade liberalization agenda. It clearly helped that the Commission had thought a great deal about international impact of the White Paper and planned accordingly. Thus the overall story is more consistent with the expectations of the Global Political Strategy approach than the GCS approach. There simply is no evidence that “consensus” around the what constituted an appropriate risk policy towards chemicals had developed among scientists. Considerable debate continued about what constituted sufficient evidence of unacceptable risks and thus there is little evidence that an “epistemic community” had formed with the coherence and the political skill to shift global governance in the direction of higher stringency. Instead, abundant evidence exists that career politicians, generalist bureaucrats and diplomats with ties to Europe’s

three mainstream political movements conceived of REACH as a project to help cement the Single Market and sought to limit the competitive damage to Europe by internationalizing its reforms. The EU budgeted time and money to help trading partners adjust to REACH. The Commission rolled out an implementation plan that was designed to appeal to industry and succeeded in shifting the conversation enough to allow REACH to succeed on its own terms. These choices of political strategy and tactics proved decisive.

CHAPTER 5 – CONCLUSIONS

EU's design for REACH and the political strategy it used to promote it as a global model have important lessons to teach those interested in global governance. The role of traditional political movements suggests that political theories that trumpet the salience of "post-materialist" politics and move unconventional political actors to the forefront of political analysis, may be ignoring important features of the current landscape. These lessons are especially relevant for those interested in understanding the dynamics of the politics of man-made climate change. The case of REACH has limited lessons for those interested in understanding the dynamics that could lead to the creation of an international regime for enforcing mutual promises to reduce greenhouse gas emissions to a level necessary to achieve the mitigation targets set by global panels of experts. This type of ambitious coordination on emissions reduction goals is outside the scope conditions that drove EU success in chemical safety. The case of REACH has much more to say about the potential that the EU might be able to use its market power to establish standards for climate-friendly or "sustainable investing" through its various unilateral initiatives that drive institutional change globally. At the end of the chapter, I will offer suggestions for areas for future research to extend and reach more fine-grained conclusions about the right mix of factors and sequencing steps that could allow unilateral efforts at global governance to lead to real changes on a global scale.

International Governance: Necessary Elements for Success

The EU's success with REACH holds some important lessons for would-be international governors of global markets for products and services that pose risks for society and the natural environment. The farther the policy area diverges from regulation of the health and safety risks posed by the introduction of products and services in a national economy, the weaker are the lessons to be drawn from REACH.

A potential global governor wishing to regulate risks posed by the everyday use of products and services without subjecting its producers and service providers to competitive losses will achieve success if: (i) it has sufficient economic power expressed in the size of its home market; (ii) it can deploy the regulatory capacity needed to write and enforce the rules, with such capacity understood chiefly as the power to exclude products and services from its home market if they do not adhere to the procedures and rules the governors establish; (iii) the product and service markets are structured to make exit from the home market costly for international actors (i.e. they exhibit inelasticity and non-divisibility); and (iv) the governor deploys a political strategy designed to overcome international opposition to its preferred policies and discourage rivals. The first three elements are expressions of the Brussels Effect phenomenon as it was described and analyzed by Bradford (2020; 2012). The final condition is a clear implication of the Global Political Strategy extension to Bradford's work that I proposed in Chapter 2.

The case study of REACH presented in Chapters 3 and 4 support valid inferences about the importance of the EU's political strategy to its governance success. The Commission's political strategy allowed the EU to overcome early diplomatic opposition

and push implementation efforts that encouraged key economic actors around the world to shift preferences regarding more stringent rules. Especially among the largest international companies, natural hostility toward a burdensome regulatory scheme gradually shifted to an acceptance of the inevitability of change and a search for ways to secure a seat at the table when EU institutions set policy and to minimize friction with local regulations that could lead to duplicate compliance costs and lead to greater unpredictability. By focusing on a political strategy developed by traditional political actors (the three mainstream political movements that dominate European politics) the case provides the raw material for re-assessing the key role that transnational activist organizations (TANs) and international networks of credentialed scientists (“epistemic communities”) have been assigned a prominent role in explaining change in international environmental policies.

The case also reveals the importance of sequencing, path dependency and increasing returns, elements that has been highlighted by institutionalist scholars following Pierson (2000) that can best be analyzed using the tools of process tracing. In the case of REACH, the EU used its political strategy to create an early impression that many divergent interests had put aside differences in the hope to make the reform effort work and that the WTO open trading system and international market dynamics had been anticipated in regulatory design. The combination meant that opposition to EU’s REACH proposal gradually lost its hold over the policies of rival powers. This allowed enough time for the regulation to be enacted and influence the economic decisions of key actors through their participation in numerous RIPs. While there was some evidence that actors were swayed by the economic logic “trading up” identified by Vogel and others

more evidence existed of a range of rationalizations for cooperating with REACH that are better explained by the “satisficing” behavior described by Simon (1986; 1985) and others in a world characterized by limited information and “bounded rationality.”

This study also sheds light on the general-level theoretical controversies that raged as IPE emerged as a distinct sub-field of political science. The implication of political strategy playing a large role in governance success is that there is a definite role for human agency in the evolution of international rules. The structure defined the levers of influence that EU leaders could pull, but prudent choices about tactics and goals most certainly played a role in allowing Europe’s approach to policy to prevail. Contingency also played a role, as it would not have been surprising if the intervention of the High Level Group and the three Heads of State, or the 2004 European Parliament elections stopped REACH in its tracks. The conflict between Europe and the Bush Administration over Iraq may have played a role making politicians more willing to “take on the Americans” as almost certainly did the heavy-handedness of the US lobbying effort against REACH in 2002 and 2003. The politics of deepening the Single Market and expanding the EU into central Europe required the main pro-European political movements to work together. Such work was based on a fundamental compromise where free movement of goods, capital and labor would prevail but not at the expenses of basic social protections associated with the European “social model.” With the admission of new states in the mid 1990s, environmental stringency was included within such basic elements of the European model under the broad banner of “sustainable development. For these and other reasons, the three main European political movements closed ranks and solidified support around a political compromise on chemical safety that

addressed enough of industry's worries and the criticism of trading partners (other than the United States) to keep the diverse members of the coalition that came together around the REACH proposal in the Commission's early "stakeholder sessions" pulling in the same direction.

The analysis of how REACH played out internationally also reveal that many of the theoretical expectations of institutionalist scholars (Farrell & Newman 2010; Fioretos 2010; Newman & Posner 2010, 2016) that are incorporated features of the Global Political Strategy approach. Domestic political and institutional differences continue to matter and condition how global economic forces unleashed by international reform efforts impact the actual unfolding of events in the national context. It is difficult to imagine the particular coalition that formed around the 21st Century Act in the United States forming without REACH already being established as a fact given the greater role played by business lobbies in US politics and the role of lobbies of plaintiffs' lawyers to resist any effort to federalize toxics policies within EPA at the risk of removing opportunities for advocacy through the tort system.

The implications of the study for different strands of institutionalism should also be mentioned. In general, the focus of institutionalists on the mechanisms of change and "stickiness" of institutions and path-dependency are vindicated by the differences in result when one compares how Europe and the United States responded to the same activist pressure, the same demand of citizens for products they can trust and the same industry skepticism about comprehensive regulatory programs. Institutions clearly matter, with the different party systems and distribution of veto parties (like the US Senate) affecting the result. It clearly makes a difference that there is no center-right movement

in the United States that finds any political advantage in appearing to “get” the environmental worries of voters. Yet, this lack did not make enough of a difference once industry had decided that it preferred centralized regulation under EPA to the chaos created by the prospect of proliferating state product bans and mandatory safety warnings and rulings of judges and damages awards of juries in the civil justice system. Reform happened differently in the United States, but reform occurred nevertheless. Confidence in the mechanisms of Rational-choice institutionalism should suffer a bit, as there was weak evidence in the case that classic maximizing behavior was the basis for the shift in preferences among influential chemical companies. As mentioned above, the rationality showed by economic actors was much more in the variety of “bounded rationality” in that judgments such as “we have to get a seat at the table” “we need to get in front of this” were heuristics that became more compelling not upon the accumulation of quantifiable evidence of advantages to more stringent regulations but because the REACH system vocabulary and processes resembled other systems of voluntary standard setting and regulatory initiatives that staff people within enterprises believed they could master.

Constructivism would appear to suffer in the light cast by inferences that arise from studying the case of REACH. These inferences from case, however, only call into question certain specific applications of constructivist and sociological theorizing featured in middle-level theories about how TANs and epistemic communities drive global change. The mainstream pro-European political mindset is an elaborate construction, and the beliefs and values that taught European politicians how to use politics of aspiration and the language of international pronouncements on sustainable development to defend their policies were important factors that prove “ideas matter.” It

was not the ideas of nontraditional political actors and post-materialist value entrepreneurs--“sub-politics” as in Beck (1999)-- but mainstream politicians seeking to move European integration forward and create new arguments for strengthening the Single Market. The notable role of certain individuals, like Bjorn Hansen in Europe and Richard Denison in the United States, suggests that knowledge can speak to power in a constructivist sense. Yet, both Hansen and Denison were able to wield influence not as norm entrepreneurs but as technically fluid connectors that could get industry and activist representatives in the room and find elements of common ground in a program of centralized regulation. Both fell firmly down on the “ecological modernist” side of the divide Blowers (1997) drew to separate from the proponents of the “risk society” those who wanted to reform the existing system by creating new “expert systems” to manage risk, rather than subjecting existing society to top-to-bottom critique from the standpoint of a new set of post-materialist values. Hansen and Denison’s individual influence, although not trivial, was a function of how well their expertise and personal influence reflected the imperatives of an overall policy design that was still rooted in traditional politics.

Political Strategy and the Challenge of Human-Caused Climate Change

Since the late 1980s consensus has been building that average atmospheric temperature has risen since the early 1900s and that this rise is caused primarily by emissions of carbon dioxide and other forcing compounds by human activity. Since the early 1990s human-caused climate change has been the target of a multilateral diplomatic effort to understand it and to develop policy responses to mitigate its effects, which are increasingly seen as dire. The international effort has centered on big multi-lateral

meetings, starting with a framework convention at the Rio “Earth Summit” in 1992 and proceeding through various meetings resulting in the Kyoto Protocol in 1997, the Copenhagen Accord in 2009, the Doha Amendment to Kyoto in 2012 and finally the Paris Agreement in 2016 and COP26 in 2021. Political scientists have understood the international challenge as one of overcoming collective action problems and dealing with distributional challenges and free-rider problems (Colgan et. al 2020). When framed this way, there is little that can be learned from EU’s successful leadership in chemical safety reform to shed light on this dilemma. Europe has tried to lead and has consistently made concrete pledges of reduction and taken formal steps to ratify the protocols, while the United States failed to ratify Kyoto and took a complete hiatus from meeting Paris pledges and any further engagement on the issue during Administration of President Donald Trump. Events have shown that Europe may have less power to use its market as leverage to force changes in emissions globally than it did in chemicals. There are simply too many leakages, too many ways that European standards could be ignored, if they were based on Europe’s power to regulate its own market. Europe attempted to export its cap-and-trade program on carbon emissions to airline flights anywhere in the world, but abandoned the plan quickly when major carriers threatened to pull out of Europe if their flights outside of Europe were subjected to European rules about caps and offsets. The United States Congress passed a law in 2012 prohibiting US carriers from participating in the EU program and China threatened to withhold orders for planes from Airbus if foreign flights were not exempted.

Europe may have greater power to move the world towards sets of standards for “sustainable investing” and for qualifying certain investments as “environmentally-

friendly” in the sense of meeting overall emission reduction goals. In 2021 Europe issued the final version of its Sustainable Finance Disclosure Regulation. The Regulation defines obligations and sets standards by which corporate issuers and investment managers describe their efforts related to climate and sustainability. EU has also announced as a key priority of Ursula von der Leyen’s Commission the launch of a program of investments in sustainable technology as part of the larger “European Green Deal.” The Green Deal is integrated into a comprehensive industrial strategy that is designed to help Europe navigate the “transition towards climate neutrality and digital leadership.”²⁹⁹ In order to finance the “Green Deal” and accomplish the “twin ecological and digital transitions” Europe is taking steps to create a market for financial instruments (“green bonds”) that would be used exclusively to finance projects that meet set criteria for achievement of emission reduction and other environmental sustainability goals. A task force appointed by the Commission has been working on a set of criteria called the “EU taxonomy for sustainable activities” by which investment projects would be scored on common criteria based on sustainability goals.³⁰⁰ Those projects that meet the most favorable criteria would be entitled to tap capital in a new market for “Green Bonds” and would allow investment managers to meet their obligations in connection with investment products they will be permitted as “sustainable investments.” The Commission is also considering creating a standard “green label” for consumer products

²⁹⁹ “Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions: A New Industrial Strategy for Europe.” Brussels, 10.3.2020, COM(2020) 102 final. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0102&from=IT> (accessed March 24, 2022), 2.

³⁰⁰ Sustainable finance taxonomy - Regulation (EU) 2020/852. For a description of the taxonomy and its role in Europe’s sustainable finance initiatives see the Commission’s website at https://ec.europa.eu/info/business-economy-euro/banking-and-finance/sustainable-finance/eu-taxonomy-sustainable-activities_en (accessed April 2022).

tioned to taxonomy criteria. Europe has played a prominent role in supporting the UN's Global Compact which has developed relationships with an array of private and philanthropic bodies that are creating self-regulatory standards as part of a Sustainable Stock Exchanges Initiative³⁰¹ that is a cooperative venture of several UN-connected agencies and the private Global Reporting Initiative. Like with REACH, European initiatives come clothed in aspirational language and equipped with concepts vetted in private standard-setting initiatives which makes it easy for private parties to modify their preferences and jump on board programs that may curtail some flexibility advantages associated with the "free-market" but also promise to increase regulatory transparency and comparability, widen the breadth of markets and reduce risk of pursuing uncoordinated efforts. Securities issuers and investment professionals could enter sustainable investment markets with greater confidence that others are required to meet similar high standards of disclosure and reporting. EU leaders are using the same behaviorist playbook as they used in REACH to entice private organizations around the globe into partnerships taking place in spaces where European concepts and preferences hold sway.

A key driver in the success of any European initiative on climate will be the potential for the sustainable finance taxonomy to proliferate globally following the logic of the *de facto* Brussels Effect. The investment industry in the United States is looking for ways that they can pursue investment strategies based on ESG ("Environment, Social and Governance") style investing, which is the way sustainability investing is referred to in the marketplace for investment advice. The popularity of ESG investing is growing

³⁰¹ See the website for the UN-affiliated Sustainable Stock Exchange Initiative. <https://sseinitiative.org> (accessed April 2022).

rapidly and top investment managers like Apollo Management, Blackstone Group and Fidelity, and institutional investors like pension funds, have all announced commitments to improving the criteria they use to guide their ESG investing and have signed onto efforts towards uniform standards through such private standard-setting organizations as the Principles of Responsible Investing (PRI), which is integrated with other private and IGO efforts such as the Global Reporting Initiative and the Sustainable Stock Market Initiatives. The PRI provides input to the EUs sustainable finance initiatives and taxonomy and will serve as an important transmission belt between US capital markets and the EU. Major investment managers and institutional investors are also closely monitoring efforts by the SEC in the US to adopt rules that will aid the growth of sustainable investing in the United States. [Describe SEC proposal on mandatory climate disclosures] These mechanisms of international adjustment are similar to the Brussels Effect mechanisms revealed as operating in the case of REACH. The insights arising out of this project can inform future research projects examining the trajectory of sustainable investing as a reform concept.

The European approach to climate politics is also grounded in traditional materialist concerns for growth and the strategic place of Europe in the world. By putting climate transition in the context of industrial strategy Europe again ensures that environmental NGOs and other activists line up with industry as critical supporters of key European initiatives. Europe takes its role as a leader seriously and continues to evangelize for its regulatory concepts in the hope that they become global standards. Again, the appeal to activists is to encourage pragmatic “ecological modernism” and raise popular optimism that there need be no final reckoning when the European social and

economic model needs to be sacrificed in order for Europe to meet aggressive “zero carbon emissions” and zero waste “circular economy goals.”

Suggestions for Further Research

The main lessons from this research project point towards several promising areas of research. While it is clear that the three major political movements that have steered Europe from the beginnings of the Union also were instrumental to the success of REACH, this study has not undertaken an intellectual history of the European approach to consensus politics in order to determine its likely prospects in the face of new challenges. Since the Euro Crisis and Brexit it has become commonplace to worry about “democratic backsliding” and the appeal of populist Euro-skeptic and anti-immigrant policies. Perhaps more attention should be paid to the strategies the mainstream pro-European parties pursue to counter this appeal. Interestingly, in a book from the mid 2010s, “risk society” pioneer Anthony Giddens (2014) abandoned much of his critique of mainstream materialist politics in the face of his worry that populist movements of the right and left threaten Europe unless Brussels and Frankfurt figured out alternatives to austerity and economic stagnation. Important lessons could be drawn from REACH on how the politics of aspiration and the search for consensus both strengthens and weakens the European project. Energy policy, an area that is increasingly pushing France and Germany in different directions, could be one candidate for close scrutiny in this context. Chemicals policy itself is now entering new territory with the release of Europe’s Chemicals Strategy for Sustainability³⁰² and plans for industrial transition towards a zero-

³⁰² European Commission 2020. For an introduction to the Chemicals Strategy for Sustainability see https://ec.europa.eu/commission/presscorner/detail/en/speech_20_1915 (accessed April 2022)

waste “circular economy.”³⁰³ Part of this is a debate over the concept of “essential uses” now proposed as a frame for justifying removing any potentially hazardous materials from the supply chain unless there are “no alternatives that are acceptable from the standpoint of environment and health.”³⁰⁴ These initiatives have important international dimensions and the REACH case has important lessons to teach about the prospects for Europe’s success in pursuing them.

A greater exploration of the shift in the role of science in “risk politics” would also yield great insight. The theorists of the “risk society” included in their project the “contextualizing” of expert science and subjecting it to a withering critique. According to 1990’s era Beck and Giddings, scientific expertise was only of limited value in instructing citizens about what risks they should take. Both advocated as part of their program of “reflexive modernism” the need to subject scientific claims to rigorous scrutiny and open up space for people with different views informed by their particular social positions and cultural preferences to influence politics. The politics of science and risk in some sense has “traded places” in an echo of Keleman and Vogel’s 2010 title used to describe Europe’s move past the US towards as global leader on risk policy. A relatively tight group of climate scientists has used its expertise in building large climate models to force practitioners of traditional disciplines such as geophysics, atmospheric science and meteorology to the margins of the debate. With the accumulation of evidence, the victory of activist climate scientists has been nearly total at the official level and it now it is to court criticism as a “climate denier” to question the confidence the

³⁰³ For links to Europe’s “circular economy action plan” (CEAP) see https://ec.europa.eu/environment/strategy/circular-economy-action-plan_en (accessed April 2022).

³⁰⁴ European Commission 2020, 10.

climate science community has in the predictive value of their complex models. Now “science” is pitted against “science-deniers” except the deniers are the ones who want to take more risk with the natural environment. It is the “scientists” who are now behind activist efforts to combat an “existential threat” to “survival” of the species and planet, and the defenders of “tradition” and the “common sense” of regular citizens are generally those who are in favor of slowing down efforts to transition away from carbon.³⁰⁵ Social science research could productively engage in these questions with some of the themes explored in this study of chemicals policy serving as a guide. The tools of constructivism and historical institutionalism could yield great insights into the processes that drove this change.

Finally, some of the inferences I draw from process tracing and expert interviews could be subjected to additional empirical tests, some perhaps using quantitative methods. I had initially hoped to survey mid-level compliance professionals about their roles as subject-matter experts and the decision-making processes used by their organizations to adapt a strategy around REACH. Unfortunately, too few remembered enough about REACH and that time-period in their jobs (a brief 18-month period in 2007 and 2008 for many) to volunteer. The task of completing surveys was not impossible, but in the crush of time, I dropped it from my research plan due to worries about reliability of evidence. A survey of compliance professionals is the type of project that would fit within research programs looking at organizational dynamics and business decision-making and weighing the extent to which “satisficing” behavior and “bounded

³⁰⁵ French philosopher of science Bruno Latour (2004), for example, abandoned his “non-modernist” critique of science and since then has staked out an argument upholding the truth claims of science. The reason is apparently his rejection of climate “deny-ism.”

rationality” replaces “profit maximization” as the real driver of outcomes in most organizations.

BIBLIOGRAPHY

- Abdelal, Rawi. 2009. *Capital Rules: The Construction of Global Finance*. Cambridge, MA: Harvard University Press.
- American Chemistry Council (ACC). 2009. 10 Principles for Modernizing TSCA.
- American Chemistry Council (ACC). 2018. *Jobs and Economic Impact*, Washington, DC: American Chemistry Council.
- Avant, Deborah D., Martha Finnemore and Susan K. Sell. 2010. "Chapter 1: Who governs the globe?" In Deborah Avant, Martha Finnemore and Susan K. Sell eds. *Who Governs the Globe?:* 1-31. Cambridge: Cambridge University Press.
- Bach, David and Abraham L. Newman. 2007. "The European regulatory state and global public policy: micro-institutions, macro-influence." *Journal of European Public Policy*, 14(6): 827-846.
- Beck, Ulrich. 1992. *Risk Society: Towards a New Modernity*. London: Sage Publications.
- Beck, Ulrich. 1999. *World Risk Society*. Cambridge, UK: Polity Press.
- Beck, Ulrich. 2016. *Metamorphosis of the World*. Cambridge, UK: Polity Press.
- Bennett, Andrew and Jeffrey T. Checkel. 2016. "Process tracing: from philosophical roots to best practices." in Bennett, Andrew and Jeffrey T. Checkel eds. *Process Tracing: From Metaphor to Analytic Tool*. London and New York: Cambridge University Press.
- Biedenkopf, Katja. 2013. "Assessing possibilities for enhanced EU-South Korea cooperation on chemical regulation." In Alex Marx, Jan Wouters, Woosid Moon, Yeongseop Rhee, Sunhee Park and Mattieu Burnay, eds. *EU -Korea Relations in a Changing World:* 167-194. Leuven, Belgium and Seoul, Korea: Leuven Centre for Global Governance, KU Leuven, and Graduate School of International Studies, Seoul National University.
- Biedenkopf, Katja. 2015. "EU Chemicals Regulation: Extending its Experimentalist REACH" in Zeitlin, Jonathan ed. *Extending Experimentalist Governance: The European Union and Transnational Regulation*. New York and London: Oxford University Press.
- Blowers, Andrew. 1997. "Environmental Policy: Ecological Modernisation or the Risk Society?" *Urban Studies* 34(5-6): 845-871.

- Blyth, Mark. 2013. *Austerity: The History of a Dangerous Idea*. London and New York: Oxford University Press.
- Bradford, Anu. 2020. *The Brussels Effect: How the European Union Rules the World*. New York: Oxford University Press.
- Bradford, Anu. 2012. "The Brussels Effect." *Northwestern University Law Review* 107(1): 1-64.
- Brickman, Ronald. 1984. "Science and the Politics of Toxic Regulation: U.S. and European Contrasts." *Science, Technology & Human Values* 9(1): 107-111.
- Busch, P-O, Jörgens, H. & Tews, K, "The Global Diffusion of Regulatory Instruments: The Making of a New Environmental Regime." *Annals of the American Academy of Political and Social Science* 598: 146-167.
- Castells, Manuel. 2010. *The Rise of the Network Society, 2nd Edition*. New York: John Wiley & Sons.
- Clapp, Jennifer and Eric Helleiner. 2012. "International political economy and the environment: back to basics?" *International Affairs* 88(3): 485-501.
- Conseil European de Federations Chimiques (CEFIC). 2018. *Facts and Figures of the European Chemical Industry 2018*. Brussels: European Chemical Industry Council (CEFIC) at www.cefic.org.
- Corporate Europe Observatory. 2005. *Bulldozing REACH—the industry offensive to crush EU chemicals regulation*. Corporate Europe Observatory, March, 2005.
- Colgen, Jeff D, Jessica F. Green and Thomas N. Hale. 2020. "Asset Revaluation and the Existential Politics of Climate Change. *International Organization* 75 (Special Issue 2: Challenges to the Liberal International Order: International Organization at 75): 586-610.
- Council of the European Union. 2001. *Strategy for a Future Chemicals Policy, Council Conclusions*. Brussels: 9857/01.
- Dalton, Richard. 2000. "Citizen Attitudes and Civic Behavior." *Comparative Political Studies* 33:6-7, 912-940.
- DHI Water and Environment. 2005. *Report to DG Environment: The impact of REACH on the environment and human health (revised final report)*. Høsholm, Denmark: DHI Water and Environment.
- Di Gagni, Joseph, 2004. "REACH and the Long Arm of the Chemical Industry." *Multinational Monitor* 24(9).

- Douglas, Mary and Aaron Wildavsky. 1983. *Risk and Culture: An Essay on the Selection of Technological and Environmental Dangers*. Berkeley: University of California Press.
- Drezner Daniel. 2007. *All Politics is Global: Explaining International Regulatory Regimes*. Princeton, NJ: Princeton University Press.
- Eckley, Noelle and Henrik Selin. 2004. "All talk, little action: precaution and European chemicals regulation." *Journal of European Public Policy* 11(1): 78-105.
- Eurobarometre 123. 2002. "Perception du développement durable et préoccupations environnementales des Européens." DG ENV and Gallup Europe, May 7, 2002.
- Environmental Working Group. 2015. Environmental Working Group letter "House TSCA Update Fails to protect public health" dated April 14, 2015 published at www.ewg/release
- European Chemical Agency. 2011. The operation of REACH and CLP. ECHA-11-R-003-EN, 30 June 2011.
- European Commission. 2001A. *White Paper: Strategy for a future Chemicals Policy*. Brussels: COM/ 2001/ 88 final.
- European Commission. 2001B. *Press Release*, February 13, 2001.
- European Commission. 2001C. *Stakeholders' Meeting on the Commission's White Paper, Conference Report*. Brussels.
- European Commission. 2002. *Agenda: Conference on the Impact of the New Chemicals Policy*, 21 May 2002. Brussels.
- European Commission. 2003A. *Legislative Proposal to the Council and Parliament on REACH*. Brussels: COM/2003/644.
- European Commission. 2003B. *Commission Staff Working Paper, Extended Impact Assessment*. Brussels: (2003) 1171/3.
- European Commission. 2013. *General Report on REACH. Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of Regions*. Brussels, 5.2.2013, COM(2013) 49.
- European Commission. 2017. *Commission General Report on the operation of REACH and review of certain elements, Conclusions and Actions. Communication from the Commission to the European Parliament, the Council and the European Economic and Social Committee*. Brussels, 5.3.2018, COM(2018) 116.

- European Commission, 2020. *Chemicals Strategy for Sustainability Towards a Toxic-Free Environment*. Brussels, 14.10.2020 COM(2020) 667 final.
- European Council. 2000A. *Statement of Heads of State at European Council at Nice*. COM(2000), 2.2.2000.
- European Council 2000B. *Presidency Conclusions, Lisbon European Council, 23 and 24 March 2000* COM(2000), 24.3.2000.
- European Parliament. 2005A. *Committee report tabled for plenary, 1st reading*. A6-0315/2005.
- European Parliament. 2005B. *Decision by Parliament, 1st reading*. T6-0434/2005.
- European Parliament. 2006. *Recommendation for second reading of the Council common position on REACH*. A6-0345/2006.
- Eurostat. 2020. trade data on chemical products at [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Sold_production_and_trade_of_chemical_products,_EU-28,_2018_\(EUR_million_and_%25\).png](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=File:Sold_production_and_trade_of_chemical_products,_EU-28,_2018_(EUR_million_and_%25).png)
- Fairfield, Tasha and Andrew Charman. 2017. "Explicit Bayesian Analysis for Process Tracing: Guidelines, Opportunities, and Caveats." *Political Analysis* 3(5): 363-380.
- Farrell, Henry and Abraham L. Newman. 2010. "Making global markets: Historical institutionalism in international political economy." *Review of International Political Economy* 17(4): 609-638.
- Festel, Gunter, David Evans and Brian Jackson. 2008. "Sectoral Study 4 of 5" from *Trade Sustainability Impact Statement for the Negotiation of a Partnership and Cooperation Agreement between EU and China*. European Commission, implemented by the Emerging Markets Group and Development Associates.
- Fioretos, K. Orfeo. 2010. "Capitalist Diversity and the International Regulation of Hedge Funds." *Review of International Political Economy* 17(4): 696-723.
- Finnemore, Martha and Michelle Jurkovich (2020), "The Politics of Aspiration." *International Studies Quarterly* 0: 1–11
- Frieden, Jeffrey. 1991. "Invested Interests: The politics of national economic policies in a world of global finance." *International Organizations* 45(4): 425-451.

- Ford, Lucy. 2018. "Chapter 2: Transnational actors in global environmental politics." In Gabriela Kütting and Kyle Herman eds. *Global Environmental Politics. Concepts, Theories and Case Studies, 2nd Ed.*: 28-46. London: Routledge.
- Fröhwein, Torsten. and Bernd Hanjürgens. 2005. "Chemicals Regulation and the Porter Hypothesis, a critical review of new European chemicals regulation." *Journal of Business Chemistry* 2(1): 19-36.
- Giddens, Anthony. 1990. *The Consequences of Modernity*. Stanford, Calif.: Stanford University Press.
- Giddens, Anthony. 2014. *Turbulent and Mighty Continent: What Future for Europe?* Cambridge, UK: Polity Press.
- Gilpin, Robert (with Jean M. Gilpin). 2001. *Global Political Economy: Understanding the International Economic Order*. Princeton, NJ: Princeton University Press.
- Gerring, John. 2017. *Case Study Research: Principles and Practices, 2d Ed.* Cambridge, UK: Cambridge University Press.
- Gough, Claire. and Simon Shakley. 2001. "The Respectable Politics of Climate Change: The Epistemic Communities and NGOs." *International Affairs* 77(2): 329-345.
- Gourevitch, Peter. 1986. *Politics of Hard Times*. Ithaca and London: Cornell University Press.
- Haas, Peter. 1992A. Introduction: Epistemic Communities and International Policy Coordination, *International Organization* 14(1): 1-36.
- Haas, Peter. 1992B. "Banning Chloroflourocarbons: Epistemic Communities and International Policy Coordination." *International Organization* 14(1): 188-224.
- Haas, Peter M. 2004. "When Does Power Listen to Truth? A Constructivist Approach to the Policy Process." *Journal of European Public Policy* 11(4): 569-592.
- Hall, Peter A. and David Soskice (eds). 2001. *Varieties of Capitalism: The Institutional Foundation of Competitive Advantage*. New York: Oxford University Press.
- Harrell, Sarah. 2007. "Beyond REACH? An Analysis of the European Union's Chemical Regulation Program under World Trade Organization Agreements." *Wisconsin International Law Journal* 42: 471-522.

- Heinrich, B. and D. Mehlman. 2020. "The Long Reach of Proposition 65." *National Law Review*, March 10.
- Heitmann, Kerstin and Antonia Reihlen. 2007. *Case Study on 'Announcement effect' in the market related to the candidate list of substances subject to authorization*. Hamburg: Institut für Ökologie und Politick.
- Heyen, Dirk A. 2013. "Influence of the EU Chemicals Regulation on the US Policy Reform Debate: Is a 'California Effect' within REACH?" *Transnational Environmental Law* 2:1: 95-115.
- Ikenberry, G. John. 2002. "American Unipolarity: The Sources of Persistence and Decline." In ed. Ikenberry, *America Unrivaled: The Future of the Balance of Power*: 284-310. Ithaca and London: Cornell University Press.
- Inglehart, Ronald. 1977. *The Silent Revolution: Changing Values and Political Styles Among Western Publics*. Princeton: Princeton University Press.
- Inglehart, Ronald. 1997. *Modernization and Postmodernization: Cultural, Economic and Political Change in 43 Societies*. Princeton: Princeton University Press.
- International Council of Chemicals Associations (ICCA) 2019. *Catalyzing Growth and Addressing Our World's Sustainability Challenges; Report: The Global Economic Footprint of the Chemical Industry*. Oxford: Oxford Economics.
- Iversen, Torben and Ann Wren, "Equality, Employment, and Budgetary Restraint: The Trilemma of the Service Economy," *World Politics* 50(4): 507-546.
- James, Scott C. and David A. Lake. 1989. "The second face of hegemony; Britain's repeal of the Corn Laws and the American Walker Tariff." *International Organization* 43(1): 1-28.
- Jupille, Joseph, James A. Caparaso and Jeffrey T. Checkel. 2003. "Integrating Institutions—Rationalism, Constructivism and the Study of the European Union." *Comparative Political Studies* 36(7): 7-40.
- Kagan, Robert. 2003. *Of Paradise and Power: Europe and the United States in the New World Order*. New York: Alfred A. Knopf.
- Kapstein, Ethan. 1989. "Resolving the Regulator's Dilemma: International Coordination of Banking Regulation." *International Organization* 43(2): 323-347.
- Katz, Richard S. and Peter Mair. 1992. *Party organizations: a data handbook on party organizations in western democracies, 1960-90*. London: Sage Publications.
- Keck, Margaret E and Kathryn Sikkink. 1998. "Chapter 1: Transnational Advocacy Networks in International Politics: Introduction." In *Activists Beyond Borders*:

Advocacy Networks in International Politics: 1-38. Ithaca, NY: Cornell University Press.

- Keleman, R. Daniel. 2010. "Globalizing European Union environmental policy." *Journal of European Public Policy* 17(3): 335-349.
- Keleman, R. Daniel and David Vogel. 2010. "Trading Places: The Role of the United States and the European Union in International Environmental Politics." *Comparative Political Studies* 43(4): 427-456.
- Keohane, Robert & Joseph Nye, J. 2012. *Power and Independence, 4th edition*. Boston: Longman.
- Kitschelt, Herbert. 1994. *The Transformation of European Social-Democracy*. Cambridge, UK: Cambridge University Press,
- Koremenos, Barbara, Charles Lipson and Duncan Snidal. 2001. "Rational Design: Looking Backward to Look Forward." *International Organization* 55(4): 1051-1082.
- Krasner, Stephen. 1983. "Chapter 1: Structural Causes and Regime Consequences: Regimes as Intervening Variables." In *International Regimes*, ed. S. Krasner, 1-22. Ithaca: Cornell University Press.
- Krasner, Stephen. 1991. "Global Communications and National Power: Life on the Pareto Frontier." *World Politics* 43: 336-366.
- KPMG. 2005. "Impact of REACH on Four Downstream Industries. Brussels.
- Lake, David A. 2013. "Theory is Dead, Long Live Theory: The End of the Great Debates and the Rise of Eclecticism in International Relations." *European Journal of International Relations* 19(3): 567-587.
- Latour, Bruno. 2004. "Why Has Critique Run Out of Steam? From Matters of Fact to Matters of Concern." *Critical Inquiry* 30(2): 225-248
- Le Breton, David. 2012. *Sociologie du Risque*. Paris: Presses Universitaires de France.
- Mattli, Walter. and Tim Büthe. 2003. "Setting International Standards: Technological Rationality or Primacy of Power?" *World Politics* 56 (1): 1-42.
- Mattli, Walter. and Tim Büthe. 2010. "Standards for global markets: Domestic and international institutions for setting international product standards." In *Handbook on multi-lateral governance*, 455-467. London: Edward Elgar Publishing.

- Moravcsik, Andrew. 1997. "Taking Preferences Seriously: A Liberal Theory of International Politics." *International Organization*, 51(4): 513-554.
- Mythn, Gabe. 2007. "Reappraising the Risk Society Thesis: Telescopic Sight or Myopic Vision." *Current Sociology* 55(6): 793-813.
- Naiki, Yoshiko. 2010. "Assessing Policy Reach: Japan's Chemical Policy Reform in Response to the EU's REACH Regulation." *Journal of Environmental Law* 22(2): 171-195.
- National Research Council. 1984. Report of the Steering Committee on Identification of Toxic and Potentially Toxic Chemicals for Consideration by the National Toxicology Program, Board of Toxicology and Environmental Health Hazards, Commission on Life Sciences. *Toxicity Testing: Strategies to Determine Needs and Priorities*. Washington, DC: National Academy Press.
- Newman, Abraham L. and Elliot Posner. 2010. "International Interdependence & Regulatory Power: authority, mobility & markets." *European Journal of International Relations* 17(4): 589-610.
- Newman, Abraham L. and Elliot Posner. 2016. "Transnational feedback, soft law, and preferences in global financial regulation." *Review of International Political Economy* 23(1): 123-152.
- North, Douglass C. 1990. *Institutions, Institutional Change and Economic Performance*. (Cambridge, UK: Cambridge University Press).
- Pesendorfer, Dieter. 2006. "EU Environmental Policy under Pressure: Chemicals Policy Change between Antagonistic Goals." *Environmental Politics* 15(1): 95-114.
- Pierson, Paul. 2000. "Increasing returns, path dependence, and the study of politics." *American Political Science Review* 94(2): 251-267.
- Pierson, Paul. 2004. *Politics in Time: History, Institutions, and Social Analysis*. Princeton: Princeton University Press.
- Pollack, Mark A. 1997. "Delegation and Agenda Setting in the European Community." *International Organization* 51:1: 99-134.
- Pollack, Mark A. and Gregory Shaffer. 2009. *When Cooperation Fails: The International Law and Politics of Genetically Modified Foods*. New York and London: Oxford University Press.
- Posner, Elliot. 2008. "Making Rules of Global Finance: Transatlantic Regulatory Cooperation at the Turn of the Millennium." *International Organization* 63(4): 665-699.

- Posner, Elliot. 2010. "Sequence as Explanation: The International Politics of Accounting Standards." *Review of International Political Economy* 17(4): 639-638.
- Reed Elsevier R&D Solutions Group. 2016. *White Paper: Chemical Regulation in EU and China, A Fount of Innovation*. Reed Elsevier.
- Rehn, Olli. 2004. Speech at Exchange of Views with the Environmental Committee of European Parliament, July 27, 2004 (archived at Commission website, accessed April 2021).
- Reihlen, Antonia and Heike Lüskow. 2007. *Analysis of Studies Discussion the Benefits of REACH*. Hamburg: Institut für Ökologie und Politick.
- Reimann, Kim D. 2006. "A View from the Top: International Politics, Norms and the Worldwide Growth of NGOs." *International Studies Quarterly* 50:1, 45-67.
- Rodrigues, Maria João 2002. "Introduction; for a European strategy at the turn of the century" in Rodrigues ed. *The New Knowledge Economy in Europe: A Strategy for International Competitiveness and Social Cohesion*. Cheltenham, UK: Edward Elgar Publishing.
- Rodrik, Dani. 1997. *Has Globalization Gone Too Far?* Washington, DC: Institute for International Economics.
- Rogers, Arthur. 2005. "European Parliament approves REACH." *Chemistry World*, November 18.
- RPA. 2003. *Report: Assessment of the Impact of New Chemicals Policy on Occupational Health*. Norfolk, England: RPA).
- RPA and BRE. 2003. *Report: Impact of the New Chemicals Policy on Health and the Environment*. Norfolk and Watford, England: RPI and BRE.
- Sachs, Noah M. 2009. "Jumping the Pond: Transnational Law and the Future of Chemical Regulation." *Vanderbilt Law Review* 62(6): 1817-1869.
- Schmidt, Vivien A. 2009. "Comparative Institutional Analysis" in Landman, Todd and Neil Robinson eds. *The SAGE Handbook of Comparative Politics*. London: Sage Publications.
- Sil, Rudra and Peter J. Katzenstein. 2010. "Analytic Eclecticism in the Study of World Politics: Reconfiguring Problems and Mechanisms across Research Traditions." *Perspectives on Politics* 8(2): 411-431.

- Selin, Henrik. 2007. "Coalition Politics and Chemical Management in a Regulatory Ambitious Europe." *Global Environmental Politics* 7(3): 63-93.
- Simon, Herbert A. 1986. "Rationality in Psychology and Economics." *The Journal of Business* 59(4) Part 2: The Behavioral Foundations of Economic Theory: S209-S224.
- Simon, Herbert A. 1985. *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization*, 4th ed. (New York: The Free Press).
- Strange, Susan. 1996. *The Retreat of the State: The diffusion of power in the world economy*. Cambridge, UK: Cambridge University Press.
- Sunstein, Cass R. 2002. *Risk and Reason: Safety, Law and the Environment*. Cambridge, UK: Cambridge University Press.
- United States House of Representatives Committee on Government Reform – Minority Staff Special Investigations Division. 2004. "A Special Interest Case Study: The Chemical Industry, the Bush Administration, and European Efforts to Regulate Chemicals." Washington, DC: US House of Representatives, April 1, 2004.
- Van Evera, Stephen. 2015. *Guide to Methods for Students of Political Science*. Ithaca: Cornell University Press.
- Vaughan, Steven. 2015. "Case Note: A Battle of the Norms in EU Chemicals Regulation Space: Reflections on the Court of Justice Decision on the Concept of 'Articles' Under REACH." *European Journal of Risk Regulation* 4: 665-670
- Vogel, David. 1997. Trading up and governing across: transnational governance and environmental protection." *Journal of European Public Policy* 4(4): 556-571.
- Vogel, David. 2012. *The Politics of Precaution: Regulating Health, Safety and the Environmental Risks in Europe and the United States*. Princeton, NJ: Princeton University Press.
- Wagner, Wendy E. 1995. "The Science Charade." *Columbia Law Review* 95(7): 1613-1723.
- Warhurst, A. Michael. 2005. "REACH, a New Approach to Chemicals Regulation in Europe: A brief History, Key features, and Expected Outcomes." *Journal of European Environmental and Planning Law* 2(3): 164-172.
- Wendt, Alexander. 1999. *A Social Theory of International Politics*. Cambridge, UK: Cambridge University Press.

- Widmaier, W.W. 2016. "The Power of Economic Idea through over and in political time: the construction conversion and crisis of the neo-liberal order in the US and UK." *Journal of European Pubpblic Policy* 23(3): 228-256.
- Wildavsky, Aaron B. 1988. *Searching for Safety*. London: Routledge.
- Wren, Anne & Kenneth M. McElwain. 2007. "Parties and voters in emerging democracies" in Boix, Carles and Susan C. Stokes, eds. *The Oxford handbook of comparative politics*. New York and London: Oxford University Press.
- WSSD Global Partnership for Capacity Building to Implement the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). 2012. "The GHS and the Global Partnership; a success story from Rio to Rio." Geneva: UN, UNITAR, ILO, OECD, Partnerships for Sustainable Development.
- WTO (1994A), Understanding Concerning Dispute Resolution, Geneva.
- WTO (1994B), Treaty on Technical Barriers to Trade, Geneva
- Zeitlin, Jonathan. 2015, "Introduction" in Zeitlin, Jonathan ed. *Extending Experimentalist Governance: The European Union and Transnational Regulation*. New York and London: Oxford University Press.
- Zgajewski & Hajjar. 2005. *The Lisbon Strategy: Which Failure? Whose Failure? And why?* Academia Press: Royal Institute for International Relations (IRRI-KIIB) Brussels.

LIST OF INTERVIEWS

1. Retired senior public affairs official at leading US-based MNC concentrated in chemicals. August 12, 2021 (remote from Philadelphia).
2. Name partner of a Washington, DC law firm specializing in chemical regulation and chemical safety management. August 12, 2021 (remote from Philadelphia).
3. Political consultant and former senior staffer on the Senate Environment and Public Works Committee (Democrat). August 18, 2021 (remote from Philadelphia).
4. Public affairs consultant and former senior staffer on the Senate Environment and Public Works Committee (Republican). August 19, 2021 (remote from Philadelphia).
5. Senior public affairs official at leading consumer products company who “lived and breathed TSCA reform” from 2008 to 2016. August 27, 2021 (remote from Philadelphia).
6. Europe public affairs director at medium-sized international chemical company. September 13, 2021 (remote from Brussels).
7. Retired regulatory affairs director at medium-sized international chemical company. September 15, 2021 (remote from Brussels).
8. PhD Chemist and Partner at leading Brussels law firm (affiliate of US-based firm) on chemical safety matters. September 15, 2021 (in Brussels office).
9. Public Affairs Manager, leading public affairs firm A, Brussels. September 21, 2021 (Brussels).
10. Senior Adviser at leading public affairs firm A, Brussels. September 23, 2021 (Brussels).
11. PhD. chemist and former public affairs official at leading international chemicals firm from offices in Antwerp. September 23, 2021 (remote from Brussels).
12. Managing Director at leading public affairs firm B, Brussels. September 28, 2021 (Brussels office).
13. Senior official, EcHA, Helsinki. October 6, 2021 (remote from Rennes, France).
14. Legal director, environmental NGO. October 22, 2021 (remote from Paris).

15. Senior Europe manager, US-and UK-based chemical multinational. October 27, 2021 (remote from Paris).
16. Public Affairs director and REACH specialist at leading French industry lobby. November 16, 2021 (remote from Toulon/Provence).

APPENDIX A: A BRIEF REVIEW OF KEY EU INSTITUTIONS

A brief review of the institutions of the European Union can make the story of REACH easier to follow for the non-specialist reader. There are four main institutions that have distinct roles in the European legislative process. Two are supra-national bodies whose members are expected to carry out their roles with the best interests of the European Union in mind: the European Commission (the “Commission”) and the European Parliament (“Parliament”). Two are multi-lateral organizations of member states-- the Council of the European Union (the “Council,” also commonly referred to as the “Council of Ministers”) and the European Council. The Council has the right of co-decision on all Single Market legislation, sharing this legislative role since the Treaty of Amsterdam (1999) with the European Parliament. The Council is made up of ministers in member country governments and formally meets and issues conclusions in different configurations depending on the subject matter area. The Council takes formal action in matters such as direct regulations that impact the Single Market such as the eventual REACH by Qualified Majority Voting³⁰⁶ but strives to reach consensus among member state representatives as a first option. Standing in the shadow of the Council is the Committee of Permanent Representatives (CoRePer) of member states which acts as a

³⁰⁶ Since the Treaty of Nice (2000), decision by the Council of Ministers on most legislation requires approval of 55% of the countries (currently 15 of 27 members) that represent at least 65% of the EU’s population.

collegial forum of keeping the Council agenda moving, with full-time representatives of each member state coordinating among different manifestations of Council and boiling controversies down for final political decision.

The European Council is a completely different body than the Council. It sets overall political direction for the European Union and is made up of the heads of state and government of the 27 members of the European Union, the President of the European Council, the Commission President and the EU Permanent Representative for Foreign and Security Affairs. During the period when REACH was enacted, the Council had a presidency that rotated annually among its members and only since 2008 has it elected a President to serve a term of years, typically renewable two-and-half year terms.³⁰⁷ Prior to the Lisbon Treaty, the acts of the European Council were typically taken at summit meetings that bear the names of the cities that hosted the meeting. I will refer to the European Council by this name and reserve the use of the term “Council” to refer to the Council of the European Union.

The Parliament, the EU’s sole body elected by the people, has the right of co-decision on all legislation affecting the Single Market, a power that has expanded and deepened over many years. Since 1979 its members, called MEPs, have been elected every five years directly by voters in each of the member states using a system of proportional representation. Seats are allocated based largely based on the population of each member state. Although the allocation formula moderately boosts the power of voters of smaller states, fundamentally Parliament reflects the predominant influence of

³⁰⁷ The current President of the European Council is former Belgian Prime Minister Charles Michel. During the previous two terms, the role was held by Donald Tusk, a heavily mediatized politician distinctly out-of-favor in his home country of Poland.

voters in larger states. The Parliament is organized by party-group and not by national delegations, with its seating reflecting the traditional right-center-left array common in European Parliaments since this practice emerged at the Convention of 1792 during the French Revolution. Since the late 1990s, the leading party groups in Parliament have been three main movements that are also most heavily represented in governments of European member states. These are:

- (i) the mainstream conservatives of the European Peoples' Party (EPP);
- (ii) the social-democratic center-left which in the early 2000s were grouped as the Party of European Socialists (PES) and today named the Progressive Alliance of Democrats and Socialists (S+D); and
- (iii) pro-business economic liberals organized in Parliament during the period under study as the Alliance of Liberals and Democrats for Europe (ALDE) and now called the Renew Europe group.

Beginning in the 1990s, voters have elected a significant number of MEPs from explicitly environmentalist parties, not only when supporting these parties in sufficient strength in national elections for them to join member state governing coalitions but also, as in the case of France and the United Kingdom, in greater strength in European Parliament elections as a result of the working of the proportional representation system that governs elections of MEPs to Parliament but not national and local elections in those countries.

The Commission has a unique role among the institutions of the European Union and one that doesn't line up perfectly with typical distinctions drawn between legislative and executive functions. The Commission is charged both with the responsibility of proposing legislation concerning the Single Market and with the role of carrying out the will of the other bodies by making more fine-grained regulatory decisions needed to

implement legislation. In a strict sense, its legislative power is subordinate to the Council and Parliament, but the Commission's initiating ("table-setting") power gives it special influence over the legislative process. The Commission consists today consists of 27 members, one appointed by each member state. The Commissioners take an oath swearing allegiance to the European Union and affirming their independence from the member-state governments that appoint them. There is an abundant literature exploring the extent to which this independence has an influence on its work. As we will see the independence of the Commission has to be judged in light of the close consultative relationship with the two legislative bodies, the Council and Parliament, that formally must approve all primary Union legislation by co-decision, and in light of the requirement that the Union's overall political direction must reflect the will of the European Council. Different constellations of the Commission are referred to by the name of the President of the Commission sometimes followed by a roman numeral to suggest a significant reorganization under the same Commission President. The Commissions in place during the focus period of this study (1995-2017) were: Santer Commission (1995– 1999), Prodi Commission (1999-2004), Barosso I Commission (2004-2009), Barosso II Commission (2009-2014), and the Juncker Commission (2014-2019). Beginning in 2004, the Commission President was expected to be a member of the biggest party bloc in Parliament and in recent elections the lead party groupings have announce prior to the election which of its members will stand as its candidate for President.

The Commission's influence is enhanced by the specialized permanent bureaucracy it houses, which is organized into Directorate Generals (or DGs) dedicated

to specific policy areas within the competence of the European Union. Each Commissioner is charged by the Commission President with a particular portfolio of policies and oversight over particular DGs and subordinate functions within the Commission bureaucracy. As my research will show, two different DGs were asked by the other European institutions to play leading roles in the development of REACH. Individual Commissioners played an influential role in pushing the REACH program forward and in redefining its scope and policy balance. The Commission had a role at each step--policy formation, legislative drafting, political compromise, and implementation. Its role is defined by differently formal and informal rules at each stage, but the Commission maintained a central role throughout the reform process that led to REACH.