

Editors' Introduction: Corporate Sustainability

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Introduction

Corporate sustainability has only recently begun to attract serious academic interest, although concerns about sustainability have risen to awareness repeatedly since the conservation movement began over a century ago. In 1951, President Truman asked CBS Chairman William S. Paley to head up an independent commission to investigate the problem of growing resource scarcity. The resulting report, entitled *Resources for Freedom: Foundations for Growth and Security*, led to the creation of Resources for the Future (RFF), the nation's premier think tank on natural resources and the environment. Happily, research from RFF and other places showed that natural resource prices were falling over time, suggesting that scarcity was not yet an urgent concern. In 1972, the Club of Rome produced a controversial report, entitled *The Limits to Growth*, which helped fuel nationwide concern about environmental sustainability. Vigorous attacks on the report from economists, along with falling oil prices and the Republican presidency of Ronald Reagan, caused concerns about sustainability to recede once again.

It may have been the Rio Earth Summit of 1992, however, that truly gave birth to the corporate sustainability movement. Maurice Strong, secretary general of the 1992 UN Conference on Environment and Development (the official name of the Earth Summit) asked Stephan Schmidheiny to serve as his advisor for business and industry. Schmidheiny approached the task with relish, recruiting dozens of business leaders to form the Business Council for Sustainable Development and present a unified business perspective at Rio. A book entitled *Changing Course* resulted from the effort, coining the term "eco-efficiency" and presenting 38 case studies of corporate sustainability efforts.¹

Regardless of its origins, corporate sustainability has become a firm part of the corporate landscape. Over the years its scope has expanded from environmental concerns and now also contains areas such as global working conditions, animal welfare and various other concerns. Academic research on the topic of corporations and sustainability has seen similar growth over that same time period, as the research topic has moved from the periphery of business academic studies to a more legitimate and prominent area of inquiry.

The Alliance for Research on Corporate Sustainability (ARCS) was formed in 2009 by researchers from leading academic institutions advancing rigorous scholarly research on corporate sustainability issues. ARCS institutional members (with founding members denoted by *) include Cal-Berkeley, Cal-Los Angeles, Cornell*, Dartmouth*, Duke*, Erasmus, Georgia Tech, Harvard*, Indiana*, INSEAD, Michigan*, MIT, Northwestern, Pennsylvania, Stockholm School of Economics, Virginia*, Western* and Yale*.

ARCS continues to grow as a professional society, providing data, tools and networking opportunities to researchers developing greater understanding of policies and strategies to foster sustainable business. ARCS is pleased to provide editorial leadership for this series of Major Works on Corporate Sustainability. More information on ARCS may be found at www.corporate-sustainability.org/

The Organization of the Series

The series is organized into four volumes. Volume I presents a series of articles that clarify the meaning of sustainability and place corporate sustainability within the larger field of sustainability governance. Volume II explores the drivers of corporate sustainability efforts, emphasizing the roles of private politics, regulatory pressures, consumer demand and investor pressure. Volume III turns to corporate sustainability strategy, with emphasis on environmental management and cost leadership; green markets, product differentiation and eco-labeling; activists and private politics; industry self-regulation and political strategy. Volume IV examines the consequences of corporate sustainability programs, reviewing first corporate financial performance and then corporate social and environmental performance.

Introduction to Volume I: Concepts

Because sustainability is often treated as something beneficial but vague, Volume I presents a series of articles that clarify the meaning of sustainability and place corporate sustainability within the larger context of environmental governance.

The most clearly articulated foundation for understanding sustainability is the economic theory of growth. This body of research shows that sustainability requires a steady increase in the overall body of capital that is bequeathed to the next generation, taking into account any depreciation, depletion or degradation of assets over time. The notion of capital that is involved is very broad, encompassing man-made physical capital, human capital, natural capital and social capital. Measurement of these forms of capital must be done not on the basis of private values but on the basis of

their overall social value, something that can be very challenging especially when it comes to social capital. Furthermore, it is essential to understand the extent to which these various forms of capital can be substituted for one another; any constraints on substitutability make sustainability more difficult.

Corporate sustainability efforts never occur in a vacuum. Thus, it is essential to understand the full range of institutions that govern corporate sustainability strategies and their outcomes. Government may be first among equals in this domain, but pressures from activists, consumers, investors and the media all play important roles as well.

With clearer ideas about sustainability and its governance, the volume turns finally to some of the building blocks of corporate sustainability: competitive advantage, value creation, impure altruism on the part of consumers and investors.

The Meaning of Sustainability

Robert Solow received the Nobel Prize in Economics in 1987 for his work on the theory of economic growth. His theory identifies optimal growth paths for economies attempting to combine the traditional economic inputs of capital and labor in such a way as to achieve the maximum level of long-run human wellbeing. Solow also demonstrated that technological change is more important to economic growth than either of the two traditional economic inputs. Fortunately, Solow is also one of the wittiest writers in academia, so his 1991 lecture on sustainability is eminently entertaining, as well as thought provoking. According to Solow, sustainability is a fundamentally moral obligation, “an injunction not to satisfy ourselves by impoverishing our successors.” He emphasizes that most economic goods are substitutable, and hence that it is acceptable for humans to use up exhaustible resources as long as we invest enough to leave behind a capacity to perform the same functions in other ways. He also emphasizes that sustainability is fundamentally about distributional equity between the present and the future, and that this concern automatically raises the question of distributional equity between people alive today. The first equity calls for more investment for the future, while the second equity calls for more consumption today, highlighting one of the most important tensions in thinking about sustainability.

Herman Daly is well known for his critiques of economic growth and his advocacy for a steady-state economy. In the 1990 article included here he argues for “sustainable development” instead of “sustainable growth,” which he considers an oxymoron. Daly delves into the question of which economic inputs are substitutes and which are complements, and argues that there are serious limits of the extent to which man-made capital can substitute for natural capital. Since he views natural capital as being scarcer

than man-made capital throughout human history, he makes the challenging claim that “sustainable development requires that natural capital be maintained intact.”

Elinor Ostrom received the Nobel Prize in Economics in 2009 for her work on the governance of the commons. She has attempted to build a general theory of socio-ecological systems that identifies the key features that enable some such systems to be sustained over the centuries while others collapse. She is particularly concerned that natural and social sciences have a hard time communicating and working with one another, and has created a general classification framework that encompasses the concerns of both. The short article included here presents this framework in a highly abbreviated form, but the interested reader will also find references to more systematically developed versions of it.

From a naïve perspective, the exploitation of exhaustible resources is inherently unsustainable – eventually they will run out. However, Solow's work suggests that an economy can be sustainable if the consumption of exhaustible resources is offset by sufficient investment in man-made capital. Hartwick's Rule (1977) provides a precise condition that ensures the standard of living does not fall due to overexploitation of exhaustible resources: society should reinvest all rents from exhaustible resources in reproducible capital goods. To this one must add an additional increment to savings to cover any depreciation of man-made capital.

Pearce and Atkinson (1993) move the sustainability debate forward by coming up with an operational sustainability metric. Instead of studying exhaustible resources, they focus on natural capital, a measure of the stock of renewable and exhaustible resources at a given time. They define an economy as sustainable if it saves (or invests) an amount greater than the combined depreciation of both man-made and natural capital. They focus on “weak” sustainability (which assumes ready substitution between man-made and natural capital), rather than “strong” sustainability (which stresses limitations on substitutability). They then apply their metric to 18 countries for which they have gathered 1981 data on natural capital and its depreciation. Japan, Costa Rica and the Netherlands head the list; the USA has a slightly positive net savings rate and Mali, Madagascar and Burkina Faso all seriously unsustainable.

Rosenberg (1973) addresses concerns about resource depletion over time by examining prices for various natural resources (agriculture, timber products and minerals) from 1870s to the 1950s. Most have declined in real terms, but timber products have quadrupled in real price over that time period. His article focuses on technological responses to timber scarcity in Britain and in the United States, which involved a shift to coal for fuel and power and to iron for construction. His argument underlines the historically strong substitutability of one form of capital for another, providing support for the “weak” conception of sustainability.

Although it is widely accepted that sustainability involves economic, ecological and social “pillars,” the social dimension of sustainability has received much less attention than the other two dimensions. One natural approach to this challenge is to expand the “capitals” view of sustainability to include not just man-made physical capital and natural capital, but also social capital. Pretty (2003) takes this perspective and focuses on the role of social capital in facilitating the management of natural resources. For Pretty, the key components of social capital are relations of trust; reciprocity and exchanges; common rules, norms and sanctions and connectedness in networks and groups. Building on Elinor Ostrom’s work, he argues that social capital plays a key role in fostering the sustainability of common pool resources.

As pointed out by Solow (1991), social equity among people living today must be a key component of sustainability, but just how to operationalize this notion has remained controversial. Littig and Grießler (2005) probe further into the notion of social sustainability. They start from the Brundtland Commission’s definition of sustainability – “meeting the needs of the present without compromising the ability of future generations to meet their own needs” – and inquire into what constitutes human needs. They go on to propose three sets of indicators of social sustainability, with a special emphasis on the role of gender-sensible employment.

We close the section on the meaning of sustainability by returning to Solow (1974), whose Richard T. Ely lecture to the American Economic Association discussed the impact of finite natural resources on the ability of society to achieve a sustainable, long-run future. The lecture is a marvel of clarity, even though it presents some deeply abstract issues, and serves to remind readers of some of the biggest challenges in achieving a sustainable society.

Sustainability and Governance

Corporate sustainability can only be possible within a larger political and social context. This involves not just the role of government, but of governance broadly construed. Indeed, much of the writing on corporate sustainability begins from the premise that government cannot be relied on to solve sustainability problems. National governments are prone to a variety of ailments from gridlock to corruption to authoritarianism, depending upon where in the world one turns. International government seldom carries the force of law, and the parts of it that do, such as the World Trade Organization, are often the target of heated attacks. It is often said that the multinational corporation is the most powerful institution in the world, and this may be true, but even the most sustainability-oriented CEO finds herself constrained by history, precedent, culture and a vast number of norms, institutions, contracts and regulations. Many corporate actions that appear “voluntary” at

first glance are actually a response to myriad pressures from stakeholder groups working behind the scenes.

In this volume, we merely skim the surface of this vast subject, presenting three articles on governance. Dietz et al. (2003) offer a beautifully concise presentation of key principles for the robust governance of environmental systems. They emphasize the role of information, rules and compliance to them, monitoring and accountability, placing these within a social rather than a political context.

Kleindorfer and Orts (1998) provide a thoughtful overview of the role of information disclosure in managing environmental risks. They take a perspective grounded in law and economics, emphasizing both the procedures required for information disclosure to be effective, and the strength of the economic incentives created by information provision.

Hoffman (1999) offers an unusually detailed view of the evolution of governance institutions influencing the chemical industry over the period 1960–1993. He emphasizes the important role of three pillars of institutional change: regulative, normative and cognitive forces. Regulative forces constrain behavior through the use of incentives and coercion. Normative forces work through the power of social norms. Cognitive forces shape the very structure of perception, constraining what individuals conceive of as possible. The article presents a rich story of the processes through which governance adapts and evolves over time. While policy and regulation play critical roles, they could not emerge without pressures from non-governmental organizations (NGOs) and other social actors.

Concepts of Corporate Sustainability

With some background on what we mean by sustainability, and the importance of governance for achieving it, we narrow our focus to the corporation and its role in promoting or retarding sustainability.

Hart (1995) offers an extremely influential extension of the “resource-based view” (RBV) of the firm. This theory emerged out of economic work on industrial organization, whose focus is on industry behavior more than the competitive strategy of individual firms. The RBV holds that certain firms outperform others because they control scarce productive resources that are difficult for rivals to imitate. Hart’s innovation was to broaden the set of resources under consideration to natural resources and firm capabilities for the management of them. He identifies three key capabilities: pollution prevention, product stewardship and sustainable development. Each requires and builds on the prior capabilities, making it challenging to achieve the full capability of sustainable development. Like other difficult-to-imitate resources, however, these offer firms the possibility of creating sustainable competitive advantages.

Sustainability as discussed in the first part of Volume I is a system property, arguably meaningful today at the level of the Earth as a whole, or perhaps a society, but not necessarily of smaller units such as the firm. In a remarkably lucid fashion, Reinhardt (2000) tackles explicitly the challenge of trying to define what it would mean for an individual firm to be sustainable. He begins from economic growth theory as exemplified by Solow (1974, 1991) and Hartwick (1977), whose main argument is that sustainability requires ongoing investment so as to keep the overall stock of total wealth intact. Reinhardt argues that this notion can be applied to the firm, as well: sustainability for a firm involves no net decrease in total assets. Put another way, a sustainable firm is one that creates value when all of its costs and revenues are measured at their social opportunity costs.

One of the ways in which social opportunity costs can enter the firm's decision-making process is through the purchasing behavior of "green" consumers. Such consumers may have a variety of motivations, from the health and safety of their families to the economic well-being of workers in other countries to the protection of the planet. Ordinarily, economic theory would predict that individual consumers would ignore considerations beyond the immediate impacts on themselves and their families. After all, individual purchases have such a small impact on overall economic activity that consumers would be expected to "free ride" on the actions of others. Andreoni (1990) offers a highly influential theory of "warm-glow" giving, in which the consumer desires to experience the "warm-glow" that comes from doing the right thing, regardless of the measurable impact on the world around them. A large body of research has emerged confirming that this is indeed an important motivation for individual behavior.

Bénabou and Tirole (2006) offer a thoroughly developed theory of "pro-social" behavior that recognizes the multiple motivations that affect individual decisions to promote sustainability. First of all, as in Andreoni's work, people may truly want to do the right thing. Second, they may receive subsidies or incentives for doing the right thing. Third, they want to be perceived by others as the kind of person who wants to do the right thing. The combination of these three motives can lead to a wide range of behaviors, some of them counter-intuitive. For example, subsidizing socially desirable behavior can backfire and actually reduce it, because your friends and neighbors can no longer tell whether you are doing something for intrinsic reasons or because you received a subsidy.

Zivin and Small (2005) present a similarly sophisticated theory of altruistic corporate behavior. In their model, firms forgo some potential earnings in order to behave "responsibly," and individuals derive utility not just from making money but also by giving it away to charitable, environmental or social causes. In order to cater to these individuals, some firms offer both profits and social benefits. Investors avoid the transaction costs of researching the market for social causes, and their donations are leveraged by the

amount the firm would otherwise have paid in corporate profits tax on distributed dividends and retained earnings. Thus, it is possible to construct an equilibrium in which socially responsible firms compete successfully with strictly profit-oriented firms.

With the foregoing articles as foundation, the following three volumes delve into the drivers of corporate sustainability (Volume II), the ways in which corporate strategy copes with sustainability issues (Volume III), and the consequences of corporate sustainability (Volume IV).

Introduction to Volume II: Drivers

Volume II turns to the strategic drivers of corporate sustainability. When adopting any strategy companies respond to demand or pressure by various constituencies. Sports car maker Porsche developed the Cayenne SUV because it expected consumer demand for it. Health care company Abbott decided to split into two to satisfy investor demand. In the context of sustainability such demands usually include environmental and social goals, such as the protection of natural resources or concern over labor conditions or wage rates. These channels of influence on company strategy and conduct operate through the company's value chain. Consumers may demand fair trade coffee, investors reductions in greenhouse gas emissions, and employees and managers may be more likely to work for a company that invests in its community. However, constituencies that influence corporate strategy and business practices not only include the members of a company's value chain but also external constituencies such as NGOs, regulators and politicians that may rely on pressure, threats or changes to the legal, political and regulatory constraints to force companies to change their business conduct.

Volume II includes a series of articles that discuss these aspects of corporate sustainability. It is organized by type of constituency. First, we present contributions on the importance of external stakeholders. Specifically, we focus on the role of NGOs and activists, an area known as private politics, followed by articles that explore company responses to regulatory pressure. Next we present articles that consider the role of demand effects by members of the value chain, specifically customers, employees and investors.

Private Politics

The term "private politics" appears to be an oxymoron. When we think of "politics" we think about parliaments, elections and other institutions. Regulation is similarly usually understood as the result of government action exercised and implemented by legislatures, agencies, and courts. Yet, in recent years public institutions are no longer the sole source of constraints

on business activity. Rather, political activists and NGOs have increasingly succeeded in forcing firms to change their business practices by directly targeting companies and their value chains. The activists' explicit or implicit goal is private regulation, that is, the "voluntary" adoption of rules that constrain certain company conduct without the involvement of public agents.

Baron and Diermeier (2007) provide a game-theoretic model of private politics. At the core of the model is a corporate campaign where an activist group targets a company with the goal of changing the company's business practices, for example, reducing an externality. A campaign consists of an activist demand accompanied by threatened harm if the company does not comply and a promised reward if the company does. Harm could result from a boycott or reputational damage to the firm; rewards may consist of endorsements of the company's products. Once initiated a campaign succeeds with a certain probability. Baron and Diermeier (2007) derive various implications from the model. For example, well-known brands are better targets for activists, and activists will tend to rely on threatened harm rather than rewards. Perhaps surprisingly, more accommodating targets will face more aggressive campaigns. Companies can forestall a campaign by adopting sustainable business practices, but only if activists are able to commit themselves not to subsequently increase their demands. Such self-regulation will be beneficial for activists, especially if activists can target multiple firms.

Ingram, Yue and Rao (2010) provide a detailed analysis of a paradigmatic example of corporate campaigns, the "store wars" between Walmart and a coalition of unions, competitors and NGOs. Walmart's growth strategy depends on its ability to open new stores. Yet in the analyzed period between 1998 and 2007 Walmart proposed to open 1509, but was able to open only 1040. Protests arose in 563 cases, and in two-thirds of the cases where protests took place Walmart failed to open the proposed store. Ingram, Yue and Rao (2010) argue that the incidence and success of store protests derives from the underlying uncertainty of the interaction between firms and activists. Walmart faces uncertainty about the strength of activists' resistance, while activists do not know whether Walmart can overcome local resistance. The article argues that Walmart uses a "test for protest" approach where initial proposals serve as low-cost probes to gauge the degree of resistance. Walmart's proposal serves as a coordinating device for local activists. If resistance is high Walmart can drop its proposal at low cost. An empirical analysis of the Walmart store protests between 1998 and 2007 confirms this intuition. Confrontations thus are not rare miscalculations but typical of the interaction between firms and activists.

Lenox and Eesley (2009) provide an extensive empirical analysis of private politics in the spirit of Baron and Diermeier (2007). They focus on three central questions. (1) What drives the probability that a firm will comply with an activist's demand? (2) What determines the aggressiveness of a corporate campaign? (3) Which firms are likely to be targeted in a campaign? To

answer these questions they construct a new dataset of environmental activists campaigns against US firms from 1998 to 2003. They find that, controlling for various factors, more polluting and better capitalized firms are less likely to comply with an activist's demand. Targeting and the aggressiveness of a campaign also depend on firm characteristics. Larger and more visible firms are more likely to be targeted and to face more severe threats, while well-capitalized firms are less likely to face aggressive campaigns. Firms with high level of pollution are more likely to be targeted and such campaigns tend to be more aggressive. These results broadly confirm the basic logic of corporate campaigns and private politics as a strategic interaction between activists and firms, where activists threaten harm and firms adopt sustainable business practices either in response to corporate campaigns or to forestall them in the first place.

Regulatory Pressure

Despite the emergence of private politics, regulation by public entities remains the main channel of regulating firm behavior. The economic literature on regulation is vast. In this volume we focus on articles that study firm behavior in the context of regulatory pressure. After all, the passage of environmental regulation is only the first step towards reduced pollution. Enforcement and monitoring are necessary to ensure firm compliance. The articles presented here focus on firm responses to different types of regulation, as well as to the threat of regulation. Gray and Deily (1996) and Shimshack and Ward (2008) consider firm compliance with traditional command-and-control approaches. Benneer and Olmstead (2008) analyze the degree to which the structure of a regulatory program influences its effectiveness. Maxwell, Lyon and Hackett (2000) consider self-regulation to preempt public regulation, while Delmas and Toffel (2008) focus on the interaction between external and internal constituents.

Gray and Deily (1996) use data on steelmaking plants from the years 1980 to 1989 to study the interaction between the enforcement of air pollution regulations and firms' compliance decisions. Specifically, the article consider three types of decisions: a compliance decision by the plant's operating firm, a plant-closing decision made by the firm and an enforcement decision made by regulators. These decisions are inter-related. High expected cost of compliance may lead to plant closures, while regulatory enforcement may be sensitive to the possibility of plant closings in a declining industry. Regulators may reduce enforcement activity at plants with a good compliance record, or firms may be more likely to comply at plants with greater enforcement pressure. Using a system of equations approach, Gray and Deily (1996) show that (lagged) enforcement increased compliance. These decisions also depended on a plant's future economic viability and the cost of compliance.

Compliance behavior in turn influenced enforcement in the expected direction. These interrelations are partially influenced by firm characteristics, though not always in the expected direction. Large plants, for example, were less likely to be in compliance. Overall, the results indicate the importance of treating enforcement and compliance decisions as strategically linked.

The enforcement of environmental standards often focuses on the issue of compliance with regulations. Shimshack and Ward (2008) analyze the surprising phenomenon of statutory over-compliance, that is, firm decisions to exceed standards required by regulators. Ignoring the impact of over-compliance may underestimate the impact of enforcement on environmental quality. Using the US plant-level data on water pollutant discharges and regulatory sanctions from 1990 to 2004 the authors show that in periods of higher regulatory enforcement average discharge falls significantly. However, most of this effect is due to over-compliance. Specifically, plants with discharge below legally permitted levels reduce discharges further when regulators issue fines on other facilities. This behavior is consistent with economically rational behavior by firms in the presence of discharge randomness, that is accidental violations, or discharge jointness, that is discharge of multiple pollutants in the same production process. The results indicate that over-compliance can be explained by traditional economic incentives rather than altruistic motivations based on social responsibility.

Mandatory disclosure programs are another type of environmental regulation that has grown significantly in recent decades. Benneer and Olmstead (2008) analyze the consequences of the 1996 Amendment to the Safe Drinking Water Act which mandates that community drinking water systems issue annual reports about the quality of drinking water. Such reports include the source of drinking water, detected contaminants, and violations of drinking water regulations. The article examines data from 517 water suppliers in Massachusetts from 1990 to 2003. The analysis exploits two sources of external variations. First, water suppliers had to comply with reporting requirements in 1998. Second, the methods of disclosure varied by system size. Larger suppliers had to mail their reports directly to households, while smaller suppliers were allowed to post it in public places and mail the report upon request. Benneer and Olmstead (2008) find significant effects for suppliers that are required to mail their reports to households. Mail-in requirements appear to reduce the probability of violations by about 50%.

Maxwell, Lyon and Hackett (2000) also use TRI data to investigate firm incentives to reduce toxic releases. Their approach, however, focuses on the incentives for self-regulation to forestall public regulation. In their model symmetric firms chose voluntary abatement levels. Consumers observe these levels and decide whether to lobby the government for stricter regulations. If they do, consumers and firms compete in an influence game that determines a new policy. Finally, firms play a Cournot competition production game. The key insight of the model is that an increased threat of government

regulation induces firms to voluntarily reduce toxic emissions. Using TRI data over the period 1988–1992 they show that states with higher initial levels of toxic emissions and larger environmental activist group membership, used as a proxy for increased threat of regulation, reduced toxic emissions more rapidly. Such voluntary abatement, under the threat of increased regulation, represents a Pareto improvement over the status quo. What we see here is a similar effect as in the case of private politics. In both cases the threat of politically motivated actors induced companies to self-regulate, and such self-regulation is socially desirable. However, the mechanisms in both approaches are different. In the private politics case (Baron and Diermeier, 2007) self-regulation is used to forestall a corporate campaign by private actors, that is NGOs. In the public case (Maxwell, Lyon and Hackett, 2000) self-regulation is adopted to preempt public regulation.

Delmas and Toffel (2008) adopt an organizational perspective to understanding firm responses. Specifically, they argue that firms channel pressure from external constituencies to different internal functional departments such as legal or marketing. Such departments vary in their degree of influence within the firm. Therefore, external constituencies that interact with influential departments are more likely to have an impact on managerial decisions. Similar to the two previous articles in this volume, Delmas and Toffel used the US EPA's TRI program, here for the years 1996–2000. In addition they conducted a mail survey to collect plant-level data on sustainable business practices. The survey inquired about environmental management practices, relationships with various stakeholders, participation in voluntary environmental programs, tracking and reporting, as well as sources of environmental information and pressure to improve environmental performance. Delmas and Toffel find clear evidence of a positive path between the influence of the legal and marketing department as well as response to non-market pressure. They also analyze the impact of various forms of market and non-market pressure on positive responses. While overall increased external pressure is overall more likely to lead to positive responses this is not always the case.

Consumer Demand

The first set of articles has dealt with the importance of non-market actors on corporate sustainability strategies adopted by firms. Those actors include NGOs, politicians, regulators, and the media. Such constituencies are external to the firm and are not part of the firm's value chain. Nevertheless they influence firm behavior through a mix of incentives, threats, and outright rule making. The next three groups of articles look at market actors that are members of a firm's value chain such as customers, employees and managers, as well as investors. All these articles investigate two related questions:

(1) To what extent such actors are motivated by non-economic goals such as environmental and social concerns? (2) What are the consequences of such non-economic concerns for firm conduct and strategies?

The first article by Klein, Smith and John (2004) provides a consumer perspective on private politics. It tries to shed light on the motivations of individual consumers to participate in a boycott. Klein, Smith and John consider four different sets of variables that may influence boycott participation. The first set ("promote change") captures, the moral outrage often associated with boycotts as well as the participant's desire to change corporate behavior. The second set ("self-enhancement") captures psycho-social dimensions of boycott participation such as the ability to increase self-esteem or the guilt associated with continuing to consume a product subject to a boycott. The third set ("rationalization") includes potential rationalizations for not participating in a boycott such as possible negative effects of boycotts on workers at the boycotted firm or the awareness of the free-rider problems. The fourth set ("costs") includes the costs of participating in a boycott such as the necessity to switch to alternative products or reduce consumption, etc. These hypotheses are tested in the context of actual boycott of a European firm using a survey of 1,216 adult customers. As expected, boycott participation was highly correlated with the perceived egregiousness of the firm's actions. Moreover, reported participation levels were consistent with sales declines across the company's product categories. However, various factors moderated boycott participation. Inner self-enhancement variables positively influenced boycott participation, while higher cost of boycotts reduced participation. Perceived social pressure or possible harm to workers, however, had little effect.

Kotchen (2006) conceptualizes "green markets" in the context of a model of the private provision of public goods. Specifically, environmentally friendly products are modeled as "impure public goods," that is goods that produce private benefits and a public good. For example, green electricity provides private benefits (it can power appliances) and a public good as increased demand for green electricity will displace power sources that rely on fossil fuels. In the model consumers can either purchase a purely private good and can make a donation to a public good, or purchase an impure public good where private and public benefits are available jointly. Kotchen shows that the introduction of green products can have unanticipated consequences. Indeed, the availability of green products can discourage private provision of a pure public good. This effect, however, disappears if the economy is sufficiently large. In general, green markets need not lead to welfare improvements. This will tend to be the case if the availability of green products promotes substitutions away from the public good.

Moral and social value orientation by customers can hurt or benefit a business. While Klein, Smith, and John (2004) explored the reasons why customers may withdraw their patronage from a business, Sen and Bhattacharya (2001) study the positive impact of corporate social responsibility (CSR)

on customer intentions to buy. The previous literature of CSR activities on corporate financial performance has been ambiguous. Some studies point to a positive effect, some to a negative effect, some find no effect. Sen and Bhattacharya (2001) argue that these equivocal findings are due to perceptions of congruity between customers' view of their own character and the company's character. If such perceptions are congruous, CSR will exhibit a positive effect on company evaluations and purchase intentions. If not, CSR activities may back-fire and undermine intentions to purchase a product. These hypotheses were confirmed in a controlled experiment with MBA students.

Kotchen and Moore (2007) explore consumer participation for green products in the context of green electricity markets. The article is an empirical exploration of the issues raised in Kotchen's preceding article in this volume (Kotchen, 2006). Compared to conventionally generated electricity, green electricity is marketed at higher prices ranging from 10% to 30%. Participation is commonly structured in two ways. In some programs households can make a voluntary contribution to finance green electricity generation. This corresponds to a pure public good case. Other programs use a green tariff model directly applied to household consumption. This corresponds to the impure public good case discussed in Kotchen (2006). The article compares household survey data for two programs in the US state of Michigan, one based on voluntary contributions, and the other on green tariffs. In addition to consumption and socio-economic data the survey also measured environmental and altruistic concerns. In the voluntary program environmental and altruistic attitudes as well as income and various socio-economic factors predicted participation in the program. Only household income predicted the level of contribution. In the green tariff case only environmental and altruistic attitudes mattered. Importantly, household income did not. Participation levels, however, were responsive to price effects. From a practical point of view the results imply that appealing to environmental and altruistic concerns will increase participation in both programs. In the case of voluntary programs, targeting high-income household is expected to increase participation, but in the case of green tariffs income may not matter. Here, household with lower electricity consumptions are a better target. When comparing the two mechanisms, voluntary mechanisms are expected to lead to higher participation except in the case of middle-range tariffs where green tariffs may be more impactful.

Eco-labeling is one of the most common strategies for companies to capture consumer demand for green products. Since green products are often more expensive to produce, eco-labels need to elicit a price premium. Delmas and Grant (2014) explore the evidence for such price premiums in the wine industry. Specifically, the article examines two sequential decisions. First, companies need to decide whether to seek certification of environmentally friendly practices. Such certification can improve the reputation of a

producer within the wine industry. Second, they then need to decide whether to display such certification as a label which serves as a direct signaling device to consumers. Delmas and Grant (2014) use a sample of 13,400 wines with various characteristics. This industry is suitable for separating the effect of certification from labeling as many wineries are eco-certified, but decided not to display the certification on their labels. The results show that certified wines enjoy a price premium, but that conditionally on being certified wine eco-labels do not sell at higher prices. Indeed, eco-labeled wines are associated with lower prices. These findings may be due to, possibly incorrect, consumer inferences about quality, but they do point to the potential difficulties in designing effective eco-labels.

Employees and Management

Customers are not the only possible source of sustainability strategies. Environmentally responsible business practices can also help to attract more productive or motivated employees or allow a company to pay employees of similar quality lower wages. Such a strategy may be pursued by a company solely interested in shareholder value maximization. In that case the decision boils down to the question whether the higher cost of green business practices is outweighed by lower wages or a more productive workforce. Alternatively, green business practice may reflect the social or moral preferences of owners and managers irrespective of their impact on shareholder values. In that case shareholder value may be lower compared to the case where owners and managers are solely interested in economic goals. The articles in this section explore this “people” dimension of sustainability in more detail.

Bansal and Roth (2000) conduct a qualitative survey of the motivations and contexts that lead companies to adopt sustainable business practices. Using a sample of 53 firms in the United Kingdom and Japan, they conducted interviews with the company’s environmental managers as well as archival research and participant observation. They identify three key motivations: competitiveness, i.e. concerns related to long-term profitability; legitimation, e.g. concerns related to company’s license to operate; and ecological responsibility, i.e. concerns directly related to a firm’s sense of its social obligations and values. Bansal and Roth then identify three contextual factors: issue salience, that is the degree to which an environmental issue has meaning for the organization driven by its certainty, transparency and emotional impact; field cohesion, the density of formal and informal network ties among the relevant organizations in an issue area; and individual environmental concerns of members of the organization. Bansal and Roth then argue that different context variables influence different motivations. For example, issue salience will be positively associated with competitiveness and legitimation,

but not with ecological responsibility. Field cohesion will be positively associated with legitimation, but negatively associated with competitiveness and ecological responsibility. Finally, individual concerns will be positively associated with ecological responsibility and legitimation, but not competitiveness.

Sustainable business practices can originate from various motivations. Some are strategic and motivated by self-interest. Others are based on moral concerns of management or owners. Baron (2009) presents a formal model to distinguish these dimensions and integrates them in a private politics framework as discussed in Baron and Diermeier (2007). Baron defines "corporate social performance" as sustainable business practices solely motivated by self-interest. For example, if customers value sustainable business practices, a company's brand equity may be based on corporate social performance. Alternatively, as discussed in Baron and Diermeier (2007), a company may adopt green business practices to avoid being targeted by an environmental activist group. Sustainable business practices may also result from "CSR," defined by Baron as the voluntary fulfillment of an identified moral duty. In the model there is a continuum of citizens, two firms and an activist. One firm is morally motivated whereas the other is self-interested. The morally motivated firm will maximize profits once it has met its obligation, while the self-interested firm will adopt sustainable business practices only if it maximizes profits. Citizens differ in their moral preferences, while the activist has extreme moral preferences compared to the firms. The model generates a rich set of implications. For example, moral management may make business sense if it enables product differentiation, which will lead to higher operating profits. The article also considers citizens as shareholders of morally managed firms. For example, if citizens receive a warm-glow from holding shares in a morally managed firm then the market value of the morally managed firm is higher than the value of its financial return. However, similar to the model considered by Kotchen (2006), moral management may crowd out personal donations to a social cause.

While Baron's article considers the effects of morally motivated managers and citizens, Brekke and Nyborg (2008) consider the argument that sustainable business practices may help a firm attract highly motivated employees. In their model there are two firms, a "green" firm that engages in sustainable business practices and a "brown" firm that does not. If some workers prefer green firms on moral grounds this may result in a wage advantage for green firms. Such a wage differential will be economically feasible if it outweighs the higher cost of adopting green operating practices. There is, however, little evidence for such wage differentials. Brekke and Nyborg provide an alternative argument using a moral hazard framework where individual worker effort is unobservable. Suppose, however, workers that prefer green firms also are more likely to exercise more effort. In that scenario, green business practices will lead to increased productivity. Sustainable business practices thus serve as a screening mechanism to attract more responsible employees.

Specifically, the model shows that if moral motivation varies across workers, green firms can be sustained in equilibrium, even if workers' willingness to accept lower wages for sustainable business practices is very low. Moreover, if unobserved effort is sufficiently important for firm productivity, then brown firms will not survive even if a substantial segment of workers has no moral preferences.

Sharma (2000) returns to the role of managers in sustainable business practices. Specifically, he uses a survey of Canadian oil and gas companies to study how the managerial interpretation of environmental issues influences the choice of environmental strategies. Specifically, managers can view environmental issues as threats or as opportunities. Sharma hypothesizes that if environmental issues are interpreted as threats, companies will tend to adopt a strategy of compliance with regulations and standard industry practices. If they are viewed as opportunities, companies are more likely to adopt voluntary measures that exceed standards. Organizational context variables also are expected to shape interpretation and thus, indirectly, strategy choice. Specifically, the degree of issue legitimacy, discretionary slack and the degree to which environmental criteria are part of performance evaluation all may increase the likelihood that managers interpret environmental issues as opportunities. To assess these hypotheses, companies are rated on their environmental strategy based on a combined measure of survey response and expert judgment. The results show a significant impact of managerial interpretation on environmental strategy choice. Moreover, issue legitimacy and discretionary slack are significantly correlated with interpreting environmental issues as opportunities. Integration with performance evaluation, however, played no role. The study highlights the importance of the managerial dimension (here the interpretation of environmental issues as threats or opportunities) on corporate environmental strategy.

Introduction to Volume III: Strategy

Volume III is entitled "Strategy," and the 15 articles in this volume deal with organizational and field-level responses to sustainability issues. The first eight articles consider whether firms can derive value from sustainability efforts, whether through cost reductions, differentiation or rents accruing to entrepreneurial efforts. The remaining seven articles are in the realm of non-market strategies, and examine the effects of self-regulation and political strategies in corporate sustainability efforts.

The articles in the first section of this volume consider the relationship between proactive environmental strategies and costs. These articles relate to one of the most heavily researched areas in corporate sustainability, the relationship between social/environmental and financial performance. While this has spawned a rich stream of research, it remains a controversial topic

because it begs the question of why, if sustainability and profitability are positively related, do we not observe all firms pursuing sustainability? Several of the articles in this volume tackle this difficult question directly by offering both theoretical reasons why we may observe a link between profit and performance and empirical evidence of that link and the limits to this relationship.

Environmental Management and Cost Leadership

Christmann (2000) cites prior work that had claimed that cost advantage could follow from improvements in environmental outcomes of production processes. The cost savings accrue from taking a more comprehensive view of environmental management rather than simply dealing with pollution once it has occurred, and by doing so reducing input and inspection costs. However, as suggested above, this perspective begs the question that if such advantages are available, why do all firms not pursue them? Christmann (2000) answers this by employing a Resource-Based Perspective and suggesting that while firms *may* enjoy financial benefits from environmental performance, such benefits accrue only to those firms that also possess the necessary complementary assets. Using a survey of 88 chemical businesses, she finds that “best practices” in environmental management are related to cost advantages only when they are combined with complementary assets such as general innovativeness of the firm. Her results provide important evidence that proactive environmental practices can be associated with improved financial performance. In addition, one reason that this effect is not “competed away” by all firms pursuing such practices is that the financial improvements are available only to the firms that already possess the necessary complements.

The next article in our volume offers an additional caveat to the financial–environmental performance link, by suggesting that only some kinds of environmental improvements are associated with financial benefits. King and Lenox (2002) suggest that if environmental and financial performance levels are positively linked, then managers must be missing profitable opportunities. Thus, they suggest that research in this area must look for reasons that managers may not pursue such opportunities. For example, if there are methods for reducing pollution that both are unexpected (e.g., they are not consistent with managers' prior expectations) and the information on their effectiveness is costly to acquire, managers may underinvest in them. They provide evidence that pollution-prevention techniques fulfill these requirements, as managers frequently invest in these processes expecting that they will be costly, but find that they facilitate process improvements and learning that allow for cost savings. They utilize data from the Toxics Release Inventory (TRI) to test whether managers underinvest in pollution prevention. Analyzing firms in the chemical industry, they demonstrate that waste prevention, which is difficult to observe and contextually embedded in

the production facility, is more likely to be positively associated with financial performance than more generic environmental performance determinants such as waste treatment.

In contrast to the idea that firm-specific resources are needed to provide value, Potoski and Prakash's (2005) article suggests that value can accrue to firms that expend the effort to participate in "clubs," such as gaining ISO 14001 Environmental Management certification. In these cases, value is gained because gaining certification provides benefits that are not available to non-certified firms. These "excludable benefits" include improvements in brand identity and, critically, improved compliance with environmental regulation, which in turn implies cost reduction (as non-compliance is costly to the firm). They use a quasi-experimental design to examine whether firms that join voluntary compliance programs demonstrate superior performance than do firms that choose not to join. They first model the likelihood that a facility gains ISO 14001 certification and find that while more stringent state air quality regulations increase facilities' likelihood of becoming certified, other regulatory factors seem to have little impact on certification. In addition, facilities with moderate prior compliance records were more likely to become certified than either high or low performers, and facilities located in wealthier and more educated areas were more likely to be certified. Controlling for these selection factors, Potoski and Prakash (2005) find that attaining ISO 14001 certification is associated with better compliance records. Their analysis suggests that at least in the case of the ISO 14001 standard, firms that join voluntary clubs may experience real improvement while also enjoying the excludable benefits that the membership conveys.

Green Markets, Product Differentiation and Ecolabeling

Many sustainability efforts represent corporations attempting to provide a public good (e.g. improvement of natural environment), which leads to the question of why firms would undertake privately incurred costs in order to provide value that they may not be able to capture. One situation in which firms may be willing to do this is when the provision of the good is a by-product of competition in the product-market. That is, if consumers place some value on the provision of the good and attach that value to the firm that provides more of it, then firms have an incentive to increase their efforts along the dimension that consumers value. Bagnoli and Watts (2003) develop a model of such "strategic CSR". They suggest that strategic CSR represents an instance of a firm providing a public good that is linked to the private good that they produce, and in order for that to be linked to profitability, at least some consumers must value this provision. Their model demonstrates that competition between firms to attract consumers who value social responsibility can lead firms to privatize public goods, but that if the firms are not able

to capture the value from providing such goods, too little of the goods will be provided. Thus, a less competitive market in which firms can appropriate more of the value may actually result in greater provision of public goods.

In the wonderfully titled "Label Confusion: The Groucho Effects of Uncertain Standards", Harbaugh, Maxwell and Roussillon (2011) consider the case of eco-labeling and the difficulty that consumers face in assessing the eco-quality of a product in the face of multiple labels. In particular, if consumers must jointly assess the quality of the product and the stringency of the standard that the product meets, confusion ensues. They point out that eco-labels have proliferated in recent years, and this proliferation causes consumers to have uncertainty over the relative merits of the standards and thus also causes confusion for managers who must decide whether to adopt a label. Thus, they find the "Groucho Effect" ("I refuse to join any club that would have me as a member") in which uncertainty over the quality of a label and the product it endorses reduces the firm's incentive to engage in labeling, and moreover that this effect is strongest when the labeling would be most beneficial because uncertainty of the product's quality is highest.

Teisl, Roe and Hicks (2002) continue the research on the use and effectiveness of certification, by considering whether the dolphin-safe labels in tuna were effective in terms of changing consumer behavior and efficient in terms of the costs and benefits they created. Labels are only effective, they argue, if consumers actually hold a preference for the behavior that the label purports to certify (e.g. for tuna caught in a dolphin-safe manner) and if that preference is reflected in their actions. Dolphin-safe labeling represents one of the most famous instances of using eco-labeling to assure consumers that a product meets a given standard, but there is little evidence that this (or other such labels) has been effective. Teisl et al. (2002) develop a model in which consumers value the environmental impact of a given good, and thus a label that the consumers believe is accurate may increase their willingness to pay for that good. They use A.C. Nielsen data and derive the almost ideal demand system (AIDS) model for tuna compared to substitutes such as other canned meats. They find that negative media attention on the issue of dolphin deaths from fishing reduced sales of canned tuna, but that dolphin-safe labels both increased tuna sales and decreased the sale of substitutes, indicating value accrued to producers that were able to label their products as dolphin-safe. Thus, they conclude that if a significant proportion of the population values a given dimension of environmental performance in a product, firms may be able to differentiate themselves along that dimension and thereby increase their market share.

While the certification schemes discussed above provide some degree of credibility to firms that make claims about their environmental actions, many firms undertake actions for which no credible certification is available. In such a circumstances, firms that undertake environmentally friendly initiatives face a dilemma: while consumers and other stakeholders may value the

efforts that the firms have made, promoting those efforts can result in accusations of “greenwashing.” What exactly constitutes greenwashing, however, has often been poorly defined. Lyon and Maxwell (2011) undertake an economic analysis of greenwashing, first defining it as “selective disclosure of positive information about a company’s environmental or social performance without full disclosure of negative information on these dimensions (152, this volume).” They demonstrate that in the presence of NGO monitoring, firms may be deterred from engaging in greenwash, but that such auditing may also deter firms from disclosing any environmental information, especially if there is information asymmetry such that the firm knows much more than the market about its environmental performance. They also explore mechanisms that might reduce this unwanted effect.

The prior articles have considered the interactions between existing firms and consumers, but entrepreneurial entry is also an important aspect of environmental and social change in many markets. The final article in the “Green Markets” segment examines the effect of social movements on entrepreneurial activity in a nascent industry. Sine and Lee (2009) frame their article in the social movement literature and ask how movements that are external to a given industry might influence the dynamics of entrepreneurship in that industry. That is, while prior work in social movements had considered the direct effect of social movement organizations in opposing a given technology (such as research that examines social movements’ protests of nuclear power), there are also social movements that are broad and large scale that do not focus on a given industry but yet might impact the dynamics of that industry. For example, many environmental social movements have an abiding interest in opposing fossil fuel energy production but are not directly tied to a given clean energy sector. Yet, the strength and degree of activity of these organizations might impact the resources available for entrepreneurs in one or more of the clean energy sectors. Sine and Lee (2009) provide a rich history of the wind power industry in the United States and of the growing interest of the Sierra Club in mobilizing resources to foster clean energy in general. They find that state-level membership in the Sierra Club had both a direct effect on entries in the wind industry and indirect effects through increasing the likelihood of beneficial legislation and magnifying the effects of resources such as available wind energy and technically skilled workers. Their findings suggest that social movements can play crucial roles in creating opportunities for entrepreneurs to seed and grow in environmentally beneficial industries.

Activists, Private Politics and Self-Regulation

In this single-article section we present research that examines the role of private politics (see Volume II) that stems from social pressures. Thus, Baron’s (2012) article provides a bridge between the “firms and markets”

work above and the “political strategy” research that follows it, as he examines how markets can put pressures on firms that then have incentives to enact self-regulatory measures to forestall government regulations.

Social movement organizations can not only create favorable conditions for entrepreneurs but can also work directly either against existing firms in a confrontational manner, or cooperatively with these firms in order to advance the social movement's goals. Baron (2012) develops models of these interactions in which there is a market for social pressures. The social movement organizations create the supply for these pressures through their involvement in issues (e.g. the Sierra Club's engagement in clean energy practices referenced above), while the firms that engage in activities that are associated with these issues create the demand for pressures (e.g. existing utilities that use fossil fuels to create energy). Baron investigates both confrontational and cooperative scenarios, and allows for heterogeneity on both the movement and firm side. He demonstrates that the choice of whether to launch a campaign, and whether that campaign is cooperative or confrontational, depends upon the attributes of the issue, the movement organization and the target. His models help to shed light on the complex relationships between social movements and firms and the process by which social issues are addressed absent government regulations, and his article paves the way for the section that follows on industry self-regulation.

Industry Self-Regulation

The first set of articles in this volume dealt with firm-level environmental performance and the link between environmental actions and cost structure. We followed that with a series of articles that examined “green markets,” which also considered individual firm actions such as choosing to adopt an eco-label. Often, however, firms are bound by common interests or concerns, such as the collective crisis that the chemical industry faced at the end of the 1980s. In such circumstances, firms may band together, often through their industry associations, and attempt to self-regulate in order to forestall more stringent regulations that a government might enact, and/or to enhance the entire industry's legitimacy with consumers. Whether such self-regulation is effective in terms of improving the social outcomes, however, is uncertain. The articles in this series use both analytical models and empirical evidence to address this important question.

King and Lenox (2000) consider a particular form of private regulation: the effect of industry self-regulation on environmental performance. They examine what is perhaps the most famous instance of an industry's attempt to use self-regulation to improve its constituent's performance – the US Chemical Manufacturer Association's “Responsible Care” initiative. Responsible Care was initiated in the wake of several events that shook the public's confidence

in the entire chemical industry. The initiative set out standards for behaviors on social and environmental dimensions for member firms, but crucially to the analysis, there were few sanctions available to firms that signed on to the initiative but did not actually implement the principles or that failed to make improvements. Thus, King and Lenox (2000) investigate whether pressures such as adhering to norms and fear of being embarrassed are sufficient to induce improvement in the absence of formal sanctions. They find that, controlling for factors that affect the likelihood of joining Responsible Care in the first place, membership in that initiative did not induce improvement, suggesting that explicit sanctions (e.g., by the movement organizations modeled by Baron in the article discussed above) may be necessary in order to enable self-regulation efforts to succeed.

The self-regulation discussed thus far is an example of what Lyon and Maxwell (2003) label unilateral agreements – public pledges by similar firms to improve their performance. These are but one form of self-regulatory agreements, and Lyon and Maxwell (2003) argue that it is crucial to distinguish between forms of self-regulation in order to assess their effectiveness and efficiency. In particular, they suggest that in addition to the unilateral agreements there are also public voluntary agreements in which firms make pledges to meet goals established by a regulatory agency (e.g. the EPA's 33/50 program), and negotiated voluntary agreements in which the firm or its industry association work together with the regulator to set goals specific to their circumstance. Lyon and Maxwell (2003) consider the interplay between an industry and a regulator, and build a model that allows the industry to either create a unilateral agreement, or have the regulator propose a public voluntary agreement or attempt to impose a tax which may or may not be adopted by the legislative body. They find that voluntary agreements may not arise as a way to pre-empt government action, but precisely because governments have difficulty acting (i.e. when the likelihood of getting a tax imposed is low, governments propose the less effective and efficient public voluntary agreement). However, they also find that public voluntary agreements can have a welfare-reducing outcome in which they increase industry resistance to tax proposals and increase their incentives to engage in self-regulation which may have weaker environmental performance.

While the articles thus far call into question the effectiveness of self-regulatory actions, they do suggest that such actions may be more effective when they are combined with sanctions or threat of regulatory acts. Finger and Gamper-Rabindran (2013) examine one such situation by analyzing the effect of Responsible Care participation on industrial accidents in chemical firms. Why, if Responsible Care does not lead to improvement in environmental performance, might it actually have an impact on plant safety? Finger and Gamper-Rabindran (2013) suggest that there were both greater benefits – financial and non-financial – and lower costs for facilities to improve their safety records than to improve their environmental

performance. They find that participation in Responsible Care did reduce the accident rate, and based upon data on the average cost to a facility of a serious accident, had a substantial financial benefit. Their results, taken together with the articles discussed above, suggest that the effectiveness of self-regulation may depend crucially on the regulatory and normative environment in which the program is embedded.

Political Strategy

The preceding articles in this volume have dealt with interactions between firms, consumers and social movement organizations. For the most part, the articles have either ignored the regulatory agencies or introduced them as playing a role in the dynamics of self-regulation (Lyon and Maxwell, 2003). In this final section, we feature articles that pay explicit attention to the interplay of firms and regulatory bodies. These articles recognize that regulations are not exogenously determined but rather involve a complex interplay between the legislature or regulating agency, the industry under consideration and the society that is affected by these actors.

We begin with an article that is not specific to the realm of sustainability, but rather establishes a general framework for the process by which regulations emerge. In Peltzman's (1976) classic article, he builds upon the Stigler (1971) core insight that regulations do not emerge as an exogenously determined solution to a market failure. In fact, regulation often seems to suit the interests of the producers it covered more than the consumers it purported to protect, and in doing so it could create a misallocation of resources. Peltzman (1976) describes regulation as an outcome of supply and demand on the part of regulators and business respectively and suggests that the central question is to explain the "regularity of small group dominance in the regulatory process" (p. 358 of this volume). That is, his contribution is to formalize the issue to attempt to explain what many casual observers have noted before and since – regulations seem often to favor the very firms they purport to constrain. In order to explain this, he argues that regulators act to maximize political return through altering the costs and benefits of regulations to different groups within the state, and that the shape of such regulations is the result of "bids" on the part of interested parties. Individuals will experience both relatively smaller benefits and greater costs relative to firms from participating in the "bidding" process, and thus the government becomes more likely to respond to the bids from the group that enjoys greater per capita benefits. The analysis Peltzman (1976) provides begins to address the reasons that regulations have traditionally not been seen as stringent enough to provide for environmental and social protections. In addition, this modeling of the regulatory process creates a framework by which the collective action

discussed in other articles in this volume (e.g. Sine and Lee, 2009) can be incorporated into the dynamics of sustainability regulations.

If firms have heterogeneous degrees of quality along social dimensions (e.g. some firms in a market are better at producing environmentally beneficial products), then high-quality firms may actually seek to influence regulators to set standards that are easier for these firms to meet. Lutz, Lyon and Maxwell (2000) consider this strategic interaction between firms and regulators when firms are aware of the threat of regulation, and know that while they cannot prevent the regulation, they may be able to impact its stringency. Under this scenario, high-quality firms have incentives to make investments in quality improvements that exceed the standards they expect the regulator to set, but by doing so Lutz et al. (2000) show that they may influence the regulator to set a lower standard than it otherwise would have.

After a series of articles that examine self-regulation and the impetus for government regulations, we conclude the volume with the provocative question of why firms comply with environmental regulations in the face of lax enforcement mechanisms. For example, if a firm faces a relatively low probability of being caught or punished for violating environmental laws, as several studies have demonstrated, why are observed compliance rates relatively high? Decker's (2003) article suggests that firms maintain high compliance rates in order to maintain favorable relationships with regulators, and that these relationships are valuable when the firm seeks to establish new facilities or expand existing ones. He analyzes the effect of environmental records on the time required for approval of discharge permits, and finds that firms with more violations suffer delays in approval for major projects, and he provides initial evidence that the costs of accumulating a good environmental record are more than offset by the benefits of reduced delays in permitting. His findings suggest that at least in some cases, firms may comply with environmental laws not out of fear of direct sanctions but rather in order to maintain social capital that can help them when opportunities arise to expand.

The articles in Volume III provide a rich set of ways in which firms respond to the drivers presented in Volume II. The familiar generic strategies of cost reduction and product differentiation play prominent roles in this literature. However, the importance of private and public politics means that corporate sustainability must go beyond these market-driven approaches to include non-market strategy, that is strategic management of stakeholder relationships. Corporate leadership needs a strategic approach to interacting with activists, both those that conduct negative campaigns against the firm and those that offer the possibility of constructive partnerships. In addition, leadership often calls for self-regulation that is designed to preempt or weaken future regulatory requirements, or to build stronger relationships with regulators. Thus, corporate sustainability provides an excellent example of the need for integrated strategy that encompasses both market and non-market elements.

Introduction to Volume IV: Consequences

Volume IV of the *Corporate Sustainability* series is entitled “Consequences.” We interpret this title broadly and we consider consequences of corporations’ actions on their own financial performance as well on social outcomes such as health and employment and for corporations of pressure stemming from information disclosure programs and activists that target corporations. We divide the articles into Corporate Financial Performance and Corporate Social and Environmental Performance, but the lines between these are not as stark as these titles indicate. The first set of articles are concerned with the relationship between sustainability and financial performance, a topic we also explored in Volume III of this series, but in exploring this relationship they also shed light on how corporations achieve superior environmental performance and the role of stakeholders in improving this performance. Likewise, while the second set of articles is primarily concerned with social and environmental outcomes, several of the articles also document the link between these outcomes and financial performance.

Corporate Financial Performance

The first set of articles considers financial consequences of environmental performance. We feature a small subset of the many articles that have considered the environmental-financial performance relationship, focusing on research that investigates specific mechanisms by which environmental performance may create, or at least be positively associated with, financial value. The articles we include share another feature in that several of them (Teoh, Welch and Wazzan, 1999; Dowell, Hart and Yeung, 2000; Margolis and Walsh, 2003; Eichholtz, Kok and Quigley, 2010) present counter-arguments for the environmental-financial performance link. While research, some of which we presented in Volume III of this series, has found circumstances under which environmental and financial performance are positively related, clearly there are limits on this relationship, as these articles argue.

In recent years, investors have taken an increasingly active role in pushing firms to be more proactive in their sustainability efforts. These efforts have taken the form of actions like shareholder resolutions and direct appeals by shareholders through forums like the Carbon Disclosure Project. One method by which activist shareholders have attempted to influence firm behavior is by pressuring firms to divest from industries or jurisdictions of which the shareholders disapprove. Teoh, Welch and Wazzan (1999) examine one of the most famous such campaigns by analyzing whether socially active shareholders actually impacted the financial returns of firms that were targeted for their involvement in South Africa during apartheid. They point out that the null hypothesis that divestment had no effect is reasonable

because firms that were targeted could simply attract new investors who did not have concerns about South African investment. Using an event-study approach, the authors find no significant effect of divestment on firms' financial returns, indicating that while pressure was successful in causing some firms to voluntarily divest their holdings in South Africa, these firms did not suffer (or gain) financially from their decisions. They suggest that the effect of the pressure and eventual boycott and legislative action was to reallocate shares from socially responsible investors to those indifferent to the apartheid issues.

As environmental standards have become more stringent in developed countries, firms have been accused of attempting to circumvent these standards by moving unacceptable practices to less stringent jurisdictions. Such "pollution havens: are generally developing countries that may welcome the investment and employment that multinational firms represent, and be less concerned about the environmental costs that accompany the firms. Dowell, Hart and Yeung (2000) point out that there are reasons to expect that firms that ratchet down their standards to meet the requirements of host countries could enjoy greater profits, due to avoiding the costs of meeting environmental regulations that they would incur in more stringent jurisdictions. On the other hand, they point out that firms that maintain a global standard and do not alter operations to allow for lax regulations in host countries can potentially benefit from greater knowledge transfer and reduced coordination costs. Their analysis of manufacturing and mining firms that operate in potential pollution havens finds that firms that maintain global environmental standards enjoy significantly higher market values than those that adjust their standards to meet local requirements. However, as is common in studies of financial and environmental performance, causation could not be determined, and while it could be that global standards lead to value, it could also be true that higher-valued firms are more likely to pursue such standards.

Gupta and Goldar (2005) examine a potentially important driver for environmental improvement in developing countries, namely environmental ratings. They study the effect of environmental ratings of a leading NGO in India on the stock performance of pulp and paper, automobile and alkali firms. The article uses an event study approach, specifically, studying the announcement of environmental ratings and awards. In a window of 5 or 10 trading days the mere announcement of environmental ratings had negative effects on cumulative abnormal returns for paper-pulp and alkali firms, but not for automobile firms on average. Negative ratings can lead to a decrease in returns of up to 30%, while positive ratings increase returns. The results suggest that even in developing economies environmental ratings can affect firm financial performance substantially.

In a provocative article, Margolis and Walsh (2003) review the studies that investigate the social-financial performance link, and point out that

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while the evidence is equivocal, very few (only 7 of the 109 that they include) find a negative relation, while nearly half (54) find a positive relationship. This, of course, would appear to be good news for both investors and those concerned about alleviation of social ills, but Margolis and Walsh point out that recent research has called these results into question, criticizing both the data and methods used in many of the studies, and that the net result of the decades of research seems to have been to create a cottage industry in pursuing the research question itself. They suggest, or perhaps more accurately insist, that the question itself is misguided as it places the question of what firms can do to alleviate social ills into economic, rather than social terms. They offer an alternative framing for research to take seriously the question of how firms simultaneously “respond to human misery while also sustaining their legitimacy, securing vital resources, and enhancing financial performance? (p. 121).” In other words, they advocate a research agenda that seeks to examine the investments firms make in alleviating social (including environmental) problems and the impact of these investments, rather than simply whether they can attempt such investments profitably.

Margolis and Walsh's article suggests that one of the resources that firms seek is legitimacy, and Bansal and Clelland's (2004) article “Talking Trash: Legitimacy, Impression Management, and Unsystematic Risk in the Context of the Natural Environment” directly addresses the impact of negative environmental information on firms' legitimacy. They argue that while negative information may have an immediate effect on firms' stock prices, as prior research had demonstrated, there will also be a longer-term impact that accrues due to decreased legitimacy. They further suggest that a firm's unsystematic risk, the variability in stock price that is due to firm-specific events as opposed to market-wide events, is partly a measure of that legitimacy, and thus firms with better environmental records will experience lower unsystematic risks. They also hypothesize that firms can use impression management tactics such as disclosure of environmental liabilities to reduce the impact of environmental problems on their legitimacy. Their article suggests that firms' environmental actions do have long-term financial implications, and that strategic management of the firm's legitimacy can reduce the impact of environmental problems on shareholders' perceptions of the firm's risk.

Investors

While the Teoh et al. (1999) article described above suggested that divestiture had little impact on firms' stock prices during the anti-apartheid movement, King and Soule (2007) use social movement theory to examine how pressures from external actors may influence firms' stock prices, and which firms are most vulnerable to such pressures. Prior to the King and Soule (2007) study, research of social movement organizations had predominantly

examined their influence on state actors, but these organizations also target corporations, often with protests that target firms for contributing to social ills in some manner. While social movement organizations lack any formal power over firms or their investors, the protests that such organizations lead may cause investors to reassess their estimates of the firms' future cash flow, or the firms' legitimacy and access to future resources. They argue that in order to have such effects, the protests must have some degree of national attention, and that protests that relate directly to issues influencing firms' access to resources, such as labor or consumer issues, will have more significant financial consequences. They examine the short-term stock price reaction for firms targeted by protests over a nearly 30-year period, and find that protests do impact stock price, and that the effect is amplified when the protests relate to issues that can affect access to resources, and when media coverage is higher. Their results shed light on the process by which external parties can gain influence on firms and the importance for firms of managing their relationships with stakeholders.

Corporate Social and Environmental Performance

A variety of scholars have noted that in order for environmentally proactive actions to be profitable, there has to be some systematic reason that they have not already been undertaken (see, e.g. King and Lenox (2002) or Christmann (2000) articles in Volume III of this series). In one sector that is critical to sustainability – real estate – the systematic reason is that there is a lack of evidence on the financial performance of green buildings, and where that evidence has been obtained, the sources of potential advantage were complex and diverse. Eichholtz, Kok and Quigley (2010) set out to provide evidence on the economic advantages of green buildings. They use a matching process in which green buildings are matched with non-green buildings within a small radius, and then they estimate the premium for both rent and sales value of the green buildings. They find a persistent and significant positive effect for green buildings, and in additional analysis they find evidence that this effect stems from energy efficiency, because they find a consistent premium for energy-efficient buildings but not for those buildings that have broader green certifications (i.e. LEED). Their findings suggest that the market is valuing the energy-efficiency of green buildings, and that the number of these buildings should continue to grow due to this market demand, as long as the costs of creating the efficiency are lower than the premium they command.

The market for corporate social and environmental ratings has exploded in recent years. Clearly, some groups believe these rankings have value. The question is, how much information do they convey, especially since the same SustainAbility report indicated that many of the rankings rely on publicly

available data. Lyon and Shimshack (2012) use the announcement of the *Newsweek* green rankings to examine whether the financial markets value the information that green rankings attempt to convey. The *Newsweek* rankings have some ideal properties for such a study, as they are released on a defined date (allowing for an event study approach), they are widely disseminated, and most intriguingly, they rely on data that were already available to investors, albeit in a format that did not readily invite the kind of ranking and comparison that *Newsweek* provides. Thus, Lyon and Shimshack (2012) are able to test whether the ranking, based upon an aggregate score, seemed to provide the market with information over and above the already available information that was used to rank the companies. They find a statistically and economically meaningful effect from the rankings, in that firms in the top 100 enjoyed abnormal returns that were 0.6–1.0 percent greater than the rest of the firms ranked. They also provide preliminary evidence that this effect is due to public and private political channels, as firms that are more likely to be pressured by environmental groups (larger firms and those with greater brand values) enjoyed greater benefits from high *Newsweek* rankings. The results suggest that informational value and reputational value (i.e. that gained through having a public stamp of approval from a visible ranking agency) are seen as separate and distinct.

Much of what we know about firms' environmental performance, and the factors that affect this performance, come from data from a few developed countries. However, as production in many industries has migrated to lower-cost, and potentially less well-regulated jurisdictions, it becomes increasingly important to consider how well our theories and results from extant research apply in these settings. Pargal and Wheeler (1996) use data from Indonesia's National Pollution Control Agency and its Central Statistics Bureau to assess the degree that informal regulation, which is experienced as pressure on facilities to reduce environmental waste, has an effect on pollution output of facilities. In other words, do private politics work to reduce facilities' demands for local environmental resources in this setting? They analyze plant-level pollution streams and estimate the effect of plant and community characteristics on the pollution intensity. They find a strong effect for both plant characteristics, as older and less productive plants are more than twice as pollution-intensive as younger and more productive facilities. However, the effect of community characteristics is even stronger, as plants in poor and less educated areas are more than 15 times more pollution intensive than those in areas of greater education and income. The results suggest that environmental justice issues that have been well-documented in developed markets are equally prevalent in developing settings, but the results also point to the potential for socioeconomic growth to lead to greater pressures on polluting facilities to improve their performance in developing countries.

While articles such as Lyon and Shimshack (2012) and others have documented that the stock market responds to environmental information, it is

interesting to consider whether that response triggers a reaction from the affected firms. That is, if the stock market cares about firms' environmental records, do the firms care about the stock market's assessment of those records? Konar and Cohen (1997) investigate this using the TRI provided by the EPA. They begin by outlining the arguments for "information as regulation," in other words, whether providing information to the public can act to create an incentive structure by which the firms whose information is revealed change their behaviors. They argue that in order for information to have this effect, it has to create a mechanism by which the firm's financial performance is threatened, so that the firm has incentive to improve. They look at the facilities that received attention as being among the worst polluters according to their 1989 TRI reports, and found that those publicly traded firms that received such negative publicity suffered negative stock market reactions in the days following the public recognition. They demonstrate that the firms suffering the largest stock market reaction significantly reduced their emissions within a three-year window. Moreover, they perform additional analysis that indicated that the subsequent improvement was due to the stock price reaction and not simply a regression to the mean from being a large emitter in the initial TRI reports. Their article suggests that there is a role for information programs in inducing better corporate social performance, at least for the firms shown to be among the worst on the dimension disclosed.

If information disclosure is to be used to induce environmental and social improvement, it is important to understand how firms may respond heterogeneously to the pressures that disclosure may create. Doshi, Dowell and Toffel (2013) investigate how firm characteristics influence responses to mandatory disclosure requirements. Specifically, the article investigates two factors that can influence firm response. First, firms that are subject to greater internal and external pressure are more likely to improve. For example, plants that are closer to corporate headquarters or corporate siblings are more likely to improve performance. Second, firms that have greater access to the necessary capabilities are more likely to respond positively. The authors test their hypotheses using data from the US Environmental Protection Agency (EPA)'s TRI program, which requires firms to publicly disclose emissions of hundreds of chemicals. An important source of variation is the fact that the EPA periodically expanded the list of chemicals to be reported. The analysis confirms the hypotheses. Plants that are closer to headquarters and siblings within the same firm or the same industry are more likely to reduce emissions. Large establishments improve more slowly than small plants, but both improve similarly in dense regions. This suggests that local density neutralizes the ability of large establishments to resist external pressure. Somewhat surprisingly, privately held firms outperform publicly traded firms.

Studies of regulatory effectiveness are plagued by the problem of identifying whether observed effects are truly due to the regulation, or whether

there are other unobserved factors that contribute to changes and the legislation is a small or even negligent contributor to improvements. For example, if we observe firms improving their emissions after a pollution regulation goes into effect, we have to be very careful interpreting that as evidence that the regulation actually caused the effect, as we do not usually have a control group that did not experience the regulation. García, Sterner and Afsah (2007) avoid this problem in their study of the PROPER program in Indonesia. The PROPER program was a short-lived effort similar to the TRI discussed above, in which information disclosure was used to attempt to induce firms to improve their environmental performance. Critically, the PROPER program was not universal, so García et al. (2007) were able to assess the effectiveness of the program by comparing changes in pollution levels for firms that were selected for participation against those that were not. While the government did not randomly select participating firms, the authors could control for the factors used to select participants and thus be relatively confident that they had identified the effect of the regulation. They find that the PROPER policy was responsible for a significant reduction in emissions, and they suggest that while questions have been raised about the efficacy of information programs in poorer countries such as Indonesia, these programs may in fact be more important in such countries, where the more traditional environmental controls are weaker. A second, less hopeful result of their article is that self-reporting firms tended to under-report the actual level of pollution discharged, which brings into question the accuracy of programs that depend entirely upon self-reported data, and points to the need to combine information disclosure with programs that ensure firms have incentives to report their performance accurately.

Many studies of toxic emissions in economics and business journals have examined either trends in emissions themselves or the relationship between emissions and financial outcomes (e.g. Konar and Cohen, 1997, discussed above). These emissions, however, are of interest to regulators, communities and other stakeholders because of their potential to create harm, particularly to human health. Foster, Gutierrez and Kumar (2009) assess the impact of air pollution levels on infant mortality, as well as whether areas where a greater number of firms had been certified as clean experienced fewer infant deaths from respiratory diseases. They use an innovative dataset that employs satellite imagery to measure pollution levels across Mexico, and regress infant mortality in a given municipality on pollution levels and the fraction of firms in the area certified as clean by the Mexican Clean Industry Program. This initiative was a voluntary pollution reduction program in which plants that chose to participate were audited by an independent auditing agency, and those that complied with the actions suggested by the audit were granted a "Clean Industry Certificate." Foster et al. (2009) find that air quality improved and infant deaths from respiratory disease decreased in municipalities with higher proportions of firms certified as clean, indicating that the

government's program for certifying industrial facilities had significant benefits. Their results provide important evidence that voluntary programs are potentially effective in reducing pollution and the attendant human health problems it creates.

The final article in this volume returns the focus to Indonesia, this time with a focus on the degree to which anti-sweatshop protests impacted labor markets in that country. Harrison and Scorse (2010) study the effects of protests against firms in the textiles, footwear, and apparel (TFA) sectors in Indonesia. These protests followed from investigations into child labor and sweatshop conditions at Nike factories in the early 1990s, and over the first half of the 1990s, attention to labor conditions in Indonesian factories intensified and protests were also aimed at Reebok and Adidas. Harrison and Scorse (2010) estimate the impact of activism on wages at factories that were potentially suppliers to Nike, Reebok, or Adidas. They begin by comparing wages at TFA facilities to other facilities in Indonesia and find that there was a statistically and economically significantly lower wage at the TFA factories in 1990 (before the protests had occurred), but that the gap narrowed significantly by 1996, giving primary evidence that the protests had an effect. They then extend the difference-in-difference approach by using regression analysis where they can control for characteristics of the factories and find that the effect remains, and those facilities that were targeted by activists experienced the largest wage increases. They also find that these wage increases led to employment losses across all manufacturing industries and reduced profits and plant closures for smaller firms in the TFA sectors. Their analysis provides important evidence of the role of activism in social outcomes, and in particular for both working conditions and overall employment outcomes.

The articles collected in these four volumes provide strong evidence that corporate sustainability as a field of research has come into its own in the past two decades. There is a rich literature, both theoretical and empirical, that studies how – and how well – companies cope with sustainability issues. As the planet's population continues to increase and to grow wealthier, the pressures on natural resources and the environment will only become more intense. Business managers, activists and policymakers will all benefit as research in corporate sustainability continues to expand and to deepen over the next 20 years.

Note

1. Schmidheiny, S. 1992. *Changing Course: A Global Business Perspective on Development and the Environment*, Cambridge, MA: The MIT Press.