

INTRODUCTION TO THE SPECIAL ISSUE ON MANAGEMENT STRATEGY AND THE ENVIRONMENT

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This special issue reflects the growing importance of the natural environment for practitioners and scholars of business management. A general solicitation of submissions was made, and all of the papers in this issue were part of the general journal submission process. In accordance with the journal's general policy, the final selection of the papers was made by the journal's editorial board based on the standard refereeing process, and I was asked to provide an introduction to this issue.

Climate change, oil dependence, clean technology, and related challenges occupy increasing amounts of managerial time. They are also attracting growing scholarly interest, because their dynamic nature and their complexity raise questions that stretch the boundaries of research in economics and strategy. Rapidly evolving preferences, regulations, and technologies make myopic strategies extremely costly, and reward investments in flexibility. "Green" consumers, investors, and employees create new market opportunities. Pressures from environmental activists and regulatory threats raise the value of clever nonmarket strategies. Investments in new technology involve strategic commitments that link market and nonmarket strategies. Because management strategy with respect to the environment combines these factors in a variety of novel ways, it is a ripe area for research.

Management scholars have been studying corporate environmental strategy for over a decade. Since the Organizations and the Natural Environment (ONE) group first held sessions at the Academy of Management in 1995, group membership has doubled and academic articles have proliferated. Furthermore, there have been numerous efforts to integrate environmental management and sustainability into business school curricula, including the Business, Environment, Learning and Leadership (BELL) program organized by the World Resources

Institute, the Beyond Grey Pinstripes rankings administered by the Aspen Institute, and the joint MBA/MS programs at Yale and at Michigan's Erb Institute for Global Sustainable Enterprise.

Economists have been slower to take a serious research interest in corporate environmental strategy, even though environmental and resource economics has been a recognized field since at least the founding of Resources for the Future in 1952. Environmental economists have generally treated the firm as a "black box" and focused on policy instruments to solve market failures. This traditional approach is inadequate, however, in a world where international law is weak, developing countries lack regulatory capacity, rent-seeking incumbents block policy, enforcement resources are scarce, and the size of fines is constrained by law. As a result, corporate environmental practice is often out ahead of policy. Recent years have seen the rise of new forms of environmental governance, including self-regulation, voluntary agreements, green marketing, socially responsible investing, green supply chains, environmental certification, and partnerships with environmental activists. These and other related phenomena are the focus of research on management strategy and the environment. Economists, whose discipline emphasizes rigorous modeling and econometric testing, have much to contribute to this growing area.

The papers included in this special issue can be placed in three groups. The first three papers deal with broad issues of management strategy and its adaptation to pressures from the business environment, including pressure from green consumers and investors, pressure from environmental activists, and regulatory pressure. The next three papers address the fact that the environmental quality of products and firms is often a credence good, and examine two common management strategies that emerge in response: environmental certification programs and environmental ratings systems. The last three papers treat environmental quality as an attribute fostering vertical differentiation between firms, and examine in detail the strategic implications of consumer preferences that are becoming increasingly "green."

In the first paper in this special issue, Baron presents a theoretical model that incorporates three separate "markets" for environmental quality: the product market, the market for social pressure, and the capital market. In the product market, a morally managed firm provides a "green" product that competes with the "brown" product offered by a profit-maximizing firm. In the market for social pressure, an activist targets one of the two firms with a demand for environmental improvement, and a threat of market harm if the demand is rejected. In the capital market, a citizen-investor allocates his or her wealth between shares of the morally managed firm, shares of the profit-maximizing

firm, social giving, and donations to the social activist. Baron solves for a simultaneous equilibrium in all three of these markets. He finds that the morally managed firm sets a high price and attracts green consumers. It also attracts investment from investors for whom its shares are a good substitute for personal charitable giving. In the model, high-quality, well-funded activists pursue tough targets, that is, profit-maximizing firms or morally managed firms with strong reputations. Low-quality, poorly funded activists pursue weak targets, that is, morally managed firms with weak reputations.

Lenox and Eesley provide an empirical complement to Baron's theoretical work, offering one of the first empirical analyses of the targeting strategies of activists. They find a firm is more likely to be targeted if it emits a large amount of pollutants and has high cash flow. They also find that a firm is more likely to comply with an activist's demands if the firm is relatively clean, the activist's threat is large, the firm lacks cash reserves, and the activist is not affiliated with a religious group. These results offer practical guidance to activists and the firms they attack, as well as being of intellectual interest to academics.

Keohane, Mansur, and Voynov investigate corporate responses to a more traditional type of threat, namely the threat of regulatory enforcement. They examine the compliance behavior of coal-burning electric utilities faced with enforcement of air pollution regulations pursuant to the New Source Review statute. They find that plants were more likely to be targeted for enforcement lawsuits if they were large and had high levels of emissions. They also find that prior to the filing of enforcement lawsuits, plants that were more likely to be sued reduced their emissions more than did other plants. In fact, on the eve of the lawsuits, emissions at plants with a one standard deviation greater probability of being sued fell approximately 10%. In addition, the plants named in lawsuits reduced emissions by approximately 30%. The authors interpret these results as showing that plants voluntarily reduced their emissions in an attempt to avert regulatory enforcement actions.

Our second set of papers grapples with the fact that the environmental performance of a product or a firm is often very difficult to ascertain. In response, environmental certification programs (eco-labels) and ratings schemes are emerging to reduce uncertainty about products' and firms' environmental attributes. For example, consumers who wish to purchase wood products that do not harm old-growth forests can turn to labels from the Forest Stewardship Council (FSC) or the Sustainable Forestry Initiative (SFI), along with those from a number of lesser-known certification programs. Investors who want their money to support environmentally responsible firms often turn to

the ratings published by KLD Research and Analytics. And companies trying to select environmentally friendly suppliers often seek firms with ISO 14001 certification.

Bottega and De Freitas develop a theoretical model to study the performance of environmental certification by either a nonprofit nongovernmental organization (NGO) or a for-profit private certifier, and to compare it against the performance of a minimum quality standard (MQS) imposed by a regulator. Either type of certification organization can invest in persuasive advertising in support of its standard, which increases the value consumers obtain from certification. The underlying model involves vertical product differentiation by a monopolist, who can offer at most two product variants. With an MQS, the firm offers a single variant, at the quality required by the regulator. With a certification scheme, the firm offers two variants, one at the lowest quality level and one at the level set by the certifier. There is no general welfare ranking between NGO and for-profit certifiers, although the NGO always sets a higher standard. However, the authors show that certification and an MQS are substitutes, in the sense that the regulator sets a weaker standard in the presence of a certification body.

Chatterji, Levine, and Toffel study the social responsibility ratings most widely used by investors, those produced by Kinder, Lydenberg, Domini Research and Analytics (KLD). The authors examine whether the KLD ratings provide valid summaries of publicly available quantitative measures of past environmental performance. They also assess whether current KLD ratings help to predict future performance. They find that the KLD measures of environmental "concerns" do a reasonably good job of summarizing past performance, and provide a modest amount of predictive power regarding future performance. The KLD measures of environmental "strengths," however, do not accurately predict future pollution levels or compliance violations.

Delmas and Montiel study the use of certification schemes within supply chains, by firms who wish to purchase inputs from environmentally responsible suppliers. In particular, they study an incident from the late 1990s, when Detroit's Big Three automakers demanded that all of their suppliers obtain certification by 2003 for compliance with the ISO 14001 standard for environmental management. Nevertheless, by July 2003, only 24% of North American suppliers to the Big Three had become certified. Delmas and Montiel study the drivers of suppliers' certification decisions, considering both information-based motives and transaction cost motives. They find that suppliers with highly specialized assets, as well as younger suppliers, larger suppliers, and those reporting to the Toxic Release Inventory, were more likely to

respond to their customers' pressures to adopt the certified management standard ISO 14001. These results provide support for both information and transaction cost rationales for certification.

Our third set of papers focuses on competition between firms whose products are differentiated on the basis of environmental attributes. Like the papers by Baron, and by Bottega and De Freitas, the authors represented in this group of papers discuss environmental competition as a form of vertical product differentiation—all consumers agree that green products are more desirable, but they differ in their willingness to pay for green attributes. This set of papers investigates the empirical magnitude of consumers' willingness to pay, the strategic implications of the greening of consumer tastes over time, and the strategic complications that arise when competing firms offer both green and brown versions of a product.

Casadesus-Masanell, Crooke, Reinhardt, and Vasishth estimate customers' willingness to pay for green product attributes, making use of exceptionally detailed data from Patagonia, a firm with a reputation for environmental sensitivity. They study the firm's substitution of organic cotton for regular cotton across its product line in 1996. The authors find a very substantial willingness to pay for organic cotton, even though it provided no direct benefits to the buyer. They also provide interesting insights into the process by which Patagonia decided to make the switch to organic cotton.

Garcia-Gallego and Georgantzis study a model of vertical product differentiation, focusing on what happens as consumer preferences shift toward more environmentally friendly products. They identify important links between market structure and the distribution of consumer preferences. For example, as upscale consumer preferences become greener, firms may respond by "greening" their products and raising prices accordingly, thereby causing some consumers to shift their purchases to brown firms charging lower prices. Alternatively, a greening of preferences at the downscale end of the market may cause firms to make their products less green, in order to bring downscale consumers into the more profitable green market. The authors show that there can be very subtle welfare effects resulting from increased corporate greening, and that such greening does not necessarily create welfare gains.

Toolsema extends the literature on switching costs to the case of a vertically differentiated duopoly, each member of which sells two products of exogenously determined quality. An example is competition between two providers of electricity, each of whom sells both "green" and "brown" power. The key finding is that higher intrafirm switching costs can induce more competitive interfirm behavior. The basic

intuition is that intrafirm switching costs allow price discrimination and increase profits, hence increasing the incentives of each firm to undercut the other and try to capture its customers. An important policy implication is that policy makers should focus on reducing interfirm switching costs rather than intrafirm switching costs.