Chapter 38

On the Profitability of Corporate Environmentalism

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1. Introduction

In recent years, the environment has moved from a fringe concern on the corporate agenda to a mainstream part of management. By "corporate environmentalism," more specifically, we refer to environmentally beneficial actions undertaken by corporations that go beyond what is required by law. Because such actions benefit society as a whole, corporate environmentalism is often viewed as part of corporate social responsibility (CSR). The question of whether corporate environmentalism is profitable arises naturally from the ongoing debate over CSR that was started by Milton Friedman's (1970) famous article on the social responsibility of business.

In Friedman's view, the only social responsibility of a business was to increase its profits. He expressed disdain corporate executives who sacrificed profits for the social good, likening the practice to "taxation without representation." For Friedman, an action only counts as an act of CSR if it is unprofitable. Socially beneficial actions that increase profits are merely "hypocritical windowdressing." Friedman opposed such "hypocrisy" because he felt it conveyed the notion that there was something wrong with the pursuit of profit maximization.

Under our definition, corporate environmentalism can be profitable; all that matters is that the actions taken are not required by law. Friedman would not object to

corporations taking such actions, although he might object to corporate executives attributing altruistic motives to them. The notion that corporations can undertake socially responsible actions that raise their profits is now generally accepted. To get a good sense of the evolution in the general perception of CSR, it is interesting to read articles on the topic in The Economist (2004, 2005 and 2008). While the first of these articles champions Freidman's view, the latter concludes that CSR is "just good business."

To better distinguish the two views of CSR, Baron (2001) distinguishes CSR (which is driven by altruistic motives and is unprofitable) from "strategic CSR" (which is profitable). Since the production and consumption of goods and services requires energy and generates pollution, it is often costly for firms to engage in actions that are "friendly" to the natural environment. Consequently, much of the theoretical work in this area focuses on strategic corporate environmentalism, explaining why profit maximizing firms would engage in costly actions when they are not required to do so by law. There is some theoretical work on purely altruistic (unprofitable) corporate environmentalism, although it is a much less developed area. Empirical work has focused primarily on the drivers of corporate environmental actions, but there has also been considerable interest in assessing whether it pays to be green, and if so, under what circumstances.

We examine three main drivers of corporate environmentalism: market forces, government regulation and civil regulation. The main market forces driving corporate environmentalism include cost reduction, consumer demand, access to capital, employee retention and supply chain pressures. It is sometimes the case that the quest to reduce costs can lead to innovations that benefit the environment, such as new production methods that require less inputs or reduce waste. These innovations are often labeled

"win-win" in the literature. If consumer demand for green products is sufficiently large, businesses will find it profitable to satisfy this demand by supplying products that have a lower environmental impact. Firms may also find corporate environmentalism profitable if it helps attract and retain highly productive employees. Finally, firms that profit from being green might pressure their suppliers to engage in acts of corporate environmentalism to avoid the criticism that their concern for the environment is merely greenwash.

Compliance with government regulations does not constitute an act of corporate environmentalism, but government regulation, or the threat of it, can result in many actions and strategies that do fall under this label. Firms may voluntarily engage in pollution abatement to preempt stricter and more costly regulations from emerging. This could occur if the public observes the resulting reductions in pollution, or even if the public simply perceives that businesses are tackling the environmental problem. Sometimes a firm or subset of firms may be able to gain an advantage if environmental regulations are put in place. For example the firm might be able to comply with a regulation at a lower cost than its rivals. In this case, an act of corporate environmentalism might be used to signal the regulator that the overall cost of the regulation is lower than she might have thought otherwise. Alternatively the voluntary adoption of an abatement technology might constrain the regulator's ability to impose stricter regulation simply because asking companies to abandon the technology they have just adopted would be too costly. If regulations are to be effective, they must be enforced. It is costly to prepare for environmental audits and there is always the possibility that those audits might result in penalties. A firm might find it profitable to voluntarily invest

in abatement technologies that reduce the likelihood of being out of compliance, so as to deflect enforcement to other firms.

Government regulation is not the only form of regulation about which firms are concerned. Civil regulation, sometimes referred to as private politics, is increasingly important. With the rise of the Internet, activist NGOs have gained considerable clout in shaping firm activities---like-minded activists find meeting and organizing easier and they also find it easier to get their message out to the public. Sometimes these NGOs can be useful partners of firms, allowing them to credibly convey the quality of their environmentally friendly products to consumers willing to pay more for green products. Often, however, NGOs attempt to punish firms they see as environmentally irresponsible. In this setting, acts of corporate environmentalism can be profitable if they serve to deflect a costly NGO campaign towards another firm. In this way the firm is able to preempt or perhaps shape civil regulations in much the same way it uses corporate environmentalism to deal with traditional government regulation.

The rest of this chapter is organized as follows. Section 2 lays out a theoretical framework for understanding when corporate environmentalism is profitable, and section 3 reviews the empirical evidence. Section 4 concludes.

2. The Theory of Corporate Environmentalism

The growing attention to corporate environmental initiatives in the business press strongly suggests that market forces---in the markets for products, capital, and labor---are increasingly powerful drivers of corporate environmental improvement. In this section we first discuss how demand- and supply-side forces affect the level of corporate

environmentalism mangers undertake. We then turn to the role of political forces in the promotion of corporate environmental actions. Two political forces are examined. First we study how traditional government regulation, or the threat of it, leads firms to undertake corporate environmental initiatives. Then we turn to the role of private politics, in which activist NGOs promote civil regulation as an alternative to traditional government regulation.

2.1 Market Forces

The simplest explanation for managerial engagement in corporate environmental actions is that they arise naturally from profit maximizing actions. Firms, in their quest to maximize profits, adopt production practices that are both more efficient and better for the environment. These adoptions are often referred to as "win-win." Porter and van der Linde (1995) provide numerous examples of firms that have increased their resource use efficiency, reducing pollution and costs at the same time. The presence of waste does not mean that pollution abatement has been transformed into a strictly negative-cost enterprise, however. There is likely nothing unique about environmental efficiency improvements as a way to cut costs. Indeed, it is possible businesses can reduce costs just as effectively by rooting out waste in human resources, outbound logistics, or any other business function as by improving environmental efficiency. Nevertheless, the presence of internal inefficiency means that environmental regulations may often cost firms less than they initially expect. Porter and van der Linde (1995) suggest that government regulations that raise the price of polluting the environment might spur innovation to such an extent that the resulting cost savings might more than cover any

costs associated with the new regulation. This notion has been dubbed the Porter Hypothesis.

Even when there are no cost-reduction opportunities, firms that produce both brown and green products that are imperfect substitutes can profit by colluding to reduce their production of the "brown" products, as shown by Ahmed and Segerson (2011). Such collusion raises the price of brown products and consumer demand for green products, which increases prices and profits for both products.[1]

A second source of profitability in corporate environmental actions can arise from green consumerism. Production and sale of environmentally-friendly products is a growth business, from organic food to organic cotton shirts to hybrid cars and solar energy. Arora and Gangopadhyay (1995) were the first to provide a rigorous economic explanation of this growth in green consumption, applying a standard model of vertical product differentiation to capture consumer heterogeneity in willingness-to-pay for environmental attributes. In this setting, one firm has incentives to increase its quality in order to reduce price competition with a rival. The notion that green products command a price premium has since been incorporated into numerous other models that study additional aspects of corporate environmentalism.[2] As long as firms can extract enough of consumers' willingness to pay for enhanced environmental attributes to cover the additional cost of producing them, profits can be had from supplying these consumer wants.

[1] The authors assume that collusion on the green product would be a violation of antitrust laws.
[2] These include the political economy model of Lutz, Lyon and Maxwell (2000), the labeling models of Feddersen and Gilligan (2001) and Heyes and Maxwell (2004), and the private politics model of Baron and Diermeier (2007).

As one might expect, the level of competition in a market affects the amount of corporate environmentalism firms undertake. As shown by Bagnoli and Watts (2003), if the market for "brown" products is highly competitive, then their prices will be low, and fewer consumers will wish to buy "green" products. However, if the brown market exhibits market power, then prices will be high and consumers will switch to the green good.

Uncertainty about standards weakens green consumer-motivated corporate environmental activities. Consumers often rely on product labels to determine the environmental quality of the products they purchase, but they do not necessarily know exactly what a label means. When there is uncertainty about the standard that lies behind a label, then consumers tend to give firms less credit for having a label, and may also give the benefit of the doubt to firms that do not have the label. Harbaugh, Maxwell and Roussillon (2011) show that both of these factors reduce firms' incentives to label their products.

There has been much popular discussion of the role of green investors in driving companies to adopt greener practices. The amount of so called "ethical" investing is on the rise. Theoretical work, however, is only beginning to explore this issue (Graff Zivin and Small 2005; Baron 2006b, 2007). In this research, investors allocate their wealth between savings, charitable donations or shares of a socially responsible firm. If some investors prefer to make their social donations through investing in socially responsible companies (perhaps in order to avoid taxation of corporate profits), then corporate environmental actions can increase the value of the firm by attracting these investors. Baron (2006b) shows that the value of the firm is less than it would be without corporate

environmentalism, but because its investors derive value from the firm's environmental actions, its shares trade at a price above what they would fetch if no investors cared about these actions. Thus, while the corporate environmental actions may not directly raise profits they provide investors with an investment-contribution bundle that they value. Baron (2007) goes on to show that when expenditures on green actions are fully anticipated by investors, the initial public offering of stock is offered at a price discount, with the cost borne by the entrepreneur who creates the firm, not shareholders.

A fourth market force driving corporate environmental actions arises from the labor market. Most employees want to feel good about the company where they work, and want to be able to tell their children they are working to make the world a better place. One way companies try to attract and retain the best employees is by making environmental commitments that are aligned with these employees' environmental values. Frank (2003) surveyed Cornell University graduates and found many are willing to accept substantially lower salaries from firms engaged in socially responsible activities. If such morally-motivated employees are also less likely to shirk their job responsibilities, then companies can profitably screen for them by adopting socially responsible practices. Brekke and Nyborg (2008) find that if pollution abatement is inexpensive, the gains from labor market screening outweigh the costs of abatement. This may drive brown firms from the market, even when there is a substantial share of workers who have no moral motivation.

A final market force driving the adoption of corporate environmental actions is supply chain pressures. This is best seen in developing countries with weak regulatory systems. For example, Colombia is a major exporter of cut flowers to the United States

and Europe. Customers in the European Union (EU) have begun to choose suppliers based in part on their practices concerning the use of pesticides. As a result, the flower industry in Colombia has created the Florverde program, which encourages members to adopt a set of environmentally-friendly practices. By the end of 2006, Florverde had 137 member companies, exporting some 700 million flower stems per year.[3] Hence, the shift in market demand may well be playing a stronger role than the nation's incomplete and imperfectly enforced pesticide regulations. Similarly, when downstream retailers selling in developed countries require their suppliers in developing countries to achieve ISO 14001 certification, this can have a positive impact on environmental performance upstream.[4]

If all market participants had complete information about waste reduction opportunities and transaction costs were zero, then markets would bring about all socially beneficial pollution abatement without any government intervention. In practice, however, these conditions are unlikely to hold and market-driven emission reductions are unlikely to be sufficient to achieve the social optimum. As a result, politics and government regulation will remain key forces driving environmental improvement. It is to this subject that we now turn.

2.2 Political Forces – Government Regulation

Collective action is often required to solve environmental problems, and public politics remains the key venue for most collective action to protect the environment. The

[3] For further information, visit the website of the trade association Asocolflores at http://www.asocolflores.org/

[4] ISO 14001 is an environmental management certification system created by the International Organization of Standards. Prakash and Potoski (2006) offer a thorough discussion of the system.

types of strategic corporate environmental action open to firms will often depend on whether a state of full information is assumed. We begin our discussion by assuming this state and then turn to an examination of corporate environmentalism when the assumption of full information does not hold.

One important reason industry invests in corporate environmental actions is to preempt advocacy groups from organizing to enter the political arena and press for regulation. Because organizing and lobbying is costly for advocacy groups, investing in activities such as pollution abatement may enable industry to preempt regulation with a lower level of abatement than would be required through the political process. Maxwell, Lyon and Hackett (2000) formalize this notion and identify conditions under which firms can profitably preempt regulatory threats. When organizing and lobbying costs are low, preemption may be excessively costly. This is because advocacy groups may still enter the political process even after industry has made voluntary reductions in emissions. However, there is a point at which an advocacy group's organizing costs are high enough to make preemptive corporate environmental actions profitable. Beyond this point, voluntary abatement declines with organizing costs, but preemption remains profitable.

It is easy to see why industry and advocacy groups prefer to avoid the high costs of working within the regulatory system. Interestingly, regulators may share the desire to reduce the costs of regulation, and this opens up another opportunity for profitable corporate environmental activity. The regulator may negotiate "voluntary agreements" with industry to circumvent the traditional regulatory process. Since industry is not required by law to participate in such programs, the actions they undertake in the agreement would correctly be considered corporate environmentalism.

When regulators bargain with industry, one might argue that the regulator could commit to blocking passage of threatened legislation if an agreement is reached. Segerson and Miceli (1998) present a model based on this notion, and find that assuming the agreement has lower transaction costs than government regulation, both industry and government benefit from signing the agreement.[5]

Blackman, Lyon and Sisto (2006) find that a voluntary agreement is only socially desirable when the probability of enforcing mandatory regulations is low. In the developing world, there may be considerable uncertainty regarding when regulators will have the capacity to enforce environmental laws that are on the books. In cases where firms take this uncertainty into account, government may use a voluntary agreement to accelerate environmental improvement. However, Segerson and Miceli (1998) find that voluntary agreements are always socially desirable, regardless of the probability of enforcing mandatory regulation.

When industry groups negotiate voluntary environmental agreements with government, firms may disagree about how to allocate the burdens of the agreement. There is no consensus in the theoretical literature about how groups of firms resolve such disagreements. Nevertheless, in the area of corporate environmentalism, Dawson and Segerson (2008) and Manzini and Mariotti (2003) develop models of industry negotiation of VAs. Dawson and Segerson (2008) apply the approach of d'Aspremont et al. (1983) to argue that we should expect only a subset of the total population of the industry to

[5] In Segerson and Miceli (1998), the probability of legislation is exogenous. Glachant (2005) extends their analysis to determine this probability endogenously through a political influence game played between industry and a green advocacy group. Like the earlier analysis, Glachant (2005) finds that a negotiated agreement enhances social welfare. Glachant (2007) extends the analysis further to the case where government observes industry compliance with the agreement but with a detection lag. This means that industry could use a voluntary agreement to delay compliance with threatened legislation.

enter into negotiated agreements, as is indeed often observed in practice. In contrast, if the negotiation process for some reason requires consensus among all firms in the industry, Manzini and Mariotti (2003) show that the outcome of the negotiations is controlled by the firm with the highest cost of abatement, which tends to produce low levels of green actions. In either case, however the voluntary actions are profitable for both the firms that undertake them and for those that do not, in the sense that more costly regulation is avoided.

Most of the business/government partnerships offered by the U.S. Environmental Protection Agency do not fit the foregoing analysis. These "public voluntary programs" are typically initiated by government when political conditions preclude any credible regulatory threat. Most of U.S. climate policy to date has been conducted through these programs, which include the Energy Star program, Natural Gas Star, Climate Challenge, etc.[6] These programs typically offer firms technical assistance and favorable publicity if they adopt environmentally friendly practices. Hence, public voluntary programs offer industry small "carrots" (subsidies) when big "sticks" (regulatory threats) are unavailable.

Public voluntary programs are inherently weaker instruments than mandatory regulations such as environmental taxes, standards or cap-and-trade programs (Lyon and Maxwell 2003). Since public voluntary programs involve only carrots, unlike a mandatory program they cannot force inefficient, dirty firms out of business. Additionally, unlike an environmental tax, public voluntary programs deplete public coffers, rather than contributing to them. Furthermore, if industry believes a subsidy program is possible, it has greater incentives than usual to lobby against mandatory

[6] See Lyon and Maxwell (2004a) for a thorough discussion of these programs.

regulation. For these reasons, policy makers should have only modest expectations for public voluntary programs. Nevertheless, these programs may be useful when stronger measures are politically infeasible, and voluntary participation in them is profitable.

As these programs have grown in popularity over the past decade, they have attracted increasing attention from researchers. Ironically, despite the growing use of public voluntary programs, most empirical research has concluded they are ineffective. Morgenstern and Pizer (2007) review many of the best known public voluntary programs, finding little evidence that participants achieved substantially more environmental improvement than non-participants. However, Lyon and Maxwell (2007) argue that most public voluntary programs should be viewed as information diffusion programs, whose goal is to change overall industry behavior, not just the behavior of participants. Thus, a successful public voluntary program would diffuse information about pollution reduction opportunities throughout an entire industry.

Despite industry's best efforts, not all environmental regulations can be preempted. Even so, corporate environmental actions can be profitable if they help firms shape the regulations that are ultimately implemented. In particular, corporate environmental investments can constrain the regulator's options, or send a signal about the costs of meeting new regulations.

Industrial organization teaches that a firm's sunk investments constrain its subsequent actions, and hence the actions of its competitors. This insight applies to the regulatory arena as well. Lutz, Lyon and Maxwell (2000) show that corporate leaders may strategically commit to modest environmental improvements that constrain regulators' ability to set tough standards. For example, a firm's sunk investments may

make it very costly to re-tool and achieve more substantial environmental gains. If the regulator cares about industry profits as well as environmental performance, she may set a weak standard so as not to dissipate profits too much. In this case, corporate environmentalism, while benefiting industry, does not necessarily have beneficial results for society.[7]

Even after regulations are promulgated, they are unlikely to have much impact on corporate behavior unless government undertakes costly monitoring and enforcement activity. Enforcement agencies are chronically underfunded, which means that officials must carefully allocate their enforcement resources. As a result, companies (or plants) viewed by regulators as socially responsible are likely to be monitored less frequently. Harrington (1988) argued that regulators can leverage their enforcement resources by targeting firms with poor environmental performance records. If we assume that corporate environmental investments enhance a firm's environmental performance, then it is a small step to argue that regulators should target firms that invest less in compliance-related corporate environmentalism. Indeed, Maxwell and Decker (2006) show that if a firm voluntarily makes an observable investment in pollution control that lowers its marginal cost of abatement, then it is optimal for the regulator to monitor the firm less frequently resulting in an increase in the firm's expected profits.[8]

Up to this point we have assumed a state of full information. We now consider corporate environmentalism as it relates to public politics, under incomplete information.

[7] Innes and Bail (2002) show that a firm may voluntary reveal the existence of a new pollution abatement technology to a regulator even if it results in stricter regulations. The reason for doing so is to raise its rivals' costs. The idea is that the new technology allows the firm to comply with the new regulation at a lower cost than its rivals, giving it a competitive advantage.

[8] Innes and Sam (2008) find empirical support for this theory with respect to toxic waste emissions.

When information is incomplete firms can still use the familiar tools of campaign contributions and lobbying to influence future regulations, but other strategies, based on information provision, can also be used to influence legislation and regulation. To date, the relationship between corporate environmentalism and these tools of corporate public affairs management has not received much attention, but this may be changing. Beloe, Harrison and Greenfield (2007) argue (p. 1) that because companies have not been sufficiently transparent about their public affairs activities, "other stakeholders — namely the mainstream investment community — are showing more involvement in assessing the public affairs activities of companies… and in some cases are now driving measurement of business activity in this area."[9]

When the public lacks full information about the state of the environment, environmental NGOs and firms can enhance their chances of influencing legislation by devoting effort to informing the public about the state of the natural environment. Complementarities between informing the public about the state of environment and direct political action are examined by Yu (2005). Yu assumes two stages of competition for legislative change. In the first, NGOs and firms invest resources in persuading the public to influence government policy. In the second, the two groups directly lobby for change themselves. Corporate environmental actions can be used as a tool to lower the likelihood of legislation by convincing the public that the state of the environment is not as bad as they might be led to believe, or that firms are tackling the problem without the need for legislation.

[9] One of the most egregious examples of opaque lobbying practices is "astroturf lobbying," in which companies covertly foot the bill to create artificial "grassroots" political lobbying organizations. Lyon and Maxwell (2004b) develop a model of this form of lobbying.

Once legislation passes, regulations are passed to implement it. The regulator will attempt to balance the costs and benefits of proposed regulations in order to select the regulation that achieves the legislative goal with the maximum possible social welfare. When the regulator lacks information about the costs of alternative policies, corporate environmentalism can play an important informational role. For example, as shown by Denicolo (2008), a firm's voluntary adoption of a clean technology can signal to the regulator that the cost of adoption is low. Consequently, the regulator, in balancing profits, consumer welfare, and environmental externalities, may find it socially desirable to mandate the adoption of the clean technology.

2.3 Political Forces – Civil Regulation

Activist NGOs play an increasingly influential role in corporate environmental actions. This is due in large part to the Internet, which has significantly lowered the internal and external communication costs of NGOs. More specifically, this translates into lower costs for bringing together like-minded individuals and groups to plot complex strategies that can bring attention to the group's concerns (internal communication). It also means lower costs for informing the public about objectionable corporate activities, and mobilizing the public for action (external communication).

Unlike traditional government regulation---in which activists and firms interact with policymakers in an attempt to influence their actions---in civil regulation engagement between NGOs and firms is direct. David Baron coined the term "private politics" to describe this type of engagement. The literature on private politics, while fairly new, already provides interesting insights into the roles NGOs play in corporate environmentalism. This literature includes two distinct lines of work. The first focuses

on the NGO as an adversary, inducing firms to engage in strategic acts of corporate environmentalism either as a preemptive measure or as a means to stop NGOs from inflicting further harm on the firm. NGOs will generally desire a greater level of corporate environmental activity than even altruistic firms are likely to undertake voluntarily.[10] Therefore, altruistic firms are not immune to NGO threats, and may even represent more attractive targets than profit-maximizing rivals. The second line of research shows how NGOs can be corporate allies, using their reputations to certify the CSR activities of firms. Indeed, NGOs with global reach can be a very important source of endorsements since globalization has resulted in production and distribution across different governmental jurisdictions. These endorsements contribute directly to making acts of corporate environmentalism profitable.

Mitigation of an objectionable activity is presumably costly to the firm; otherwise the firm would simply comply with the mitigation request from the NGO. In order to induce compliance with its demands, the NGO may take an adversarial approach, threatening harm for non-compliance, or a cooperative approach, offering the firm a reward for compliance. As mentioned above, the firm might decide to self-regulate by taking voluntary actions in order to avoid a threat of harm. Alternatively, the NGO may participate in the firm's self-regulatory efforts, as part of the provision of a promised reward. In general, however, as shown by Baron and Diermeier (2007), NGOs prefer to threaten harm rather than offer rewards, since threatened harm is more likely to decrease the level of the targeted activity.

[10] The NGO's goal is perhaps best thought of as the optimization of environmental services subject to constraints, the most important of which is the need to retain the support of the general public, as this is the source of the NGO's power.

As with our discussion of traditional government regulation, we begin by assuming the state of full information. If the NGO chooses the adversarial path and the firm rejects the NGO's demand, the NGO will attempt to deliver its threatened harm (e.g. disseminating negative propaganda about the firm or launching a consumer boycott of the firm's products). These activities are designed to negatively impact sales, employee morale, corporate recruitment efforts, etc. These same tactics may also be used against the firm's suppliers to induce them to cease dealing with the firm, thus bringing about indirect pressure on the firm to step up its corporate environmental activities.

Resolution of the NGO's campaign can occur in three ways: 1) The firm remains intransigent and the NGO decides to cease its campaign, 2) The firm acquiesces to the NGO's demands, or 3) The firm and the NGO negotiate a mutually acceptable level of CSR activity and the NGO stops its campaign.

Within this setting, actions that seem altruistic may be indistinguishable from strategic corporate environmentalism. Interestingly, even an altruistic firm that voluntarily undertakes the socially optimal level of mitigation is not necessarily protected against adversarial NGO demands. Because the NGO's focus is on improving environmental quality, it will pressure firms to reduce pollution beyond the level that balances the costs and benefits of abatement. In fact, in some cases, the altruistic firm may be a more attractive target for the NGO than a profit-maximizer, since it has less incentive to resist the NGO's demands.

Although the targeting strategies of NGOs are fascinating, and play a critical role in shaping strategic CSR behavior, they have just begun to receive attention from academic researchers. A pioneering example is the work of Baron and Diermeier (2007),

who develop a theory of adversarial NGO campaigns.[11] They show that the NGO prefers to pick issues that have high social value and target firms that are likely to be responsive to the campaign (i.e., those that will incur low costs for complying with the NGO's demand), which will reduce the resources needed to carry out a successful campaign. NGOs will not necessarily target the worst social or environmental offenders, as these firms may be the most intransigent. As mentioned above, firms that have undertaken some corporate environmental activities, for altruistic or strategic reasons, may find themselves targets of NGOs because they are viewed as weaker targets.

The NGO prefers to target firms sequentially rather than targeting multiple firms simultaneously. Sequential targeting lowers the costs that consumers face for participating in the NGO's campaign, such as a boycott of the firm's products, allowing them to switch to a supplier of a similar product rather than giving up the product category altogether. Sequential targeting also reduces the NGO's campaign costs and allows it to use interim successes to raise additional funds.

Potential targets may use two very different strategies to deflect the NGO. First, they may increase their corporate environmental activities if the NGO will commit to not retarget the firm after the requested improvements have been made. The NGO may agree to such a commitment if self-regulation by the firm makes the pursuit of an alternative firm more desirable. Second, firms may develop a reputation for being resistant to NGO demands in order to induce NGOs to target alternative (weaker) firms. This may have implications for public politics to the extent that intransigence in the public arena enhances a firm's general reputation for resisting social and environmental changes.

[11] The findings we discuss in this and the next two paragraphs all come from Baron and Diermeier (2007).

A product boycott is costly for the firm in terms of lost sales and for the NGO in terms of resources expended to conduct the campaign. This raises the question of why bargaining would not always preempt a boycott. Innes (2006) shows that an NGO may be willing to conduct a long-term boycott against a "dirty" firm in order to shift consumer demand towards a cleaner rival. The dirty firm may resist acquiescing to even a long-term boycott if the market gains from complying with the NGO's demands are small (e.g., if the dirty firm is small or if price competition between similar products would be too fierce). Thus, although a boycott is costly to the firm, it may arise in equilibrium because the alternative of undertaking the demanded corporate environmental activities is too costly.

Once we enter a world of incomplete information, the nature of the NGO/firm relationship can change, and this opens up a new set of corporate environmental strategies to the firm. A great deal of uncertainty may exist around the environmental impact of the firm's production processes and products. Because firms face a credibility problem in conveying information about their environmental impacts, NGOs are often considered a more reliable source of such information. In fact, one recent poll found that 55 percent of Americans trust NGOs, while less than 30 percent trust CEOs of major corporations.[12] If firms wish to obtain credit for their corporate environmental activities through increased prices or sales, or possibly even through heightened employee morale, public recognition is necessary. NGOs make excellent potential corporate allies, since they have more credibility with the public than does a typical corporation.

NGOs can use their credibility with the public to certify the existence of environmental or socially beneficial process changes. The literature has focused on two

[12] See http://www.euractiv.com/en/pa/ngos-top-public-trust-ratings-poll-shows/article-134675

issues: 1) How NGOs can credibly convey information to the public and 2) How the presence of NGOs may affect government decisions to set minimum quality standards for an industry.

Even though NGOs are generally viewed as trustworthy, they may not always be able to credibly vouch for the greenness of corporate offerings. Assuming NGOs seek to minimize environmental damage, Feddersen and Gilligan (2001) show that they may prefer to discourage consumption across the board, rather than shifting consumption toward less damaging products. Thus, an NGO may be happy to label a few products in an industry as green, but it does not want to label all products as green (even if they are!) for fear of increasing overall demand and hence overall environmental impact.

Further complications arise when NGO certification and government minimum quality standards may both be present in the marketplace. The NGO's voluntary label is more attractive to industry, since it allows higher quality producers to distinguish themselves without forcing lower quality producers to exit the industry, something a minimum quality standard would do. Heyes and Maxwell (2004) show that if the NGO's label is seen as an alternative to government regulation, then its very existence may raise industry resistance to the government's minimum quality standard, effectively weakening the standard in response to industry lobbying pressures. However, if the NGO's label is seen as a complement to government regulation, then industry will support their co-existence.

Harbaugh, Maxwell and Roussillon (2010) have shown that a proliferation of labels, often developed by NGOs, can lead to consumer confusion, frustrating firms' attempts to convey information about the environmental qualities of their products.

However, even in this setting, the authors show that there is a possible role for NGOs in enhancing the flow of information to the public by promoting the use of a single particular label as a signifier of environmental quality.

There is still the possibility of adversarial relationships between NGOs and firms in a setting of incomplete information. As time passes and firms face growing pressure from NGOs to undertake corporate environmental activities, they also face growing demands for transparency, that is, for full disclosure of their environmental profiles. This pressure is stronger when stakeholders are worried about environmental impacts and when an NGO boycott threatens to be very costly. Sinclair-Desgagne and Gozlan (2003) show that when the NGO wields a big threat it can induce green firms to distinguish themselves by issuing a detailed Corporate Social Responsibility (CSR) report. If the NGO threat is weak, however, then both green and brown firms release only moderately informative CSR reports. In this case, the NGO conducts its own audit of the firm, and initiates a boycott if the firm is found to be brown.

As firms increasingly strive to appear green, NGOs have become more vigilant about perceived corporate hypocrisy, which NGOs often label as "greenwash." Lyon and Maxwell (2011) develop a theory of greenwash as selective disclosure, in which an NGO may attack a firm for promoting green activities if it finds that the firm also suppressed information about environmentally harmful activities. Under this theory, firms with poor reputations fully disclose because they gain much from trumpeting a success and lose little by hiding a failure (since they are already expected to fail); in this case, there is little value in risking public backlash by refusing to disclose. At the other extreme, firms with excellent reputations disclose nothing because they gain little by disclosing successes

(since they are already expected to succeed) and lose a lot by disclosing a failure; in this case, there is little value in risking public backlash by disclosing a success. For firms with moderate reputations, however, selective disclosure is attractive: disclosing a success can produce a significant improvement in public perception, and withholding information about a failure can prevent a significant negative public perception; thus, they are willing to risk public backlash by disclosing only partially.[13]

3. **Empirical Research on the Profitability of Corporate Environmentalism**

As the previous section has shown, there are many ways in which corporate environmentalism can be profitable, at least in theory. Furthermore, many firms in developed countries have obviously decided that integrating sustainability into their business strategy is profitable. (Esty and Winston, 2006; Nidumolu et al., 2010) Nevertheless, it has proven surprisingly hard to establish empirically whether firms profit from being more socially and environmentally responsible. Indeed, scholars have debated whether better corporate social and environmental performance (CSEP) leads to better corporate financial performance (CFP) for years with remarkably limited success. After reviewing literally hundreds of academic studies, Margolis and Walsh (2001) conclude that although there is generally a positive correlation between CSEP and CFP, causality remains a puzzle: it is unclear whether being green really pays, or whether financially-successful firms simply have greater latitude to indulge their managers' whims at the expense of shareholders.

[13] For empirical evidence on greenwashing by firms in the electric utility sector see Kim and Lyon (2011).

The methodological challenges of measuring the profitability of corporate environmentalism are substantial. Cross-sectional regressions are unlikely to ever resolve the puzzle of causality, since they cannot distinguish whether profitability preceded greening or vice versa. An alternative approach is to use panel data to identify intertemporal links between CSEP and CFP. If a change in CSEP in period *t* is associated with a change in CFP in period *t*+1, but not vice versa, one can make a case that CSEP causes CFP. However, this approach inevitably confronts an array of methodological quandaries. First, it is hard to accurately control for all the factors that may affect a firm's CFP over time. Second, it is very difficult for the researcher to control for the autocorrelation of variables when seeking causal relations over time; thus, even time series data may not establish causal patterns. Third, it is very difficult to find instrumental variables that allow the researcher to predict CSEP independently of CFP and vice versa. As a result, even the literature on intertemporal links between CSEP and CFP is not conclusive.

3.1 Does it Pay to Be Green? Evidence from Event Studies

A more promising way of resolving the puzzle of causality is to focus on a discrete event that happens within a narrowly defined window of time, and that is expected to affect shareholder value. Work of this sort starts from the premise that financial markets have powerful incentives to rapidly incorporate all available information that may affect the future returns of listed companies. When news reaches the market, share prices will quickly reflect its effect on expected future returns.

(MacKinlay 2007) Such financial "event studies" can identify the impact on profitability of good or bad environmental news.

The challenges with the event study approach are quite different from those of work studying longitudinal correlations between CSEP and CFP. As long as the event itself is plausibly independent of firm profitability, the direction of causality is clear. For example, it is hard to argue that the timing and content of Newsweek's Green Rankings are driven by the profitability of any of the firms in its sample. The biggest challenge in event studies is often identifying a well-defined event that occurs within a relatively narrow "event window" and the outcome of which could not be anticipated by informed insiders. Again, the Newsweek Green Rankings provide a good example: the release of the rankings is a well-defined event, and Newsweek has strong incentives not to leak the results of the ratings before publishing them.

The emerging literature on environmental event studies has already begun to establish some important empirical regularities. First, environmental problems that are likely to generate regulatory penalties or legal liability are generally punished by the capital markets, in both developed and developing countries. (Muoghalu et al. 1990; Lanoie and Laplante 1994; Klassen and McLaughlin 1996; Lanoie, Laplante and Roy 1998; Dasgupta, et al. 2001; Karpoff, Lott and Wehrly 2005; Capelle-Blancard and Laguna 2010) Second, emissions of toxic chemicals, even unregulated ones, by firms in the U.S. are penalized by investors. (Hamilton 1995; Konar and Cohen 2001; Khanna et al. 1998; Bettenhausen et al. 2010) Third, negative ratings by third parties reduce stock prices significantly both in the US and in India. (Gupta and Goldar 2005; Beatty and Shimshack 2010; Lyon and Shimshack 2011) Thus, there appears to be an emerging

consensus that stock markets punish bad environmental news. However, it remains an open question whether the reduction in shareholder value caused by bad environmental news is simply equal to the expected value of regulatory and legal penalties (Karpoff et al. 2005) or substantially greater than the value of such penalties (Muehlenbachs et al. 2011).

Much more controversial is the question of whether good environmental news is rewarded by financial markets. Dowell et al. (2000) divide US multinational firms into three groups: firms that default internationally to (less stringent) local environmental standards; firms that apply US environmental standards on an international scale; and firms that adopt more stringent standards than those required by US law. Their results suggest that firms that adopt more stringent environmental standards have higher valuations, but they are unable to reject the possibility that this is simply because well-managed firms are both cleaner and more profitable. Some research finds good news that is a function of corporate participation in environmental management systems (Wang and Yuan 2004; Alberton et al. 2009; Canon-de-Francia and Garces-Ayerbe 2009) or voluntary programs like the Carbon Disclosure Project (Kim and Lyon 2011) or Climate Leaders (Fisher-Vanden and Thorburn 2011) is not valued by the market, and may even meet a negative response. A neutral response may occur because external parties cannot distinguish "greenwash" (Lyon and Maxwell 2011) or "symbolic action" (Westphal and Zajac 1994; Delmas and Montes-Sancho 2010) from substantive action, while a negative response may occur because firms are pressured into taking action, so that what appears "voluntary" is really coerced, and hence should not be expected to be profitable. (Reid and Toffel 2009, Fisher-Vanden and Thorburn 2011)

Awards or rankings produced by credible third parties would appear to be a form of good news that is immune from the criticisms that it is simply greenwash on the part of firms trying to promote themselves, or the result of pressure from other stakeholders. Even in this situation, however, the empirical evidence is equivocal. Newsweek's highly publicized Green Company Ratings had a significant impact on share prices, with firms in the top 100 earning nearly 1% higher abnormal returns than those in the bottom 400 (Lyon and Shimshack 2011). However, it is impossible to determine whether poor performers were being penalized, good performers being rewarded, or both.[14] In some cases, such as the climate ratings produced by the environmental group Climate Counts, performers rated highly receive no positive abnormal returns (Beatty and Shimshack 2010). In other cases, environmental awards are greeted positively by the capital markets, both in the U.S. (Klassen and McLaughlin 1996) and in a number of developing countries (Dasgupta Laplante and Mamingi 2001). In China, however, privately-owned firms and firms in low-polluting industries suffered significant negative impacts from winning environmental awards (Lyon et al. 2011).

Even though the direct financial benefits of corporate environmentalism are unclear, empirical evidence suggests that voluntary environmental improvement provides an indirect increase in shareholder value by mediating the impact of external shocks. Several papers in the empirical accounting literature find that investors view firms with more extensive prior environmental disclosures as better prepared for possible future environmental regulations (Bowen et al., 1983; Hill and Schneeweis, 1983; Blacconiere

[14] The difficulty comes in selecting an appropriate market return benchmark against which to measure abnormal returns. Since Newsweek rates the 500 largest US firms, the S&P 500 does not provide an exogenous market benchmark; the Russell 4500 provides an independent benchmark, but because it comprises firms substantially smaller than those in the S&P 500 it is not necessarily an appropriate reference point.

& Patten, 1994; Blacconiere & Northcut, 1997; Patten & Nance, 1998; Freedman and Patten, 2004). Kim and Lyon (2011) study both the direct and the indirect impacts on share prices of corporate decisions to participate in the Carbon Disclosure Project (CDP). They find no direct impact on share prices, but when the threat of climate regulation increased (as a result of Russia ratifying the Kyoto Protocol), CDP participants earned higher returns than non-participants.

3.2 When Does it Pay to Be Green?

We turn now to the small body of empirical work that attempts to test specific hypotheses about when it pays to be green.

3.2.1 Market Forces

Perhaps the most common explanation for why corporate environmentalism is profitable is the notion that companies can both save money and reduce emissions by improving internal eco-efficiency. Anecdotes and case studies abound supporting this idea (Porter and Van der Lind 1995, Esty and Winston 2006, Hoffman 2007), but empirically robust evidence is surprisingly hard to find. Khanna and Damon (1999) find that chemical firms that participated in the EPA's 33/50 voluntary program (which encouraged reductions in toxic chemical emissions) suffered a short-term reduction in return on investment, but achieved a long-term gain as measured by excess value per unit of sales. In perhaps the best study of this kind, King and Lenox (2002) study a sample of 614 firms in a range of industries, and find that waste prevention is consistently profitable

(as measured by Tobin's q, the firm's market value per value of assets), but that other means of reducing pollution are not.

Another simple market-driven explanation for why corporate environmentalism might be profitable is that firms can differentiate their products to sell to green consumers, earning higher margins in the process. There is a small literature that does indeed suggest that some consumers are willing to pay a price premium for some green products (Teisl et al. 2002, Kiesel and Villas-Boas 2007, Casadesus-Masanell et al. 2009, Elfenbein and McManus 2010). This literature has not focused on the profitability of green product differentiation, however. Since green products are likely to cost more to produce than brown products, there is no guarantee that they are more profitable.

3.2.2 Political Forces – Government Regulation

Maxwell, Lyon and Hackett (2000) find support for the theory of regulatory preemption, based on the empirical result that toxic emissions reductions were greater in states with high initial levels of emissions and a larger number of environmental group members per capita. Similarly, Innes and Sam (2008) find that firms were more likely to participate in the EPA's 33/50 Program in states with a greater density of environmental group members.

Decker (2003) finds support for the theory that corporate environmentalism can deflect enforcement effort, based on the result that firms undertaking voluntary pollution abatement were granted permits for new plant construction and expansion of existing plants more quickly than other firms. In a related vein, Innes and Sam (2008) find that firms that participated in the EPA's 33/50 Program were rewarded with relaxed

regulatory scrutiny. In addition, Keohane et al. (2009) find that coal-fired electric generating units facing a greater likelihood of regulatory enforcement lawsuits reduced emissions more than other plants.

None of these papers directly estimate the profitability of the corporate strategies involved. However, revealed preference implies that the firms found the strategies profitable. In addition, Decker (2003) points out that for a large firm such as Intel, the cost of delay in building a new plant can be as high as $1 million per day; since one fewer environmental violation over a three-year period was associated with an 81-day reduction in permitting time, the payoff to better environmental performance may be very high indeed.

3.2.3 Political Forces – Civil Regulation

The nascent empirical literature on private politics is very small but generally supportive of the theory described in Section 2.3. Lenox and Eesley (2009) find that firms with greater cash on hand are less likely to acquiesce to activists' demands, as are firms with poor environmental performance. Activists adopt more aggressive campaigns against larger and dirtier firms, and firms with smaller capital reserves. In addition, they find that firms are more likely to be targeted by activists if they are larger, more profitable, more advertising-intensive, and dirtier; firms with large cash reserves are less likely to be targeted. Gupta and Innes (2008) also find that larger firms are more likely to be targeted by activists, and that targeting makes firms significantly more likely to adopt environmental management systems.

4. Conclusions

The economic literature on corporate environmentalism has mushroomed over the past decade. Economic theory has identified numerous channels through which companies can profit from environmentally-friendly actions that go beyond legal requirements. Cutting production costs, meeting the demands of green consumers, and shaping public and private politics---all offer the potential for shareholder gains. Although the first two of these channels are very similar to traditional aspects of managerial economics, the political dimension of corporate environmentalism is novel and has not traditionally been considered part of managerial economics.

From an empirical perspective, the literature has largely moved beyond the simplistic question of whether it pays to be green, and begun to identify specific situations in which it pays to be green. To date, the literature has been more successful in identifying situations where it is costly to be brown than situations where it pays to be green; there is a solid body of evidence that shareholder value drops when investors learn that a firm has increased its emissions of pollutants, or faces government regulatory penalties or legal liability. There is also evidence that pollution prevention can lower costs by improving upon inefficient production processes.

The evidence is mixed regarding whether shareholder value increases when firms receive environmental awards or other forms of favorable publicity. However, even though firms may not receive a direct increase in share price from their environmental investments, greening can serve as a risk management tool, cushioning the firm against negative investor reaction when environmental accidents occur or when the risk of environmental regulation or litigation increases. In addition, corporate environmentalism

can pay off by influencing the regulatory process---preempting or delaying new regulations, speeding the permitting process, and deflecting regulatory enforcement efforts towards other firms.

Perhaps the most neglected dimension of corporate environmentalism, from a research perspective, is the relationship between environmental NGOs and corporations---the domain of civil regulation or private politics. There is as yet no theory of the industrial organization of the NGO industry that would parallel the literature on the organization of business sectors. Furthermore, the empirical literature on the behavior of NGOs is still in its infancy. There is ample room for the next decade of research on corporate environmentalism to be just as productive as the last.

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During this decade, on the one hand, there were some environmental economists who were quite optimistic and felt that resources could never be completely exhausted (Pearce et al, 1990), and that the development of substitutes or technological changes like recycling, in order to conservate resources, was bound to take place.Â Moreover, theories of corporate strategy are also gradually being modified to incorporate environmental problems and concerns. However, there is still relatively little debate over whether a traditional corporate strategic planning approach within the traditional capitalist system (with all its financial and short-term constraints) can actually lead us towards sustainable development. Evidence on the profitability of P2 opportunities is decidedly mixed. For instance, an Environmental Protection Agency study (EPA, 1992) evaluated a broad set of source reduction options at a large-scale petroleum refinery. Most of the options were found to have negative rates of return and only one had a rate of return higher than the historical rate of return for projects at the refinery.Â They allow for a deeper understanding of the relationship between pollution prevention and corporate profitability. It should be noted, of course, that three, non-randomly selected cases cannot be used to draw broad policy or empirical conclusions. Instead, they should be viewed as a lesson on the practical challenges facing private sector managers. Another area of corporate environmentalism is sustainability, which is concerned with minimizing a firm's dependency on the natural environment for various resources (Hart, 1995;Khojastehpour & Johns, 2014;Sheth & Sinha, 2015). Industrial firms with sustainable initiatives invest in employee safety, employee training on environmental management, energy conservation, and water conservation. ...Â firm value, Corporate Social Responsibility has significant affects on the firm valuewith profitability as an intervening variable, and Intellectual Capital has no significant affects on the firm value with profitability as an intervening variable.