

# THE EFFECTS OF MANDATORY AND VOLUNTARY REGULATORY PRESSURES ON FIRMS' ENVIRONMENTAL STRATEGIES: A REVIEW AND RECOMMENDATIONS FOR FUTURE RESEARCH

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This article presents an in-depth review of scholarship on how mandatory and voluntary regulatory pressures on firms affect their environmental strategies and performance. Although mandatory regulation typically has a strong and positive influence on firms' environmental performance, studies of the effects of voluntary pressures demonstrate that by themselves they are unlikely to bring about significant improvement in environmental outcomes. Accordingly, future research should focus on the complementary impacts of mandatory and voluntary programs on organizations' environmental strategies and performance rather than analyzing their separate influence. Scholars should examine i) more than a single environmental pressure at a given time, ii) more than one response to the regulatory context, iii) the synergy between mandatory and voluntary pressures, iv) the impact of imperfect enforcement, and v) the political influence corporations exert on the mandatory and voluntary pressures that affect them. This essay argues that managers react to environmental regulations in different ways depending on how they understand the multiple pressures that they confront and their opportunities to influence the outcomes.

## INTRODUCTION

Growing concern about the effects of firms on the natural environment has reignited interest in the question that managers, activists, policy-makers,

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and scholars have debated for decades: namely, how do environmental regulations affect firm behavior? On the one hand, multiple scholars have concluded that mandatory regulations have had a powerful impact on the environmental performance of companies (e.g., Christmann, 2004; Darnall, Henriques, & Sadowsky, 2010; Henriques & Sadowsky, 1999). On the other hand, mandatory regulations often have been criticized for being overly rigid, inefficient, or ineffective, and harmful to firms' or to nations' competitiveness (e.g., Dean & Brown, 1995; Jaffe, Peterson, Portney, & Stavins, 1995; Kim, Park, & Ryu, 2017).

Many scholars also have explored the advantages and disadvantages of the voluntary codes and standards that have arisen in great numbers to supplement or substitute for mandatory rules (e.g., Delmas & Toffel, 2008; Doshi, Dowell, & Toffel, 2013; Howard-Grenville, Nelson, Earle, Haack, & Young, 2017). Although this literature generally views the voluntary programs as having a positive influence, it is not sanguine about the substantive changes in the environmental strategies and performance of firms

that arise from voluntary programs alone. King, Prado, and Rivera (2012: 104) have commented that voluntary programs offer “potentially important solutions” for making the “planet more sustainable.” Yet voluntary programs often do not work well because of issues such as free-riding, adverse selection, moral hazard, and lack of accountability (e.g., King & Lenox, 2000; Steelman & Rivera, 2006; Tenbrunsel, Wade-Benzoni, Messick, & Bazerman, 2000; Testa, Iraldo, & Daddi, 2018).

This essay acknowledges the contributions of previous scholarship, while also exploring its limitations. We carry out an up-to-date, in-depth, review that investigates the implications of mandatory and voluntary environmental pressures for firms’ environmental strategies and performance. The main limitation we identify in the prior literature is that it is fragmentary in nature. Most studies focus on a single type of mandatory or voluntary pressure and a single or just a few corporate reactions (see Figure 1). If scholars are to make progress in understanding the effects of both mandatory and voluntary pressures on firms’ environmental strategies and performance, they must pay attention to the combined effects of the diverse mandatory and voluntary programs that organizations confront. The full impact of these programs reflects the multiple choices managers make in response to the many programs that affect them, the degree to which

these programs are effectively enforced, and the extent to which companies can influence them politically.

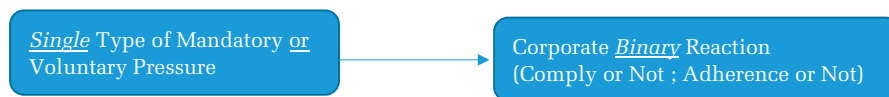
This essay contributes to ongoing academic and societal debate by highlighting an approach that takes into consideration the simultaneous effects of multiple regulatory programs on corporate environmental strategies and performance. We begin by providing background on the mandatory and voluntary pressures that affect firms. In subsequent sections, we review the relevant empirical management literature on how firms respond to these pressures, discuss gaps in the literature, and conclude with proposals for future research.

### BACKGROUND ON MANDATORY AND VOLUNTARY PRESSURES

Legally constituted local, national, and supranational authorities have developed mandatory programs that hold firms accountable for their environmental impacts by making them conform to legal dictates. By contrast, voluntary programs derive from diverse sources including governments (e.g., the Eco-Management and Audit Scheme of the European Union, EMAS), standards organizations (e.g., the ISO 14001 certification of the International Standard Organization), civic organizations and non-governmental organizations (e.g., the Sustainable Forest

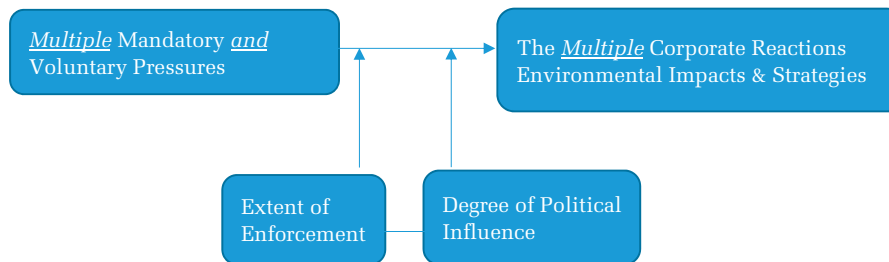
**FIGURE 1**  
**Research on Environmental Pressures on Firms: Prior and Proposed Future Studies**

Typical Prior Study



(Assuming other conditions equal)

Proposed Future Studies



(Considering other factors)

Initiative auditing of paper and forest product companies), and industry trade groups (e.g., chemical industry oversight by the Responsible Care program of the American Chemistry Council). Although firms are legally required to comply with the mandatory programs, they enjoy more discretion in deciding whether and how to participate in the voluntary ones.

All governments have enacted various types of mandatory regulation. Table 1, for instance, provides a list of the mandatory environmental laws the U.S. government passed from 1970 to 1976. These laws have since been amended and extended, and they remain an essential element in the environmental regulatory regime that governs business and other organizations in U.S. Most nations in the world have enacted similar laws. Firms face sanctions and penalties if managers do not comply with the mandatory regulations. Multiple government, private, and industry voluntary codes also have emerged, but although governments and social movements may put pressure on companies to comply with them, companies can choose not to participate and not to be involved. This “lack of governmental authority,” according to King et al. (2012: 104), makes the voluntary programs “problematic, provocative, and so potentially important.” Table 2 provides a list of the variety of different types of mandatory and voluntary programs firms confront currently.

The economics literature extensively discusses why mandatory requirements are needed. The common theme is that market behaviors create negative externalities that mandatory regulations help to overcome (see, e.g., Anderson, 2010; Callan & Thomas, 2013; Field, 2017; Goodstein, 2011).<sup>2</sup> On the other hand, a number of factors have led to the increase in voluntary programs (Delmas, 2002; Delmas & Terlaak, 2001; Marcus, Geffen, & Sexton, 2002). Politicians have responded to companies’ preferences for more flexible controls by offering voluntary schemes. Industry has developed some private voluntary programs to show clear signals of environmental commitment. Finally, some civil organizations have tried to achieve improvements in corporate performance beyond the scope of legal requirements. In general, there has been the expectation that when confronted with widespread pressure from social movements to become more socially

responsible, companies would be willing to control more of their negative externalities on their own (Kim et al., 2017).

Traditional management research has focused on the effects of mandatory and voluntary programs separately but without considering their combined impacts. Scholars have pointed out that the mandatory programs have not always been fully effective because of enforcement lapses and corporations interfering in the political process (Marcus, 1980; Peltzman, 1976; Stigler, 1975). Research also has been skeptical of the degree to which the voluntary programs really have affected firms’ behavior (e.g., Berliner & Prakash, 2015; Potoski & Prakash, 2013).

The following sections provide a review of the empirical research in the management literature on mandatory and voluntary regulation. To the best of our knowledge, we cover all the empirical articles published in the top tier general and specialized management journals on these topics. The mainstream management journals included in our review are as follows: *the Academy of Management Journal*, *Academy of Management Perspectives*, *Administrative Science Quarterly*, *Journal of Management*, *Journal of Management Studies*, *Organization Science*, and *the Strategic Management Journal*. The specialized journals included are among others *Business Ethics Quarterly*, *California Management Review*, *Ecological Economics*, *Journal of Business Ethics*, *Organization & Environment*, and *Research Policy*.

## A REVIEW OF BUSINESS RESPONSES TO MANDATORY REGULATION

### Main Emphases

The consensus in most of the management research is that mandatory environmental regulations have had a strong influence on firms’ environmental performance (e.g., Christmann, 2004; Darnall et al., 2010; Kock, Santalo, & Diestre, 2012; Reid & Toffel, 2009; Testa et al., 2018; Weigelt & Shittu, 2016). Sanctions and loss of legitimacy for not complying with these regulations have been powerful engines for generating improved environmental performance. Markets and social movements, in comparison, primarily play a supporting role (e.g., Christmann, 2004; Darnall et al., 2010). However, compliance with regulatory mandates can have side effects; specifically, they can impinge on firms’ access to new markets, their operating costs, and their flexibility

<sup>2</sup> Coase (1960) maintained that mandatory regulations are needed in a world of imperfect information and transaction costs, whereas Hardin’s (1968) argued that without mandatory programs, societies would confront a tragedy of the commons in which the world’s environmental amenities would be rapidly depleted

**TABLE 1**  
**Mandatory U.S. Environmental Protection Laws Passed from 1976–1990**

Clean Air Act (1970)	Domestic mandatory	Sets national ambient air-quality standards for various pollutants by determining their maximum concentrations. Establishes emission standards for hazardous pollutants through the use of individual source emission limitations. U.S. states set up their own implementation plans through the EPA (Environmental Protection Agency) that administers the act.
Clean Water Act (1972)	Domestic mandatory	Aims to restore and maintain the chemical, physical, and biological integrity of U.S. waterways. Restricts effluent discharges into navigable waters through a permitting system known as the National Pollutant Discharge Elimination System (NPDES). A separate statute, the Safe Drinking Water Act (SDWA), regulates drinking water.
Resource Conservation and Recovery Act (1976)	Domestic mandatory	Imposes “cradle-to-grave” liability on waste generators, which makes them responsible for storage, transportation, and final treatment, or disposal of their waste.
Clean Air Act Amendments (1990)	Domestic mandatory	Substantially strengthen the penalties for noncompliant regions. Address the problems of acid rain, urban smog, airborne toxins, and ozone-depleting chemicals. The EPA auctions off a limited number of SO <sub>2</sub> emission allowances for each year. Firms holding the allowances use them to emit SO <sub>2</sub> ; firms also may bank them for later use or sell them.

(e.g., Dean & Brown, 1995; Jaffe et al., 1995; Kim et al., 2017). That specific mandatory regulations have resulted in the reduction in environmental impacts is not disputed. The debate has been about the potential effects of mandatory requirements on firms' financial performance and their competitive advantage (Kim et al., 2017; Nehrt, 1998).

The empirical literature on management and mandatory environmental regulation mainly has

been aimed at answering questions such as the following: a) as opposed to making substantive changes to what extent have international firms responded to mandatory requirements by moving their pollution to countries that have weak requirements and enforcement, b) to what degree have various internal and external factors influenced the environmental strategies and performance of firms, and c) to what extent have mandatory requirements affected their

**TABLE 2**  
**The Mix of Mandatory and Voluntary Programs Companies Confront**

	Governance	Focus	Flexibility	Orientation	Examples
Mandatory					
Domestic	Governments	Legal	Low	Centralized and decentralized	U.S. Federal Clean Air Act
Global	Multigovernmental	Legal	Low/medium	Centralized	Kyoto Protocol and the Paris Treaty
Voluntary					
Domestic	Governments	Legal and reputational	High	Centralized and decentralized	U.S. Audit Policy and European EMAS
Global	Multigovernmental and certifying bodies	Technical and reputational	High	Centralized	UN Global Compact and ISO codes
Industry	Corporate partners	Technical and reputational	High	Decentralized	Chemical Industry Responsible Care
NGOs	Civic associations	Technical and reputational	High	Decentralized	Sustainable Forest Initiative

competitiveness. The sections that follow review these topics and provide a summary of some of the main conclusions.

### **To What Degree Do International Firms Make Substantive Changes?**

The degree to which international firms have made substantive changes to their environmental strategies as opposed to moving their pollution to emerging economies to lower costs and increase competitiveness has received substantial attention. On the one hand, some of this research has found that multinational corporations pursue environmentally responsible policies in emerging countries even when regulations in these countries are weak and ineffective (e.g., Bansal & Hunter, 2003; Child & Tsai, 2005; Christmann, 2004). Several factors explain this result, including the companies' desire to maintain their legitimacy (Bansal & Hunter, 2003; Child & Tsai, 2005) and the internal benefits they derive from pursuing the same strategies in different parts of the world (Christmann, 2004). Studies have also found that stringent mandatory requirements have not deterred firm from entering countries. For instance, Madsen (2009) shows that automobile companies have not stopped making investments in countries whose environmental standards are strict and whose enforcement is serious.

However, other studies cast doubt on the relationship between progressive environmental behavior and globalization (e.g., Wright & Nyberg, 2017). According to these studies, multinational firms prioritize their need for their short-term profits over efforts to improve the environment. Their environmental commitments go only so far as their wish to avoid reputational damage. Many studies, indeed, highlight the role of greenwashing and firms' symbolic behavior as opposed to substantive commitments (e.g., Berrone, Fosfuri, & Gelabert, 2017; Bowen, 2014; Bowen & Aragón-Correa, 2014). Aguilera-Caracuel, Hurtado-Torres, Aragón-Correa, and Rugman (2013), for instance, find that multinational enterprises' level of environmental performance varies by a country's legal requirements and that it is based on the distance between a home and host country. Aragón-Correa, Marcus, and Hurtado-Torres (2016) demonstrate that multinational firms that communicate more about environmental programs and priorities make less real progress than companies that communicate less. Companies that communicate more appear to seek legitimacy from

making symbolic gestures rather than changing their environmental strategies.

These conflicting findings may mean that under-analyzed contingencies have played a role in the findings of studies of how firms respond to globalization. Additional research is needed on how multinationals interact with policy-makers in developing countries and on the capacity of developed and developing countries to enforce the regulations they have put in place. Another issue is that the measures used to operationalize international firms' environmental performance and behavior must better capture the differences between firms' real and symbolic behavior. Under-analyzed contingencies in how firms respond need additional examination.

### **Internal and External Factors Influencing a Firm's Responses to Mandatory Environmental Regulations**

Many studies conclude that the effects of mandatory regulation on firms' environmental strategies and performance depend on factors internal to firms and to factors in firms' external environments. These factors vary from study to study without being clear about why some studies emphasize some of them over others. Here, we point to just a few of the factors that have been prominent in the literature.

#### **Internal to the Firm**

**Firm size.** A common finding is that, because of limited resources, managers of small firms often are unwilling to go much beyond what the law requires (e.g., Aragón-Correa, 1998; Darnall et al., 2010). However, Doshi et al. (2013) report that in sparsely distributed regions, managers of large organizations improve their firms' environmental performance more slowly than managers of small organizations. Both groups perform similarly in dense regions, suggesting that large establishments are likely to resist regulatory pressures when pressures are weak. Some of the unique characteristics of small firms (e.g., shorter lines of communication and closer interaction within the organization, the presence of a founder's vision, or an entrepreneurial orientation) may also help explain why under some circumstances they do more than the law requires (Aragón-Correa et al., 2008).

Insufficient attention has been paid to how large firms' distinctive capacities influence regulatory design and enforcement in different settings (Fremeth & Shaver, 2014). Understanding how regulatory design and enforcement influence the differences in large and

small firm performance is an important topic for future research.

**Managers' attitudes.** A strong consensus exists regarding the role managers' perceptions and attitudes play in how firms react. A number of studies show that negative managerial attitudes to environmental regulation are strong barriers to improved environmental performance (Cordano, Frieze, & Ellis, 2004; Rivera Ungson, James, & Spicer, 1985).

In addition, there is the insight studies have provided that managers often anticipate the effects of future mandatory requirements. Their sensitivity to future requirements extends to standards that peer companies face in geographically adjacent and similar business contexts (e.g., Dutt & Joseph, 2019; Fremeth & Shaver, 2014), foreign contexts (Chakraborty & Chatterjee, 2017), and to other regulatory shifts (e.g., Hoffmann, Trautmann, & Hamprecht, 2009; Reid & Toffel, 2009). When managers perceive that stronger regulation looms in the background, they adopt more proactive environmental strategies (Engau, Hoffmann, & Busch, 2011; Hoffmann et al., 2009; Reid & Toffel, 2009).

Worth exploring further is how managers in establishing their environmental priorities perceive and take into account multiple types of mandatory regulation, those presently in place and those likely to be in place in the future.

### External to the Firm

**Regulatory flexibility.** Coglianese and Anderson (2012) carry out a detailed analysis of the various types of flexibility environmental regulations give firms. Technological standards, for instance, prevail in the U.S. water pollution program and they afford very little flexibility to firms; on the other hand, under U.S. clean air programs, legally enforceable limits give firms freedom in how to meet environmental requirements (Marcus, 1980). Studies have examined the role of more flexible regulations that focus on objectives rather than on technical means to achieve compliance (Hoffmann et al., 2009; Majumdar & Marcus, 2001). They have found that outcome-based performance standards generally generate more environmental progress than means-based standards. This progress occurs because the performance-based standards provide incentives for going beyond minimum compliance levels and motivate firms to develop innovative solutions. Going beyond minimum levels and developing innovative solutions have the advantage of allowing firms to stand out from their peers, and they may play a role in how firms achieve competitive advantage.

Mandatory information disclosure seems to be a flexible way to encourage environmental progress (Case, 2001; Short & Toffel, 2010). Yet, Doshi et al. (2013) find that mandatory information disclosure programs only are effective when companies are subject to complementary internal and external pressures. Companies change environmental strategies following mandatory information disclosure only when they have access to the relevant capabilities and mostly because of peer pressure. These companies, according to Doshi et al. (2013), are located close to other establishments, headquarters, or an enterprise a parent company owns in the same industry.

Companies encounter situations in which they simultaneously face means- and outcome-based regulations and requirements to reveal information about their environmental releases. However, most empirical articles examine these programs in isolation. Future studies need to overcome this deficiency and examine how in combination these programs affect firms' environmental strategies.

**Operating context.** The reviewed literature often recognizes the difficulties in extending the findings of studies beyond the specific settings in which the studies have been carried out. However, it is hard to find studies that pay much attention to this problem and actually do comparative analysis of environmental regulations in more than one setting. Most studies, for instance, focus on highly regulated industries, such as electricity generation (e.g., Fremeth & Shaver, 2014; Hoffmann et al., 2009; Kim, 2013) and petrochemicals (e.g., Christmann, 2004; Hoffman, 1999), although the findings of these studies might not be relevant to settings in which companies are less heavily regulated.

Studies have also shown that differences in firms' environmental investments vary by country. For instance, companies in civil law countries in Europe have tended to invest more in environmental cleanup than companies in common law countries such as England or the U.S. (Kim et al., 2017).

The existence of complementary assets also plays an important role in the degree to which firms comply with regulation. Environmental improvements increase substantially more after the regulation in regions where a critical complementary good was more available (Fabrizio & Hawn, 2013). In future analyses, the influence of other factors such as differences in law, funding opportunities, culture, and technology should receive more attention.

**Uncertainty.** This issue has been extensively examined in the literature (e.g., Aragón-Correa & Sharma, 2003; Dutt & Joseph, 2019; Hoffmann et al., 2009; Marcus, Aragón-Correa, & Pinkse, 2011). Yet studies have not yet reached a consensus on the degree to which regulatory uncertainty is a barrier to environmental improvement. On the one hand, regardless of the degree to which regulations are uncertain, managers must comply with them. Some managers, moreover, are proactive and they make changes even if requirements do not exist currently. On the other hand, if there are good chances that regulations will be revoked or altered, managers may conclude they have insufficient reason to change their companies' behavior. More studies are needed on how uncertainty alters firms' strategies and behavior (Marcus et al., 2011). The proliferation of regulatory programs in generating uncertainty provides motivation for this research.

### Effects on Firms' Competitiveness

Standard economic assumptions (Jaffe et al., 1995) are that spending on mandatory regulations imposes costs on firms and slows their growth (Majumdar & Marcus, 2001). However, the so-called Porter's hypothesis argues that this spending is also likely to enhance firms' competitiveness and bolster their innovative behaviors (Porter & Van der Linde, 1995). Vogel (2007) in *The Market for Virtue* argues against markets' capacities alone to induce firms to be more environmentally progressive and places greater emphasis on the effects of mandatory requirements. Many studies support his argument and find that the existence of strong regulation, or even the uncertain anticipation of future regulation, has encouraged investment in environmental protection and attracted additional investment in related and emerging fields (Chakraborty & Chatterjee, 2017; Diestre & Rajagopalan, 2011; Dutt & Joseph, 2019).

A recent meta-analysis (Cohen & Tubb, 2018) mostly found positive impacts of mandatory regulation on regional competitiveness, but less consistent results on the competitiveness of firms. However, it is relevant to consider that the results for firms became more positive as researchers adopted and used better methods over time. For example, studies that included a lagged dependent variable when considering the effects of environmental regulation on firm competitiveness showed a more stable positive pattern than those that just measured short-term effects without a lagged dependent variable (Cohen & Tubb, 2018). Similarly, although pioneering early literature found

that environmental regulation inhibited firm entry into new industries (Dean & Brown, 1995), more methodically robust recent literature has shown that demanding environmental regulation has encouraged diversification and increased firm entry into new industries (Diestre & Rajagopalan, 2011).

Researchers also have explored how deregulation influences firms' competitiveness, but the results have been inconsistent. An interesting finding is that of Delmas, Russo, and Montes-Sancho (2007), which shows that deregulation in the electrical utility industry opened up opportunities for competitive advantage through differentiation. However, Kim (2013) finds that when deregulation occurs, only firms with prior strong experience in green technologies have increased their environmental investments and performance.

Probably, the most important conclusion that can be derived from studies of the effects of mandatory regulation on competitiveness is that firms have some leeway in how they can respond (e.g., Diestre & Rajagopalan, 2011; Engau et al., 2011; Rivera, 2002). That is, they are able to construct unique strategies and derive specific economic or reputational benefits from the particular approaches they take. The heterogeneity of firm should be examined further.

### Conclusions About Research on Mandatory Environmental Regulation

Prior studies on firms and mandatory environmental regulation show these weaknesses: a) most are done in isolation, b) they treat firm responses as binary when in fact the responses are multifaceted and varied, and c) they pay insufficient to enforcement and firms' political activity.

**Carried out in isolation.** Although many mandatory programs have been analyzed (see Table 3), the analyses almost always are performed in isolation, one mandatory program at a time. Different mandatory schemes influence firms simultaneously, yet these simultaneous impacts are almost always ignored. Also ignored are the effects of the voluntary programs, with virtually no recognition of the effects that voluntary programs have in conjunction with the mandatory ones.

**Compliance as a simple binary.** Moreover, the literature often treats enforcement of mandatory regulation as a simple binary (i.e., does a firm comply or not to comply), when the response of firms is more multifaceted and nuanced. Although mandatory programs provide less discretion than voluntary

**TABLE 3**  
**Management Research on Mandatory Environmental Regulation**

Author	Mandatory Regulation Analyzed	Corporate Response	Enforcement Effectiveness Considered	Political Influence Analyzed
Chakraborty & Chatterjee (2017)	Specific German environmental ban regarding single input used by the textile industries	Aggregate firm innovation expenditure	No	No
Child & Tsai (2005)	Legal environmental constraints in China and Taiwan	Corporate environmental protection initiatives and investments	Partial (consideration to different effectiveness of each protection regimes)	No
Cordano & Frieze (2000)	Managerial perceptions of environmental regulation	Managers' preferences for source reduction implementation	No	No
Darnall et al. (2010)	Perceived public environmental authorities' pressures	Firms' proactive environmental strategy	Partial (consideration to perceived pressures from public agents)	No
Dean & Brown (1995)	U.S. pollution compliance	New firm entry to regulated industries	No	No
Diestre & Rajagopalan (2011)	U.S. Toxics Release Inventory	Diversification in target industries	No	No
Doshi et al. (2013)	U.S. Toxics Release Inventory	Corporate releases of toxic chemicals production waste, offsite transfers, and emissions	No	No
Dutt & Joseph (2019)	U.S. state-level renewable electricity generation regulation	Attention to renewable electricity technologies	No	No
Engau et al. (2011)	EU Emissions Trading Scheme	Anticipatory vs adaptive flexibility stance	Partial (consideration to uncertainty associated with future regulation)	No
Fabrizio & Hawn (2013)	A state-level solar carve-out policy	Adoption of solar generation in a given city-state location	No	Partial (regulation will work better where qualified complementary firms were available)
Fremeth & Shaver (2014)	Environmental regulation in contiguous states to where focal firm operates	Renewable power distributed to the end consumer	No	No
Georgallis et al. (2019).	Feed-in electricity tariffs	None (feed-in tariff scheme is dependent variable)	No	Yes (feed-in tariffs were more likely in countries with greater number of solar producers and less rival industries)
Hoffmann et al. (2009)	European Emission Trading Scheme	Postponement of investment decisions	Partial (consideration to regulatory uncertainty)	No
Kim (2013)	Utility deregulation	Entry to renewable generation and percentage of renewables in fuel mix	No	No
Kim et al. (2017)	Domestic civil vs common law	Value of direct environmental costs to total assets	Partial (different monitoring potential of each regulatory framework)	No
Kock et al. (2012)	Manager exposure to environmental regulation	Firm's waste released in a given year	No	No
Madsen (2009)	Stringency of different countries' pollution regulation	Firm investment in a given country	Partial (analysis of level of stringency includes monitoring)	No



**TABLE 3**  
**(Continued)**

Author	Mandatory Regulation Analyzed	Corporate Response	Enforcement Effectiveness Considered	Political Influence Analyzed
Majumdar & Marcus (2001)	Environmental control of utilities	Utilities' environmental expenditures and firm's efficiency	Partial (focusing on regulatory control)	No
Rivera Ungson et al. (1985)	State environmental regulation in two industries	Managerial perceptions of adverse relation with regulating agencies	No	Partial (interactions between firms and regulatory agencies)
Short & Toffel (2010)	Federal Clean Air Act and Audit Policy	Voluntary disclosure of regulatory violations and commitment to self-regulate	Partial (historically poor compliers are less likely to self-regulate)	No
Tenbrunsel et al. (2000)	Proposed U.S. Environmental Protection Agency standard	Perceived attractiveness of arsenic emission proposals submitted by fictional plants	No	No
Weigelt & Shittu (2016)	U.S. renewable sources electricity generation stipulation	Generation from renewable resources relative to total energy generation	Partial (regulation matters differently depending on the distance on knowledge to the old resources)	No

ones, they still give firms latitude in how to comply (Marcus & Van de Ven, 2015; see chapters in Hoffman & Ventresca, 2002). Firms can meet minimum standards or go beyond what the law requires. Reasons for their different levels of compliance may be strategic: firms can obtain valuable, rare, difficult-to-imitate, and nonsubstitutable capabilities from going beyond compliance (e.g., Russo & Fouts, 1997). Or they can receive institutional benefits such as legitimacy and favorable treatment from customers, employees, shareholders, social movements, and regulators (e.g., Delmas & Toffel, 2008).

Analyses also tend to focus on a few firm responses. Some studies have examined the implications of mandatory regulation on environmental releases (e.g., Doshi et al., 2013; Reid & Toffel, 2009) and pollution (e.g., King & Lenox, 2000; Kock, Santaló, & Diestre, 2012). Others have examined the implications for internationalization (e.g., Christmann, 2004; Madsen, 2009), competitiveness (Short & Toffel, 2010), innovation (e.g., Chakraborty & Chatterjee, 2017), diversification (e.g., Diestre & Rajagopalan, 2011), and business entry (e.g., Fremeth & Shaver, 2014; Kim, 2013). However, conclusions about the impacts of mandatory requirements may vary depending on the specific outcomes researchers consider. In the face of mandatory pressures, the range of potential responses is broad and evolves. Some firms shut down outmoded facilities; others choose to retrofit them. Some firms change their inputs; others adjust their

product mix. Still other firms seek out and find new suppliers. Some outsource their pollution to other countries, where they apply standards no different from the standards they apply domestically, whereas still others use different global standards and do damage to the nations where they have outsourced their pollution. In the future, analyzing the effectiveness of the mandatory environmental regulations will need a more sophisticated attention to the evolution of the corporate value chain.

**Insufficient attention to enforcement and politics.** Finally, it is worrying that too few studies focus on enforcement effectiveness and fail to analyze the role of corporate political activity in shaping companies' responses to regulatory mandates. Baron and Lyon (2012: 129), for instance, lament that much of the literature "simply assumes that regulators have the ability to perfectly enforce the regulations they promulgate; however, regulatory authorities generally lack the resources to ensure that laws are enforced with full compliance, and they are often constrained by statutes that limit penalties for non-compliance." Baron and Lyon (2012: 129) have made the very important point that "in 2008, the median fine imposed by the EPA for an environmental violation was \$2,300—hardly enough to put the fear of God into a corporate polluter."

An exception to this lack of attention to enforcement is Marquis, Zhang, and Zhou (2011). They analyze the closing gap between regulation and

enforcement of environmental protection in China, and show that regulation and enforcement have become increasingly aligned because of national development, bureaucratic reorganization, and greater government and public monitoring. Marquis et al. (2011) maintain that when managers perceive that such trends are imminent, they are more inclined to adhere to demanding domestic standards.

Despite prior literature on the importance of the politics by which mandatory programs are created and implemented (e.g., Marcus, 1980; Peltzman, 1976; Stigler, 1975), the articles we reviewed too often tend to ignore this topic. They fail to take into account that businesses seek to influence the stringency and design of regulation through lobbying and other tactics. NGOs and social pressures play an important role in assuring compliance, but the degree to which firms' political behavior neutralizes this impact has not been considered adequately (e.g., Coglianese and Anderson, 2012). Although business preferences are not perfectly correlated with the public's interest, governmental officials tend to allow businesses to participate in drafting regulations because the officials often believe the companies have vital information that they can provide (Coglianese, 2007). In European countries, Neumayer (2003) showed that the green movement and progressive political parties have not been able to counter this trend. Because many governments, including that in the U.S., have been trying to ease the regulatory burden for business in recent years, assessments of corporate political influence are especially important.

## A REVIEW OF BUSINESS'S RESPONSES TO VOLUNTARY REGULATION

### Main Emphases

The number of voluntary environmental programs that supplement mandatory requirements has grown substantially in the last decades (e.g., Delmas, 2002; Delmas & Terlaak, 2001; Testa et al., 2018; York, Vedula, & Lenox, 2018). The objectives of these programs are not only related to avoiding externalities. Like the information disclosure programs discussed previously, they also provide asymmetric information to third parties in order that the third parties can make distinctions between firms' performance levels (King et al., 2012). The empirical literature in this area is often organized around three main questions a) why do firms participate in the voluntary programs, b) what are the processes that lead to substantive *versus* symbolic implementation,

and c) what are the impacts of these programs on firms' environmental strategies and behavior.

### Why Firms Participate

Many studies highlight this question of why firms take part in programs in which by law they do not have to participate. The voluntary nature of these initiatives signifies that companies can choose whether and to what extent to participate. If they choose not to be involved, they suffer no legal penalties. Many factors both internal and external to the firm have been found to influence their participation. Our focus here is on some of the most prominent factors found in the literature.

#### Internal to the Firm

**Objectives of internal departments.** Multiple studies have examined the influence that specific departments have on company involvement. That is, the studies argue that managers choose to participate depending on the potential benefits to their departments. Jiang and Bansal (2003), for example, show that a firm's marketing department is likely to influence its ISO 14001 participation. Delmas and Toffel (2008) discover that a firm's legal affairs department has different effects on participation than its marketing department, again suggesting that there are differential effects of functional groups on participation. However, these authors also caution that participation does not necessarily mean that environmental performance automatically goes up if a firm does become involved. The internal objectives of different departments (e.g., gaining visibility for the marketing department or reinforcing informal relationships with regulatory stakeholders for the legal affairs) are likely to play a more relevant role in a firm's conduct than improving environmental performance.

**Environmental performance.** King and Lenox (2000) and Rivera (2002) show that firms better known for their environmental performance are more likely to participate because they have little need to change their current approaches. Instead, their managers are interested in reinforcing their firms' environmental differentiation and winning any advantage they can gain by doing so. Similarly, Short and Toffel (2010) find that companies with poor compliance records are less likely to be involved in such programs.

#### External to the Firm

**Financial rewards.** Studies, which try to explain why organizations participate, point to the financial

rewards, such as a price premium in comparison to nonparticipants (e.g., Ferron-Vilchez, Darnall, & Aragón-Correa, 2017; King, Lenox, & Terlaak, 2005). They highlight the relative importance of market factors as opposed to internal stakeholders in bringing about firm participation in voluntary programs. The findings about whether adherence to voluntary programs pays, however, are mixed. Although participating in voluntary environmental initiatives may generate legitimacy for participants, alone it often does not provide a sufficient enough reason for companies to charge higher prices and recoup their investment.

**Regional and peer pressures.** Studies have focused on the external pressures that lead firms to participate. York et al. (2018), for instance, demonstrate that a regional pro-environmental culture is important for inducing participation. Testa et al. (2018) find that local public authorities tend to drive the higher levels of participation of firms. Many articles have examined the role of peer pressure in inducing firm participation (e.g., Barnett & King, 2008; Delmas & Montes-Sancho, 2010; King & Lenox, 2000; Rivera, 2002; Rivera & De Leon, 2004). In light of complementary nature of regulatory and mimetic pressures, the degree to which peer pressure may play a monitoring role in the implementation of voluntary initiatives should be explored further.

### Substantive versus Symbolic Implementation

Management scholars usually start with the premise that voluntary approaches have the potential to have a positive impact. Although the programs are laudable, studies frequently have found disappointing implementation results, and many voluntary programs do not reach even minimum levels of credibility (York et al., 2018). Most analyses show how difficult it has been to bring about improved environmental outcomes through voluntary regulation alone. Voluntary pressures tend to weaken and break down during implementation because of the factors previously mentioned such as free-riding, adverse selection, and moral hazard (e.g., King & Lenox, 2000; Steelman & Rivera, 2006; Tenbrunsel et al., 2000; Testa et al., 2018).

Research has found that although the early adopters of voluntary regulation often make improvement in their environmental performance, late adopters care mainly about legitimacy and have little commitment to making environmental improvement. Although early adopters reduce emissions more than nonparticipants, studies have discovered that the differences

between participants, including early and late adopters, and nonparticipants are not significant (Aravind & Christmann, 2011; Delmas & Montes-Sancho, 2010). These studies suggest that the progress early adopters make is not linked to participation in voluntary initiatives but to their previous environmental records.

Another interesting finding to clear the interest of a symbolic implementation is that voluntary standards have a halo effect whether firms participate or not. Studies show less harm to firms in the same industry when an untoward incident takes place even if the firms are not participants in a voluntary program (Barnett & King, 2008). The nonadopters benefit from the existence of voluntary standards, thanks to the reputational effects they bestow on all firms in an industry (Hoffman, 1999).

### Limited Impact—the Outputs

The empirical literature usually starts with the premise that the formation and steady expansion of voluntary programs reflect a genuine interest in improving companies' environmental performance, but that limited improvement actually takes place. Studies concur that the actual impact of voluntary programs on environmental quality has been limited because of the relatively low number of firms participating and the limited progress most participants make. The appendix to this article provides a detailed assessment of the history of voluntary program implementation in the U.S., which concludes that for the most part these programs have failed to live up to expectations (see Appendix A).

A good example is ISO 14001. It probably is the most widely analyzed and implemented voluntary environmental standard (Delmas, 2002; Testa et al., 2018). By 2018, according to data on the ISO web page, more than 300,000 firms in 171 countries had adopted ISO 14001. However, the aim of ISO 14001—to assist firms in designing and implementing systems for managing their environmental impacts—does not assure that these systems yield superior environmental benefits. Accordingly, different articles have examined whether adoption means that firms' environmental performance improves. In an early study, Potoski and Prakash (2005) did find that certified facilities were able to reduce their emissions slightly more than noncertified facilities, but a subsequent comprehensive study of 3,700 U.S. facilities that these researchers did find that firms participating in ISO 14001 did not improve facilities' compliance beyond mandatory requirements (Prakash & Potoski, 2006). Most of the literature finds that the emissions of

certified facilities have been similar or worse than those of noncertified ones (e.g., Delmas & Toffel, 2008; King & Lenox, 2000; Rivera, 2002; Short & Toffel, 2010; Testa et al., 2018). Bansal and Hunter (2003) also found that ISO 14001–certified firms do not have a higher commitment to quality or corporate social responsibility than noncertified firms do. In general, most of the empirical studies show that firms tend to prioritize means over the end when they adopt voluntary controls such as ISO 14001 (Delmas & Montes-Sancho, 2010; Luo, Wang, & Zhang, 2017; Tenbrunsel et al., 2000; Testa et al., 2018).

Because the viability of a voluntary program like ISO 14001 usually depends on the number of participating firms, the organizers have few incentives to exclude poor performers. Therefore, voluntary systems have grown despite their lack of impact on environmental performance. Additional inquiry is needed on the processes that explain how voluntary initiatives arise, grow, and sustain themselves.

### Conclusions about Research on Voluntary Environmental Regulation

Our review of the literature regarding voluntary environmental regulation yields similar conclusions to those regarding mandatory regulation. Specifically, we find that a) studies focus on specific voluntary initiatives, ignoring mandatory regulations and other voluntary programs that affect firms; b) the literature generally treats firm responses as binary (i.e., adherence or not) when the implementation of a voluntary regulation actually is multifaceted, and c) reviewed works often recognize the lack of effective enforcement mechanisms and pay limited attention to how political activity of firms affects this process.

**Focus on unique programs.** Corresponding to the growth of the voluntary environmental programs has been an increase in the number of empirical articles in the management literature on the topic. Indeed, in the last decade, these articles have become more abundant than those on mandatory regulation have. Table 4 shows not only the diversity of the programs analyzed but also the fragmented nature of the research. Almost all the analyses have been carried out on a single program in isolation of the mandatory requirements that the voluntary programs are supposed to supplement. An exception is Prakash and Potoski (2006), who find that the efficacy of the most widely adopted of the voluntary programs, ISO 14001, has been positively conditioned by the stringency of mandatory regulation.

**Binary responses.** Because the literature on voluntary programs typically examines why firms participate, as well as and the impacts they have, we find that many of the reviewed articles focus on the decision whether to become involved and participate. However, the literature misses the broad range of approaches firms take once they make the decision to take part in an environmental standard. More attention should be paid to how firms coordinate their involvement in voluntary programs with their other environmental commitments. An interesting topic for future research would be how firms integrate participation in voluntary programs at the operational level and with their functional departments.

**Insufficient attention to enforcement and politics.** Finally, most of the reviewed works have highlighted that a main reason that voluntary programs have not produced substantial environmental improvement is that the incentives for enforcement are weak. Even when voluntary regulations demanded more of firms than beyond what mandatory regulations required, the limited stringency of enforcement in most voluntary approaches has been a problem.

King and Lenox (2000) concluded that voluntary programs were unlikely to succeed without strong and explicit measures in place to discipline firms. Similarly, King et al. (2012) have emphasized the importance of compliance mechanisms and sanctions and found that the lack of credible enforcement was a key weakness. Other studies have found that the analyzed voluntary programs often lacked relevant enforcement criteria (e.g., Rivera & De Leon, 2004; Steelman & Rivera, 2006), were missing in third-party oversight, and did not provide serious punishments for poor performance.

Depending on the voluntary program's sponsor, firms have had many opportunities to shape the creation of voluntary standards. Participation has increased when firms—as opposed to governments, NGOs, and standard organizations—have been the main initiators of the voluntary schemes (Carlos & Lewis, 2018). In programs initiated by trade associations, firms have probably taken advantage of the many opportunities they have to influence outcomes, whereas in programs that governments initiate, their role is weaker. An interesting question is whether companies will stay in voluntary programs if program enforcement becomes stricter and no longer is lax. Also, to what extent does their sticking with these programs depend on their capacity to have political influence that neutralizes the impacts?

In sum, the literature clearly suggests that the impacts of voluntary approaches are less positive with

**TABLE 4**  
**Management Research on Voluntary Environmental Regulation**

<b>Authors</b>	<b>Voluntary Regulation Analyzed</b>	<b>Corporate Response</b>	<b>Enforcement Effectiveness Considered</b>	<b>Political Influence Analyzed</b>
Aravind & Christmann (2011)	ISO 14001 voluntary environmental certification	Facilities' environmental performance	Partial (consideration to different "quality" of implementation, because flexible enforcement of the analyzed regulation)	No
Bansal & Hunter (2003)	ISO 14001 voluntary environmental certification	Facilities' adoption of ISO 14001	No	No
Barnett & King (2008)	Chemical Manufactures Association's Responsible Care Program	Stock value deviation from expected value after industry accidents	No	Partial (firms in the industry have incentives to support an industry self-regulatory policy)
Carlos & Lewis (2018)	Dow Jones Sustainability Index (DJSI) environmental certification	Managerial decision to publicly disclose membership in the DJSI	Partial (consideration to managers' concerns regarding being perceived as hypocrite when announcing this certification)	No
Christmann (2004)	Multinational companies' global environmental policies	Level of internal environmental performance standards, environmental policies, and communication standardization	No	Partial (perceived government environmental pressures are related to adoption of a high internal environmental performance standards)
Delmas & Montes-Sancho (2010)	Greenhouse gas voluntary program established by the U.S. Department of Energy and industry representatives	Participation in the program and type (early vs late) and reduction in emissions	Partial (consideration to different levels of emission reduction between early and late participants)	Partial (the relationship between timing to participate and political pressures is relevant)
Delmas & Toffel (2008)	ISO 14001 voluntary environmental certification and government voluntary environmental programs	Facility's adoption of ISO 14001 and government voluntary programs depending on organizational structure	No	No
Guérard, Bode, & Gustafsson (2013)	Germany's "normative" standard for diesel cars	Utilization of a new technology	No	Partial (frames of the challengers of status quo must reach a certain threshold to make an influence)
Howard-Grenville et al. (2017)	"Green chemistry" voluntary practices	None (emergence and growth of "green chemistry" is the dependent variable in this qualitative analysis).	No	Partial (pragmatism influences the growth of environmental standards)
Jiang & Bansal (2003)	ISO 14001 voluntary environmental certification	Managers' decision to implement ISO 14001	Partial (impact opacity influences negatively the decision regarding implementation)	No
King & Lenox (2000)	Chemical Manufactures Association's Responsible Care Program	Participation of the firm in the Responsible Care Program and its environmental performance	Yes (concluding that effective industry self-regulation is difficult to maintain without explicit sanctions)	No

**TABLE 4**  
**(Continued)**

Authors	Voluntary Regulation Analyzed	Corporate Response	Enforcement Effectiveness Considered	Political Influence Analyzed
Luo et al. (2017)	Voluntary government guidelines for corporate social responsibility	Speed and quality of corporate adoption of guidelines on corporate social responsibility reporting	No	No
Reid & Toffel (2009)	Carbon Disclosure Project (CDP) initiative for voluntary environmental emission disclosure	Companies' decisions about whether to adopt CDP public disclosure practices	No	Partial (firms react to mandatory uncertainty by participating in voluntary programs)
Rivera (2002)	Voluntary Certification for Sustainable Tourism	Enrollment in the CST program and hotel price and sales	Partial (Author's criticism to the effects of limited monitoring)	Partial (firms react to mandatory uncertainty by participating in voluntary programs)
Rivera & De Leon (2004)	U.S. National Ski Areas Association, voluntary environmental initiative	Participation in the initiative	Partial (Author's criticism to the effects of limited monitoring)	Partial (firms react to mandatory uncertainty by participating in voluntary programs)
Testa, Iraldo, & Daddi (2018)	EMAS voluntary environmental regulation and ISO 14001	Internalization of environmental management system requirement	Partial (involvement of public authorities influences positively on operational activities beyond superficial changes)	No
Wright & Nyberg (2017)	Voluntary environmental practices businesses developed for climate change	Business engagement with climate change practices	No	No
York et al. (2018)	LEED voluntary certification to reduce the environmental impacts of buildings	New LEED-certified buildings in a metropolitan region	Partial (market vs community logics in the region matter)	No

regard to substantive performance changes when the impacts come from this source alone. Effective voluntary regulation must be reinforced by credible sanctions and noncompliance penalties. Future research must look for ways to improve the enforcement mechanisms in voluntary codes and standards, analyze political influence, and understand how voluntary codes and standards can be combined in better ways with mandatory requirements to produce positive results. These issues as well the gaps in the literature on mandatory programs are discussed further in the next section.

#### DISCUSSION OF CRITICAL ISSUES AND GAPS

Although management research has paid detailed attention to mandatory and voluntary environmental approaches in the last decades, it is likely to become more relevant in the future because of growing concerns about corporate impacts on the natural environment. Environmental accidents (e.g., the BP oil spill

and the Japanese nuclear disaster), corporate fraud (e.g., Volkswagen), technical uncertainty (e.g., the evolution of solar technology), and the globalization of environmental issues (e.g., climate change and international treaties) have increased societal expectations regarding corporate environmental performance.

The studies that we reviewed show that despite some firms' impressive efforts, few companies have made the wholesale changes in performance needed based solely on their adherence to voluntary codes and standards. Many companies regard voluntary approaches as costly and burdensome, consider the risks of changing their operating processes because of voluntary programs too high a price to pay, and are not taking part. The firms that do participate often make just incremental or symbolic adjustments. Meanwhile, mandatory regulation has showed more effectiveness on generating changes in the community of firms, but often in limited and sometimes contradictory steps.

Existing research has made progress in understanding these issues. However, there remain gaps. As argued, the main ones are the fragmentary nature of previous studies and the lack of attention paid to enforcement and politics. We discuss both in this section.

### Fragmentary Analyses

To make progress in understanding the effects of mandatory and voluntary pressures on firms' environmental strategies and performance, scholars should pay attention to their combined effects. Different levels of mandatory regulation exist at national and international levels and within countries at municipal, provincial, and state levels. The exponential growth of voluntary regulatory initiatives in the last decades has generated its own proliferation of programs to which managers can choose, or not choose, to be involved. These initiatives do not just come from government; they are also promoted and created by NGOs and professional associations. All too often, previous work uses a narrow lens to examine just one or a small subset of mandatory or voluntary pressures. It has drawn conclusions without considering the simultaneous effects of more than one such initiative. In addition, previous research often imagines corporate responses as binary (the choice of either complying or not complying for mandatory regulation and participating or not participating for voluntary schemes), when these responses are much more complicated. We make three main points about the weaknesses of existing studies.

**The broad context.** First, limited attention is being paid to how the broad context of mandatory and voluntary initiatives influences managers. Much of the literature assumes that companies face independent regulatory pressures that affect nearly every firm uniformly. However, mandatory and voluntary pressures are neither monolithic nor are they homogeneous. It is therefore not surprising that firm managers do not react similarly to these pressures. A realistic understanding would take note of the variable sets of signals each firm obtains and how it then establishes its own approach. The U.S. legal and regulatory regime for environmental protection, for instance, consists of a fragmented set of laws (Fiorino, 2006; Kamieniecki & Kraft, 2013; Rosenbaum, 2016) that apply in different ways to air pollution, water pollution, solid wastes, and toxic substances, among other forms of pollution. European environmental regulations have gone well beyond the U.S. regulation in many ways in recent years, however they still keep a fragmented nature (Vogel, 2012). Firms construct unique and nuanced reactions to the plethora of mandatory and voluntary

programs they encounter (see Marcus, 2019 for illustrations in the automotive industry).

**Synergistic effects.** Second what is needed is assessments of the synergistic effects of both mandatory and voluntary approaches together. Just a few articles have simultaneously considered voluntary and mandatory regulation, and all of them demonstrated positive results when the two approaches are applied together (e.g., Delmas & Toffel, 2008; Rivera & De Leon, 2004; Short & Toffel, 2010). The evidence in these studies is that voluntary initiatives work in tandem with mandatory requirements. They can become more effective when implemented in combination with mandatory requirements. Although the limited progress of voluntary schemes, even when supported by the government, has led to skepticism about generating substantial changes in firms' strategies and environmental performance from voluntary environmental standards alone, these studies also suggest that the voluntary standards, under some circumstances, do offer a flexible and effective complement to mandatory regulations. Research should probe further into the circumstances under which mandatory and voluntary approaches can be best combined for maximum impact.

Voluntary approaches open up firms to the possibility that they can develop unique strategies tailored to their interests that are unlike what their peers do. Rather than one-size fits all regulation, the voluntary approaches allow firms to choose to a much greater extent what to do. Research therefore should explore how mandatory controls combine with voluntary initiatives to shape companies' distinct responses.

**The variety of firm strategies.** Third, future research should probe deeply into the variety of strategies firms adopt in response to the combined effects of mandatory and voluntary pressures. Previous research has not probed deeply enough into the diverse strategies firms take on when confronting a host of programs—both mandatory and voluntary—at national, global, and local levels. Too often, this research has focused just on the amount of pollution firms generate after implementation of a single program. Because there are so many different regulatory programs to which firms are subject and the voluntary initiatives often are intentionally ambiguous, technological and managerial opportunities multiply and provide firms with many options, all legal. Firms can respond to these pressures with a broad range of options across many dimensions. For illustration, promoting a sustainable supply chain, providing environmental information about a firm's operations, altering its product mix, and reducing

the utilization of energy and other natural inputs are all relevant but different avenues that firms can pursue in response to the full range of changing mandatory and voluntary regulatory pressures they face.

A focus on just one aspect of firm responses to these pressures is likely to miss how environmental strategies of companies are different and how they evolve over time. A firm may first choose to cut back on a single pollutant, then it substitutes one pollutant for another, and then chooses to transfer the pollution it causes to companies in its external supply chain. It begins its response to a legal requirement by cutting back domestic production and ends it by outsourcing its pollution. In addition, it may choose to implement an extensive program of pollution prevention, trying to avoid as much pollution as possible at its source (Marcus et al., 2002). Both the different starting points, and then the evolution of managerial responses, tend to be missing from existing studies. When considering how companies respond, scholars should investigate how firms pick and choose among the options they have available and craft unique firm-specific strategies that may provide them with competitive advantage.

### **Insufficient Attention to Enforcement and Politics**

To assess the full impact of mandatory and voluntary pressures on firms' strategies and their environmental performance, the degree to which programs are effectively enforced and the extent to which companies influence them politically also must be considered. These considerations, however, have not been given sufficient attention in prior studies.

**Enforcement matters.** Regulatory requirements often are imperfectly enforced. In many countries, enforcement of mandatory regulations is notoriously weak, if not entirely absent. Even in developed countries, enforcement is uneven. Environmental fines may not really capture managers' attention and sufficiently encourage them to improve their firms' environmental performance. Even in the best of circumstances, fining a firm for a known violation of a mandatory requirement is a long, drawn-out process in which the rights of the firm to due process have to be protected. Revealingly, it took a half decade or more to discover that Volkswagen was systematically and intentionally violating nitrogen oxide regulations in the diesel autos it sold in North America and worldwide, and the legal process for fining the firm took a very considerable time (Marcus, 2019). Although most regulation is meant to be mandatory, this observation fails to take into account that

mandatory regulation is rarely enforced well or implemented as intended because government capabilities for monitoring and enforcing are limited (Marcus, 1980; Mintz, 2012). This insight, which is one of the oldest in the economics, political science, legal, and nonmarket literature on regulation (Marcus, 1984), should be better incorporated into management studies where this understanding should be developed further, and refined. In understanding the importance of enforcement, the following factors are particularly important and deserving of greater scrutiny: the probability that a violation is detected, the severity of the sanction, the ability of the enforcer to discriminate willful from accidental violation, and incentives to self-disclose violations.

The literature on voluntary initiatives emphasizes the lack of systems in place to avoid corporate opportunism in the implementation and enforcement of voluntary regulation. Without systems in place to avoid opportunism being active and effective, symbolic participation and greenwashing are all too common. These phenomena have eroded the credibility of voluntary approaches and limited the performance improvements these programs might be able to generate. Research should be directed to ways in which systems for avoiding opportunism can be created and sustained.

Economists have maintained that pollution markets might be more effective than mandatory requirements because the enforcement is partially automatic. Firms would have more choice than under the current system to lower the amount of pollution they emit or pay for the right to pollute, and the price would be automatically fixed depending on the supply and demand for pollution rights. However, there are and continue to be serious issues in bringing this approach to environmental protection into practice. An example of such problems is whether government can accurately determine and assign a monetary value to the damage firms cause (Marcus & Kaiser, 2006), as this damage is both long term in nature (e.g., increased sickness and disease) and intangible (e.g., reduced beauty of a natural context). Another problem is that pollution generated in jurisdictions subject to regulations can be exported to jurisdictions not subject to these regulations, thus limiting program effectiveness (Vogel, 2018). Unfortunately, many of the studies that have evaluated these initiatives conclude that they have not been noticeably more effective than the standard mandatory and voluntary approaches in place (Borenstein, Bushnell, Wolak, & Zaragoza-Watkins, 2015; Schmalensee & Stavins, 2017). Thus, although



a very strong rationale for this type of government engagement exists in the economics literature, it does not necessarily follow that the government can effectively address pollution in this way. Nonetheless, management scholars should devote more attention to these market alternatives to current mandatory and traditional voluntary initiatives, their effects on managers' perceptions, and their impacts on environmental quality.

**Politics and the firms.** As the political science, economics, and nonmarket strategy literature have long noted, the development of regulatory policies with respect to the natural environment—whether the programs are mandatory or voluntary—is often influenced by firms. The development of environmental policies to which firms are subject is not a one-way street. Rather, it is a joint creation of multiple agents in which businesses subject to the mandatory and voluntary controls that affect them have substantial interest in shaping these programs, which ostensibly are meant to control their behavior (Dorobantu, Kaul, & Zelner, 2017). As a result of inherent incompleteness of these policies (Funk & Hirschman, 2017), the carrying out of regulatory policies that affect business—whether they are mandatory or voluntary—is a result of the contributions of both business and regulatory agents. Management studies, therefore, should tap into the vast literature in political science and economics and nonmarket strategies (Mellahi et al., 2016) about the potential capture of government agencies and other organizations by firms that are presumably supposed to be controlled by these government entities and organizations (e.g., see Dal Bó, 2006; Levine & Forrence, 1990).

Regulatory programs should be analyzed as a process that begins long before they are enacted and during the entire course of time during which they are carried out. Studies have shown that corporate expectations about these policies generate changes in companies' environmental strategies and performance (e.g., Weigelt & Shittu, 2016), but we need to learn more about how the policies change as consequence of business interaction with governments and other bodies about their implications.

A strong finding is that firms participate in rule-making procedures at all levels from local pollution control laws to global treaties, with the intent of bringing about policies that protect and exploit their capabilities and blocking policies that threaten these capabilities (e.g., see Kamieniecki & Kraft, 2013; Klyza & Sousa, 2015; Lyon et al., 2018; Peltzman, 1976; Stigler, 1975; Vogel, 1989, 2012). These studies

demonstrate both the degree of business political participation in environmental policy-making and implementation and the extent to which firms typically oppose expansion of government regulation that affects their operations and vital business interests. Firms, particularly large ones in highly regulated contexts, have played an active role in influencing public policies. Recent research, for instance, shows that the existence of a large number of firms in the solar industry and the limited importance of competing industries have affected positively the policies which government established to support this industry (Georgallis, Dowell, & Durand, 2019).

In this context, it is also worth noting that some firms have backed stronger government environmental requirements. Their backing for this type of regulation often has taken place at the state and/or local level, a dimension of corporate proregulatory preferences explored in works such as Elkind (2011) and Vogel (2018). In addition, the existing literature mostly has analyzed mature and established businesses, leaving the relationships between entrepreneurial businesses and environmental policies less explored. Although some articles of this kind have been published (e.g., Malen & Marcus, 2017; Marcus & Cohen, 2015), greater attention should be devoted to the role that smaller firms and start-ups play and to the evolution of corporate political involvement in the political process as firms mature.

#### MOVING TOWARD A MORE HOLISTIC APPROACH IN FUTURE RESEARCH

Our review has identified several issues that require additional analyses. Our main points are that the full impact of mandatory and voluntary pressures are a result of the choices managers make in light of the many regulatory programs—both voluntary and mandatory—that affect them. How these programs affect them depend on how these programs are enforced and the degrees to which firms have influence over their content and their implementation by virtue of their political activities. Research, therefore, must expand its scope to consider more explicitly these factors. In doing so, it can make design of policies to protect the environment more effective.

While acknowledging important contributions made by the previous literature, we therefore call for a renewed research agenda that approaches the question from the perspective of managers who do not tackle environmental pressures in isolation but

in combination. Decisions do not emerge from a single set of choices about a particular program. Although some argue that voluntary regulation may help to strengthen mandatory regulation enforcement (e.g., O'Rourke, 2003), others maintain that voluntary programs are likely to "crowd-out" more effective mandatory requirements (e.g., Esbenshade, 2004). Alternatively, voluntary standards might help reinforce mandatory regulation and strengthen the resolve of companies to comply with it (e.g., Bansal & Roth, 2000; Cordano & Frieze, 2000). In any case, the sum total of the managers' decisions to a full lot of pressures—both mandatory and voluntary—constitutes their firms' environmental strategies, which in turn have impacts on their environmental strategies and how they impact environmental performance. Indeed, the distinct choices they make about their environmental strategies under some circumstances may provide firms with considerable competitive advantage (Hart, 1995; Sharma & Aragón-Correa, 2005; Sharma & Vredenburg, 1998). These benefits, if realized, mainly emerge not because the managers seize the opportunities afforded by particular environmental programs, whether they are mandatory or voluntary. Rather, it reflects a broader conception on the part of managers in terms of how they respond to environmental pressures as a whole, whether they originate in government activities, social movement unrest, industry trade association oversight, or the organizations that create industry standards and certify companies.

### Multiple Contextual Factors

Moving toward a more integrated approach would involve taking into account the multiple contextual factors with which firms must engage when generating environmental approaches (York et al., 2018). These factors can be examined from an industrial economics perspective (Porter & Van der Linde, 1995), an organizational resources and capabilities point of view (Hart, 1995), psychological-oriented approaches (Anderson & Bateman, 2000; Egri & Herman, 2000), and by means of sociological assessments of social pressures (King, 1995; Starik & Rands, 1995). All these factors together (and not just the content of a mandatory or voluntary regulatory initiative in isolation) are relevant when managers make the decision of how to respond to the challenge of environmental protection. For example, although economic interests might not induce firms to invest in environment protection, a sufficient number of influential managers with power in the firm also may

believe that making these investments is the "moral" or "ethically right thing" to do (Marcus & Fremeth, 2009).

Neo-institutional theory (Powell & DiMaggio, 1991; Scott, 1995), one of the most widely used frameworks in environmental research about organizations (Hoffman & Georg, 2018), may provide a useful framework for taking into account the broader picture of firm responses to mandatory and voluntary pressures. According to this theory, system-wide institutional factors, embedded in calculative (markets), normative and mimetic (values, beliefs, and social pressures), and mandatory (regulation) factors, contribute to the environmental strategies firms adopt. Firms' strategies, in turn, affect and reflect these factors. The neo-institutional approach emphasizes that firms obtain legitimacy by conforming to dominant institutions within their organizational fields (Powell & DiMaggio, 1991; Scott, 1995). Thus, for most firms, according to this perspective, environmental regulation—whether mandatory or voluntary—is a legitimacy-enhancing activity (Bansal & Bogner, 2002; Bansal & Roth, 2000; Berrone et al., 2017; Jennings & Zandbergen, 1995). In a recent institutional research, the emphasis is nuanced and the focus is not only on the similarity of firm responses to external pressures but also to the variety of organizational responses (see Greenwood, Raynard, Kodeih, Micelotta, & Lounsbury, 2011 for a detailed review). Articles published by Hoffman and Ventresca (2002) in fact examine structural variation and competing frameworks and logics in corporate responses to environmental pressures (e.g., see Levy & Rothenberg, 2002; Milstein, Hart, & York, 2002; Scott, 2002). Such articles should become more common in the regulatory context.

Institutional literature also allows us to point to the ways in which coercive, normative, and mimetic pressures evolve in conjunction with mandatory and voluntary regulation. Firms comply with mandatory regulation not just because it is compulsory; in fact, sanctions and penalties may be a weak influence considering governments' limited enforcement capabilities. Rather, firms face pressures to implement mandatory and voluntary regulations from dominant stakeholders such as customers and supply chain entities. Their response to these pressures reflects their impact on firms' financial performance (Jiang & Bansal, 2003). Yet, it is also related to a pattern of shared professional values (Howard-Grenville et al., 2017). Integrated analysis of coercive, calculative, normative, and mimetic pressures related to

environmental regulations is likely to help us move toward a more complete understanding of environmental performance. The failure of mandatory and voluntary regulation to generate strong synergies with mimetic effects has been under-analyzed. The degree to which such initiatives succeed in generating normative changes requires further research.

Emergent institutional perspectives such as communicative institutional theory (e.g., Cornelissen, Durand, Fiss, Lammers, & Vaara, 2015; Ocasio, Loewenstein, & Nigan, 2015) and micro institutionalism (e.g., Glaser, Fast, Harmon, & Green, 2016; Powell & Colyvas, 2008; Schilke, 2018) emphasize the variety of managerial responses to a broad range of external pressures. These perspectives reinforce the opportunities for using an institutional framework in analyzing firms' responses to regulatory programs. Communicative institutionalism focuses on how specific instances of communication create, influence, and constitute higher order cultural structures (Cornelissen et al., 2015).

### **Integrating the Messages from the Diverse Pressures to which Firms Are Subject**

We should try to understand the implications of how firms integrate the messages they receive from diverse regulatory pressures into their discourse. The communicative interaction between regulators and business managers in the process of designing policies, whether mandatory or voluntary, not only has an impact on the content of programs but also may result in different reactions on the part of firms depending on the level and type of their participation in mandatory and voluntary programs. Analyses, for instance, should explore how governments' communications about policies generate different levels of urgency in business responses. Relevant for firm responses are the pattern of internal communications and firms' shared culture about environmental issues.

Emphasis on the micro foundations of organizational theory (see Felin, Foss, & Ployhart, 2015 for a detailed review) has generated an emerging literature that asks the question of how managers affect the way in which their firms respond to the institutional contexts (Glaser et al., 2016; Powell & Colyvas, 2008; Schilke, 2018). Recent research in the micro foundations of corporate social responsibility has made progress by exploring the consequences of executives' moral emotions and their beliefs (Hafenbradl & Waeger, 2017). The extent to which managers and directors react differently to enforcement pressures has been found to depend on their different roles in

the firm (Ortiz-de-Mandojana & Aragón-Correa, 2015). Such investigations have promise in helping us understand how firms respond to the challenges of mandatory and voluntary regulation.

Deviating from traditional neo-institutional theory, micro institutionalism places great emphasis on managers' discretion and the role of intraorganizational processes to better understand differences in organizations' behavior (e.g., Battilana, Leca, & Boxenbaum, 2009; Douglas Creed, Hudson, Okhuysen, & Smith-Crowe, 2014; Suddaby, Elsbach, Greenwood, Meyer, & Zilber, 2010). For instance, sensitivity to episodic shaming as used by institutional guardians to reassert institutional prescriptions may have as much if not more influence than economic fines (Douglas Creed et al., 2014). This approach may be useful not only in understanding how firms absorb mandatory and voluntary pressure in their varied forms but also in understanding how the processes of generating different programs evolve and incorporate managerial preferences and how managers then act based on their preferences (e.g., Vasudeva, Nachum, & Say, 2018 on institutional activism and signaling theory).

### **Practical Implications of Addressing Gaps in the Literature**

In this review, we have argued that even when firms confront stringent levels of mandatory regulation and varied types of voluntary controls, managers have discretion in choosing the distinct environmental strategies their firms adopt. By responding to mandatory requirements and taking on voluntary approaches, they can choose not only whether to reach minimal legal standards and go beyond but also how, in what ways, and to what extent. Our review has highlighted the importance of acquiring a better understanding of the variety of firm behaviors and responses to the diversity of mandatory and voluntary regulations that firms encounter. Researchers should pay special attention to enforcement and the processes of how business and other agents shape mandatory and voluntary initiatives. Regarding enforcement, how firms deal internally with the communications they get from government and other bodies that enforce mandatory and voluntary standards is needed. Greater attention to the specific local and even personal conditions that exist and how they shape the ways decision-makers perceive, interpret, and act are indispensable (Powell & Colyvas, 2008). Although the management literature has traditionally focused on how internal levels of resources and capabilities are central to understanding the extent to which firms go

beyond regulatory compliance (e.g., Hart, 1995; Russo & Fouts, 1997; Sharma & Vredenburg, 1998), also meriting attention is managers' willingness to use whatever resources they have for this purpose. Firms with similar levels of resources and capabilities are likely to respond differently. Managers' perceptions of the monitoring and enforcement of programs and their capacities to shape these programs vary and contribute to a range of corporate reactions.

Our review suggests moving move toward a more holistic framework in which multiple pressures lead to varieties of firm environmental strategies. Future studies should aim to better understand managerial decision-making and contingent factors in responding to mandatory and voluntary pressures. This type of study would not only lead to advances in understanding firm behavior but also would have important societal implications. From a public policy perspective, we need to understand better how mandatory and voluntary programs in combination and separately lead to environmental improvements. A better understanding of the variety of firm responses to mandatory and voluntary pressures can help us improve the programs that are designed to meet pressing global environmental challenges.

### CONCLUSION

Nearly all the literature works we have reviewed confirm that the mandatory powers of government are the most effective lever that society has to alter firm environmental strategies and performance. However, potential negative implications on competitiveness have generated a mixed and relevant debate. In this review, we have shown that voluntary programs have arisen to supplement mandatory regulation; however, research has found that often the results of these programs are disappointing. Better understanding is needed of the relations between mandatory and voluntary control and how together they affect firms' environmental strategies. The role of enforcement and politics also deserves extra attention. Integrated analysis of coercive, calculative, normative, and mimetic pressures related to environmental regulation should be a priority in helping us move toward a more complete understanding of environmental performance in a regulated business context. Future research should pay attention to how and why firms react differently to the broad range of pressures they confront and how these pressures come together in different firms in creating unique company strategies toward improving the natural environment.

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## APPENDIX A

### THE EFFECTIVENESS OF U.S. VOLUNTARY PROGRAMS

The U.S. government has set up a succession of voluntary programs, but because the programs are voluntary, they typically do not require participant firms to submit data as to their performance, thus making it difficult to assess accurately their impact. Even more significant is that it is hard to determine what constitutes a voluntary program, as the U.S. Environmental Protection Agency (EPA) has not developed a systematic approach to identify them (Eisner, 2017). A study of 18 of the leading voluntary programs, for which the EPA does collect a considerable amount of data, finds that the agency is not prepared for program evaluation and is unable to make a clear claim about the initiatives' performance (Strasser, 2011: 19). Overall, the impacts have been symbolic and have not had a substantial effect on improving environmental quality.

Perhaps, the first and most important of U.S. government voluntary initiatives was Project XL—Excellence in Leadership (Marcus et al., 2002). The Clinton administration played an important role in promoting such programs because they were more flexible than standard mandatory approaches. In 1995, it introduced Project XL based on the premise that the participants would know better than the federal government how to reduce their pollution. Fifty firms were to be selected for what was a key component of the administration's effort to "reinvent environmental regulation," by reducing its burdens and improving its results. During the project's first three years, nearly three-quarters of business proposals were rejected, withdrawn, or simply became inactive (Eisner, 2017).

In 1995, the EPA created the Office of Regulatory Innovation, and it proceeded to launch a whole host of additional voluntary programs under the general umbrella of "Partners for the Environment." Like Project XL, the goal of these initiatives was to develop means of preventing pollution that went beyond the scope of existing regulatory statutes. By 2000, more than 2000 stakeholders—both public and private—had joined this initiative. Nonetheless, in comparison to the total number of firms subject to regulation, the number that participated in the program was relatively small. In addition, unlike the case of Project XL, there were no negotiated or legally binding agreements or any selection criteria.

In response to the unwillingness of the Senate to ratify the Kyoto Protocol, which the President had signed, the Clinton administration initiated the Climate Change Action Plan, a program that became the cornerstone of EPA's efforts to promote the immediate reduction of greenhouse gas emissions by the private sector (Eisner, 2017: 148), but there is little evidence that the Action Plan led to significant emissions reductions among participants. The purpose of 33/50 Program that the EPA introduced in 1991 was to encourage firms to reduce voluntarily their emissions of chemicals listed in the Toxic Release Inventory. It had specific reduction goals: firms were responsible for reducing their emissions of 17 specified chemicals by 33 percent by 1992 and 50 percent by 1995. This effort appears to have been effective.

The Bush administration, after officially rejecting the Kyoto Protocol, also promoted voluntary efforts to promote reductions in greenhouse gas emissions. Building on precedents established by the Clinton administration, the EPA announced a new voluntary program called Climate Leaders. By 2008, 251 firms collectively responsible for eight percent of the nation's total greenhouse gas emissions had become "Climate Leaders" (Eisner, 2017). However, the actual impact of this program, along with that of the thirty-six other climate change partnership programs the EPA promoted under the Bush administration, is unclear. By most accounts, they were an inadequate substitute for effective government regulation (Eisner, 2017).

The Bush administration also implemented the National Environmental Performance Track (NEPT), similar to that started under the Clinton administration. The Obama administration reluctantly continued this program. Corporate participants received public recognition, including right to the use the NEPT logo, and in return obtained a range of regulatory benefits, including expedited permitting and streamlined reporting and paperwork requirements. The purpose of NEPT was "to recognize and encourage top environmental performers—those who go beyond compliance with regulatory requirements" and in doing so to produce additional public benefits (Coglianese & Nash, 2001). However this goal proved elusive. According to a comprehensive study conducted by Coglianese and Nash (2001), there is no evidence that the performance of participants was superior to that of nonparticipants.

Alongside the government voluntary programs that existed in the U.S. and other countries, there were many other industry-initiated voluntary programs that gave firms choices and provided them with considerable leeway in how they could respond. Khanna and Brouhle (2009) provide a comprehensive and a largely critical assessment of these programs. One of the most important of the programs specific to a particular industry—in this instance, the chemical industry—is Responsible Care. However, according to research that King and Lenox (2000) did, because the program did not require either monitoring or enforcement, participants showed no improvement in their environmental performance over non-participants. The Forest Stewardship Council (FSC) set up a voluntary program for the forest products industry (Hoffman, 2000) and it functions by certifying forests. However, the impact of this voluntary standard on improving global forestry practices has been modest because even when industry voluntary codes other than those of the FSC are added, the portion of global forests subject to voluntary regulations is less than 20 percent (Bartley, 2018). The Marine Stewardship Council

(MSC) emerged in 1996 as a voluntary regulator of the fisheries industry from a partnership between the World Wildlife Fund (WWF) and Unilever, and then the world's largest purchaser of seafood. However, only 12 percent of global marine wild catch is MSC certified (MSC, 2017), and MSC has been unable to address the continued global problems of overfishing and depleted fishing stocks.

The most widely adopted transnational corporate voluntary code is the UN-sponsored Global Compact. Established in 2001, it now has more than 12,000 corporate signatories in more than 160 countries. Three of the Compact's 10 principles involve the responsibility of companies to improve environmental practices. These principles, however, represent aspirations rather than specific standards and the Compact does not have any formal mechanisms for assessing how firms actually have changed their policies and practices (Sethi & Schepers, 2014).