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The Impact of Logic (In)Compatibility: Green Investing, State Policy, and Corporate Environmental Performance

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Abstract

Environmental protection is widely perceived as a state responsibility, but market-based solutions such as green investing have emerged in the financial sector. Little research has addressed whether green investing can affect corporate environmental performance and how the state would moderate such an impact. Using an institutional logics perspective, we extend the literature on institutional complexity by exploring the factors leading to compatibility of logics and practices. We theorize that the success of green investing as a novel hybrid practice combining financial means and environmental goals depends on the legitimacy it achieves as an appropriate solution to the stated goal, and this legitimacy can be boosted or dampened by other hybrid practices in the field. Analyzing a panel dataset of 3,706 firms from 20 countries between 2002 and 2013, we find a positive relationship between the relative size of green investment in the economy and firm-level environmental performance in that country. This relationship is moderated by state policies: a strong environmental protection policy weakens the positive relationship between green investing and corporate environmental performance, and a strong shareholder protection policy strengthens the relationship. We contribute to research on institutional complexity, logic compatibility, and public–private cooperation in pursuing the common good.

Keywords: environmental protection, corporate social responsibility, institutional complexity, finance, state, ESG investing

Both the public and private sectors have offered solutions to improve the environmental performance of business corporations. On the one hand, the state

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remains the primary steward of the natural environment (Wapner, 1995; Frank, Hironaka, and Schofer, 2000), and prior research has shown that pro-environment public regulation has been the most effective driver of corporate environmental performance (Jennings and Zandbergen, 1995; Lee and Lounsbury, 2015; Aragón-Correa, Marcus, and Vogel, 2020). On the other hand, market-based private solutions to environmental problems have also emerged, including industry certifications (King, Lenox, and Terlaak, 2005), voluntary codes and standards (Guler, Guillén, and Macpherson, 2002; Delmas and Montes-Sancho, 2011), and green investing (Naaraayanan, Sachdeva, and Sharma, 2020). From an institutional theory perspective, corporate managers are exposed to the normative influence emanating from two quite distinct institutional orders, the state and the market, and their associated logics (Thornton, Ocasio, and Lounsbury, 2012; Jennings and Hoffman, 2017; Ocasio and Gai, 2020). In this paper, we conceptualize market practices and state policies as expressions of institutional logics, and we offer a novel theory explaining their complementarity. We tackle the following empirical questions: first, the effectiveness of green investing in society as a market practice driving firm-level environmental performance, and second, how this effectiveness is moderated by two state policies, namely environmental and shareholder protection.

Green investing, i.e., investing with an explicit environmental mission, has been on the rise in the professional investment sector as part of the global movement toward greater environmental sustainability (Lounsbury, 2001; Lounsbury, Ventresca, and Hirsch, 2003; Sine and Lee, 2009; Schneiberg and Lounsbury, 2017). It is also part of the financial sector's transition toward responsible and environmental, social, and governance (ESG) investing (Yan, Ferraro, and Almandoz, 2019; Gibson et al., 2020). After he left public office, former U.S. Vice President Al Gore established a sustainability-themed investment fund, Generation Investment, to address his environmental concerns through the private sector. As he put it, ''While governments and civil society will need to be part of the solution to these challenges, ultimately it will be companies and investors that will mobilize the capital needed to overcome them'' (Gore, 2012). Green investing integrates environmental objectives, such as diminishing carbon emissions, in the investment process. Despite its growth, by the late 2010s green investing represented only a small slice of the financial sector in terms of the number of funds and assets under management, and its impact on corporate environmental performance remains dubious.

Extant empirical research on the environmental impact of green funds, especially in finance, is mixed. One study showed that large institutional investors can affect the environmental performance of the firms in which they invest (Dyck et al., 2019), while another, studying all signatories of the United Nations Principles for Responsible Investing, reported that their environmental impact is not distinguishable from non-signatories (Gibson et al., 2020). These studies, furthermore, did not distinguish among types of investors and thus might not really capture the impact of green funds, which, according to Bloomberg data, represent at best 1 percent of the total number of investment funds. While the evidence of green investing's effectiveness is mixed, it has been favorably compared to the impact of the public sector, at least in demanding environmental disclosures from corporations. The *Financial Times*, for example, reported that green investing players seem to ''achieve what ministers have not,''

because ''the government has been urging companies to produce environment reports for years but with limited success'' (Cowe, 2002: 2).

It is also unclear how different state policies, which play a key role in this space, moderate the influence of green investors on corporations. Prior literature suggests that pro-environmental state policies are likely to improve environmental practices (Russo, 2001; York, Vedula, and Lenox, 2018; Georgallis, Dowell, and Durand, 2019) and pro-shareholder state policies, which are less complementary with environmental conservation, may thwart them (Liang and Renneboog, 2017). Thus, one would expect that green investing might be most impactful in states with strong environmental protection and weak shareholder protection policies. Yet the success of green investing activists in achieving corporate environmental disclosures is more common in countries with state policies favoring shareholder primacy, such as the U.K., the U.S., and Australia (Krosinsky, Robins, and Viederman, 2012). Whether green investing is effective in improving corporate environmental performance and how different state policies moderate its effectiveness are crucial empirical questions because the scale and urgency of the environmental problem go beyond what states or markets can achieve independently (Bartley, 2007), and research should help point the way to the most effective field governance solutions to climate change.

Addressing these empirical questions also offers an opportunity to advance the institutional logic perspective in institutional theory. That literature has explored how different logics intersect as they shape organizational behavior (Lee and Lounsbury, 2015) and how organizations strategically react to those different logics (Durand and Jourdan, 2012). But the compatibility or incompatibility of logics in those studies is assumed based on the affinity of logics' end goals and researchers' familiarity with a particular context. Extant literature does not shed light on more nuanced and generalizable mechanisms of (in)compatibility beyond those a priori assumptions.

Institutional logics are master principles in society that shape norms, values, assumptions, and practices in different sectors (Thornton and Ocasio, 2012). The environmental, financial, and state institutional logics intersect in the green investing space, which is thus institutionally complex. The environmental logic is oriented toward environmental protection, the financial logic toward shareholder wealth maximization, and the state logic toward social justice in its various manifestations; see Table 1. Institutional logics stem from distinct and relatively durable institutional orders (state, family, market, religion) that are woven into stable practices that perpetuate them, but they also shape norms, values, and actions ''outside of their respective orders'' (Ocasio and Gai, 2020: 267) as they are combined into hybrid practices and policies. Hybrid practices essentially recombine core elements of different logics in novel ways. In the case of green investing, the financial logic serves as a vehicle (or a means) to transmit an environmental influence in society, which is the end goal of green investing. Similarly, state interventions to protect the environment or to enforce shareholder rights use the state logic as a vehicle or means to influence society with either environmental or financial ends, respectively; see Table 2.

Our paper leverages the green investing phenomenon to explore generalizable theoretical mechanisms about the compatibility or incompatibility of institutional logics—and about the complementarity of related hybrid practices—based on how those logics and practices interact in terms of the means they

Table 1. Characteristics of Institutional Logics

	Environmental Logic	Financial Logic	State Logic
Ends	Sustainable development Environmental protection	Shareholder wealth maximization	Social justice, including policies aligned with environmental and financial logics
Means	Best practices Stories Mobilization	Financial expertise Financial products	Laws and regulations Enforcement system
Sources of legitimacy	Scientific expertise	Financial returns Shareholder primacy	Rule of law
Basis of norms	Future generations Planet sustainability	Self-interest	Citizenship

Table 2. Hybrid Practices and Constituent Logics

	Green Investment	Shareholder Protection Policy	Environmental Protection Policy
Targets the ends of	Environmental logic (environmental protection)	Financial logic (shareholder wealth maximization)	Environmental logic (environmental protection)
Leverages the means of	Financial logic (financial expertise, financial products) Primarily normative but also ownership influence	State logic (regulations and law enforcement system) State coercion of companies to align with investors	State logic (regulations and law enforcement system) State coercion of companies to comply with environmental goals

mobilize and the ends they pursue. We suggest that the normative influence of hybrid policies and practices will depend on the degree to which they are considered to be an appropriate institutional *means* to address a specific end. Thus, we theorize that the compatibility of *means* across policies and practices might affect the effectiveness of a hybrid practice. We test our hypotheses in a sample of 3,706 firms from 20 countries from 2002 to 2013, and we find that strong shareholder protection policies legitimize green investing and thus increase its effectiveness, even though those policies' ends are often in conflict with environmental goals. We also find that strong state environmental protection policies dampen the legitimacy and effectiveness of green investing, even though they pursue the same end. In both cases, these counterintuitive results can be explained by the different roles the policies play in reinforcing or weakening the legitimacy of the financial logic as the appropriate means to reach environmental goals.

COMPATIBILITY OF INSTITUTIONAL LOGICS

Research has begun to explore the question of compatibility of logics in institutionally complex environments (Greenwood et al., 2010; York, Vedula, and Lenox, 2018). For example, Lee and Lounsbury (2015) showed that different community-level logics can be compatible or incompatible with the state and market logics of facility-level environmental performance. They found that the

environmental performance of a local facility facing Environmental Protection Agency (EPA) state pressure was weaker in politically conservative communities and stronger in communities dominated by a pro-environmental logic. But their study assumed synergy between state environmental pressures and pro-environmental communities and friction between those same pressures and politically conservative communities without developing a theory of such (in)compatibility. More broadly, existing research on logics has not developed predictive tools to anticipate ex ante whether *any* logics may be compatible or incompatible or to make sense of the outcome ex post. In other words, there are few, if any, generalizable principles about the compatibility of logics in other contexts and about the complementarity of hybrid practices in reaching certain ends.

Analyzing the means and ends of logics may be a helpful approach to advance our theoretical understanding of the compatibility of logics and the complementarity of hybrid practices (Pache and Santos, 2010; Bromley and Powell, 2012; Wijen, 2014; Yan, Ferraro, and Almandoz, 2019). Yan and colleagues (2019), in their study of socially responsible investing (SRI), found that as the financial logic became more dominant in society, its relationship with SRI as a hybrid practice shifted from compatible—as the financial logic behaved as an enabling means to the social ends of SRI—to competing, as the profit-maximizing ends of the financial logic in society were hostile to the social ends of SRI. Whether the financial logic behaved as a compatible means or as a competing end depended on its overall prevalence or dominance in society. Most research on the compatibility of institutional logics has focused on the extent to which their ends are aligned. Our study shifts attention to the compatibility of institutional logics in terms of how they interact with the means of a hybrid practice rather than its ends.

Each hybrid practice is an attempt to integrate, or make compatible, distinct institutional logics in society, often placing one institutional logic at the service of the other. The compatibility of those logics in a specific hybrid practice is ultimately demonstrated in the field when such practice is widely embraced by individuals and organizations. Green investing in our setting leverages the financial logic as a means to serve the ends of the environmental logic. This hybrid practice may be more or less complementary with other practices to the extent that they legitimize or delegitimize either the ends or the means of such hybrid practice, or both. In this study, the state logic in society operates through specific policies and laws that we conceptualize as hybrid policies because they use the state logic as a means to support the ends associated with other societal logics, such as financial or environmental logics. We argue that the legitimizing role of the state over an institutional logic mobilized as a means in a hybrid practice—in this case the financial logic in green investing—matters more for the effectiveness of such practice than the state's legitimizing role over its end.

GREEN INVESTING AS A HYBRID PRACTICE BLENDING ENVIRONMENTAL AND FINANCIAL LOGICS

The Rise of the Environmental Logic in Investing

The environmental logic has become one of the master principles in our society. The call for environmental protection has evolved into a systematic,

distinct, and robust institutional logic, with values and goals that often question existing market practices (Ansari, Wijen, and Gray, 2013). As Purdy, Ansari, and Gray (2019: 413) put it, ''the 'green' or environmental logic cannot be seen simply as a derivative of the community logic nor as a hybrid of multiple logics.'' The environmental logic ''has emerged gradually over many years,'' and it ''exists'' now as a real and distinctive institutional logic (Purdy, Ansari, and Gray, 2019: 413) fueled by a global diverse social movement promoted through multiple paths—including state regulation and market solutions—with practices such as recycling (Lounsbury, 2001; Lounsbury, Ventresca, and Hirsch, 2003), water conservation (Montgomery and Dacin, 2020), sustainable construction (York, Vedula, and Lenox, 2018), and renewable energy production (Sine and Lee, 2009).

The environmental conscience has been rising globally as a cultural phenomenon since the 1960s, in parallel with scientific evidence on the adverse environmental effects of industrial activity. The growth of the global environmental movement and the media exposure of periodic environmental crises, such as acid rain on European forests in the 1970s, the Chernobyl explosion in 1986, numerous oil spills, and nuclear incidents, contributed to bringing these concerns to the attention of policy makers and society more broadly (Caradonna, 2014). This process has obviously accelerated in the last decade, with the growing awareness of the dramatic planetary consequences of human-induced climate change (Intergovernmental Panel on Climate Change, 1995, 2014). Although initially couched primarily as a radical alternative to existing economic arrangements, the environmental movement increasingly engaged more directly with the dominant market and financial logics, developing a more reformist discourse and hybrid practices (Lounsbury, Ventresca, and Hirsch, 2003).

As the environmental logic seeped into the financial sector, it led to the development of a hybrid practice: green investing, which leverages the financial logic to achieve environmental goals (see Table 2). The U.S. pioneers of socially responsible investing (SRI)—Pax, Domini, Calvert, and others—were already considering environmental alongside social and governance factors, but only in the late 1980s did the first environmentally themed funds appear on the financial scene. In 1989, the first environmental investment trust was founded by the Merlin research unit in the U.K., and this sector soon emerged in other developed nations. Some of these green funds may also be committed to other social and governance goals, but 52.91 percent of the sector, in terms of the number of funds, consists of ''pure'' green funds exclusively focused on environmental issues, based on data from Bloomberg. Green funds offer investors not only financial returns but also the possibility to make a difference for the environment by inducing more companies to improve their environmental performance. Green investing remains a niche in the financial sector, with less than 1 percent of the total number of investment funds (Climent and Soriano, 2011; Muñoz, Vargas, and Marco, 2013).

The presence of an environmental logic in the investment sector has been controversial (Jonsson, 2009) because the field of professional investing remains dominated by a financial logic, which prescribes shareholder value maximization (see Table 1). While financial organizations have recently received much pressure to become more society-centered, they have been historically focused on maximizing investment returns, with only limited attention to other

societal goals. Therefore, despite the recent increase in interest around social and environmental factors, the financial logic remains driven by shareholder value (Battilana and Dorado, 2010; Yan, Ferraro, and Almandoz, 2019). Thus green investing has had to break through the skepticism of finance professionals (Jonsson, 2009; Jonsson and Regnér, 2009).

To gain legitimacy among investors and leverage the financial logic for environmental ends, green investors use not only moral but also economic justifications. They use anecdotal evidence that a committed and growing demand exists for their products and services. For example, the founders of Jupiter Ecology in the U.K. told the story of ''a man in biker gear turning up at the office and writing out a check for $16,500 shortly after the fund was launched,'' which represented ''all his savings'' (Krosinsky, Robins, and Viederman, 2012: 18). Research shows that funds with high sustainability ratings attract more investments (Hartzmark and Sussman, 2019). Green investors also claim they can deliver superior investment performance. For instance, Al Gore explained that when they started Generation Investment they intended ''to prove the business case that the full integration of sustainability into investments need not sacrifice returns'' (Walker, 2018). By 2010, after a decade of activity, the fund had returned a 12.14-percent annualized return compared with 6.55 percent for the MSCI World Index: an impressive performance. In short, to gain legitimacy in the financial sector, green investors argue that the environmental and financial logics are not necessarily at odds. Indeed, the commitment of the UN Principles for Responsible Investment, which by 2021 had more than 3,000 signatories with more than US$100 trillion of assets under management, starts with the belief that ''environmental, social, and corporate governance (ESG) issues can positively affect the performance of investment portfolios.''

Institutional Impact of Green Investing on Environmental Practices

In developing our first hypothesis, we start from the baseline that the presence of green investing in the financial sector—overcoming the reluctance of other financial professionals—is likely to enhance corporate environmental performance. We distinguish two mechanisms for that influence: a direct governance path and an indirect cultural-normative path. In our study, and consistent with the cultural-normative focus of the institutional theory, we develop hypotheses on the latter. Our focus is also justified empirically, as the relatively small size of green investing makes the governance mechanism less plausible.

Direct governance influence. Investors can influence environmental performance directly through their governance influence as shareholders, mobilizing the governance tools made available to them through the financial logic. By examining fund–firm ties, extant research has shown a positive relationship between green investment funds and the corporate environmental performance of the companies into which they are invested (Johnson and Greening, 1999; Heinkel, Kraus, and Zechner, 2001; Neubaum and Zahra, 2006). Researchers have found that institutional ownership, especially for signatories of the UN Principles for Responsible Investing, improves the environmental performance of firms: a one-standard-deviation increase in institutional

ownership (16.8 percent) increases environmental performance by 4.5 percent (Dyck et al., 2019). However, a key assumption in this literature is that shareholders exert influence primarily through their governance prerogatives, so their effectiveness depends on their ownership stake in the firms. Thus we should expect only very large institutional investors holding significant stakes in corporations to have an effect on corporate environmental practices (Wahba, 2010; Dyck et al., 2019; Azar et al., 2021), and green investing might be too small to have any impact (Dam and Scholtens, 2015).

Indirect normative influence. An alternative and neglected path through which green investors can influence corporations is the normative and cultural path. Despite the negligible share of the economy represented by green investing (1 percent of the number of investment funds in our sample), the normative influence of green investors as they leverage the financial logic may be much greater than what could be reached through strict ownership control. Ferraro and Beunza (2018) showed that a small group of SRI investors, with no significant stakes in the companies they were engaging with, managed to influence Ford's top management to set carbon emission targets and to stop funding climate change denialist organizations. As an instantiation of the environmental logic in the domain of finance, green investing does more than just provide capital for companies with better environmental performance. It becomes a vehicle for the diffusion of the cultural norms and values of the environmental logic in the domain of the market. The size of green investing in a country may thus enhance the legitimacy of environmental goals in society well beyond the narrow scope of the companies in which green funds directly hold shares. Corporate managers may adopt environmental practices because green investors persuade them to do so, directly or indirectly. They may see the growth of green investing as an unexpected ''cultural anomaly'' that is a sign of things to come (Hoffman and Jennings, 2011). Like a canary in the coal mine, green investing may signal an upcoming shift in the financial sector, because investment funds traditionally shaped by the financial logic are least expected to spread environmental ideas. Similar to the ''Nixon-in-China'' effect proposed by social movement theorists (Briscoe and Safford, 2008), the mere existence of green investing helps challenge corporations' long-held, taken-for-granted, and often unfavorable assumptions about environmental practices.

Given green funds' blend of environmental and financial logics, green investors—in addition to insisting that being green is a moral and social responsibility—argue for instrumental reasons that may align with business goals. They argue, with varying degrees of effectiveness, that environmental sustainability can be a strategic opportunity to reduce costs, obtain goodwill and reputational benefits, and even pre-empt stricter regulations from the state, which ultimately may result in reducing compliance costs collectively (Lyon and Maxwell, 1999; Lutz, Lyon, and Maxwell, 2000).

As the number of green investment funds increases proportionally in the economy, their impact as the cultural vanguards of environmentalism in the financial sector is likely to increase. Both the moral and instrumental arguments of green investors are likely to have a greater impact on corporations. Thus green investors collectively help shape a societal norm that corporations should improve their environmental performance. Formally, we propose:

Hypothesis 1a: There is a positive relationship between the proportion of green investment funds in a country's financial sector and firms' environmental performance in that country.

Social Investment Forums Amplifying the Indirect Normative Influence

As a hybrid practice blending the financial and environmental logics, green investing's indirect influence depends on its ability to effectively legitimate the financial logic as an appropriate means to address the environmental end goals. This requires translating the language and values of the environmental logic into those of the financial logic. This translation happens through multiple channels, but given the need to bridge distinct communities and institutional orders, and building on the social movement literature, we propose that ''boundary organizations'' (O'Mahony and Bechky, 2008)—those that bridge divergent worlds and facilitate avenues for collaboration in areas of convergent interests—play a crucial role in the process. They may also create cultural resources and material toolkits that facilitate the diffusion of environmental practices (Briscoe and Safford, 2008; Weber, Rao, and Thomas, 2009). As individual corporations begin to engage in positive environmental practices, those practices may also spill over to other firms in their industry through similar cultural and normative mechanisms (Cao, Liang, and Zhan, 2019).

In our context, ''social investment forums'' (SIFs) established by SRI professionals can act as boundary organizations and strengthen green investing's capacity to catalyze a broader cultural change and to make use of the financial logic as a means to serve the ends of the environmental logic. The first SIF was established in the United States in 1984 and is still operating, providing support for the responsible investment community. Canada, the United Kingdom, the Netherlands, and Australia established similar organizations prior to 2000, and SIFs emerged in several other countries after 2000. SIFs reinforce not only the environmental ends of green investing but also the legitimacy of leveraging the financial logic as an instrument for environmental ends. Therefore, an amplifying effect of green investing on corporate environmental practices resulting from the presence of an SIF would be consistent with the plausibility of an indirect influence.

SIFs coordinate financial, corporate, and environmental stakeholders and pool influence, resources, skills, information, and expertise to scale up the normative impact of green investors. Through an SIF's intermediary role, green investors can become better at making the business case for green investing and for corporate environmental performance and soften the pressures for shareholder wealth maximization from conventional investors. SIFs can help long-term shareholders influence corporate practices (Dimson, Karakaş, and Li, 2015) and develop a wide range of strategies, sometimes ''accommodating'' varying interests, sometimes reaching ''compromises,'' and sometimes simply allowing diverging interests and goals to coexist (O'Mahony and Bechky, 2008). By speaking the languages of all these worlds, SIFs strengthen the perceived compatibility of the environmental and financial logics, as well as the attractiveness of environmental practices.

Based on field observation, we learned that SIFs disseminate information about green investing and environmental corporate practices. As one SIF leader noted, they are ''always willing to help with the launch of any environmental

investment funds by raising awareness about green investing in their regions'' (SIF internal document, 2001). Another SIF leader put it this way: ''[Our] mission is to raise public awareness and educate corporations and financial institutions about their role in making a safe, healthy, equitable and ecologically rich future'' (SIF internal document, 2003). We also observed that SIFs support green investing by building collaborative relationships with mainstream investors and financial institutions; another SIF leader explained that the first priority was to ''convince the champions of the financial sector'' so that green investing became ''the legacy [of] the financial community itself'' (SIF internal document, 2010). They also disseminate success stories and best practices for engaging with companies, which may strengthen green investors' persuasiveness and motivation. For example, at a regional SIF event, one fund manager shared the importance of talking about ''climate risk'' rather than ''climate change'' (fieldnote, 2015) to capture attention. Finally, we observed that SIFs prepare environmentally conscious employees to become receptive audiences for green investing by providing them with cultural resources to influence their own firms.

SIFs are thus boundary organizations that magnify the relatively local activities of a few funds and generate a normative or cultural reinforcement that goes well beyond what green investors working independently could obtain on their own. We anticipate that the normative influence of green investments is likely to be greater where SIFs exist and where they can reinforce such influence by making green investing more legitimate.

Hypothesis 1b: The positive relationship between the proportion of green investment funds in a country's financial sector and firms' environmental performance in that country is stronger when a social investment forum is present in that country than when it is absent.

The Institutional Context of Green Investing: Enter the State

Corporations and green investors operate within a wider institutional context that is greatly influenced by multiple state regulations. The state is one of the core institutional orders in society, and it relies on legal and regulatory force in support of multiple goals, including environmental protection and economic prosperity (see Table 1). States are often expected to take an active and formal role in regulating both green practices and the investment sector. The state logic can serve as a regulatory means to support the ends of the environmental logic through environmental protection policies. At the same time, the state may also support the ends of the financial logic through shareholder protection laws (see Table 2), which, as research has shown, may have negative consequences for corporate environmental performance (Kim and Lyon, 2015; Liang and Renneboog, 2017) and thus for the ends of the environmental logic.

From an institutional theory point of view, we conceptualize state policies as another form of hybrid practice, as they leverage the regulatory logic of the state in the domains of the environment and the market. As such, the question of complementarity between state policies and market practices can be reframed in institutional terms as a question of compatibility between the cultural and material means that such practices leverage to achieve similar ends. We argue that the normative influence of hybrid practices depends on the

degree to which they are considered appropriate institutional means to a specific end. At any point in time, different realms of social activity may be regulated by one dominant institutional order, and its logic and associated practices may be taken for granted as the appropriate solution. But as institutional logics are deployed beyond the institutional order they stem from, they may trigger a legitimacy competition among different hybrid practices and their logics. In this context, novel practices attempting to redirect the cultural resources of one logic into another domain might fail to gain legitimacy against the practices instantiating the dominant order. In the following sections, we build on this insight to develop hypotheses on the relationship between state policies and green investing. On the one hand, we hypothesize that state policies that boost the legitimacy of the financial logic (the means of green investing) increase the effectiveness of green investing. On the other hand, we hypothesize that state policies targeting environmental goals (the ends of green investing) dampen the effectiveness of green investment, despite sharing the same ends, because they decrease the legitimacy of financial means as an appropriate solution to the environmental problem.

Shareholder Protection Policy and Green Investing

Strong shareholder protection policies, by which the state supports the financial logic (see Table 1), are likely to have a negative effect on corporate environmental performance. This financial logic has emerged at the core of free-market capitalism, based on shareholder value-maximizing principles (Friedman, 1970; Jensen, 2002). These principles have consistent global impact and have often been institutionalized in law. In countries with strong shareholder protection policies, market interests often trump other societal concerns (Weber, Davis, and Lounsbury, 2009; Guillén and Capron, 2016). Many nation states have enacted strong laws and policies to protect shareholders' rights that cast a shadow on corporations' environmental initiatives. For example, researchers have found that firms in countries with a common law tradition, which have better shareholder protections, have lower social and environmental performance (Liang and Renneboog, 2017). Therefore, we make the following prediction:

> **Hypothesis 2a:** In countries where shareholder protection laws are stronger, firms' environmental performance is weaker.

However, it is necessary to ask how shareholder protection policies interact with the influence of green investing on corporate environmental performance. On the one hand, shareholder protection policies and green investing seem incompatible because they do not share the same end goals; on the other hand, stronger shareholder prerogatives may facilitate green investing, which leverages the financial logic as a means, with more instrumental support to achieve its environmental goals. For that reason, these practices may be complementary. As the state increases the legitimacy of the financial logic, green funds may be emboldened and become more vocal as they approach companies, and companies may be more receptive to their concerns. The cultural-normative influence of green investing is likely to be stronger in countries where shareholders are more legitimate and their primacy in governing

corporations is enshrined in the law. In addition, green investing will have more effective legal and coercive mechanisms for direct influence, such as shareholder proposals and legal threats. Thus, in countries with strong shareholder protection policies such as the United States, both the normative and coercive influences of green investing in society can be amplified even though, given the small size of green investing, the latter path is still likely to be primary (Shi, Connelly, and Sanders, 2016). Although we expect a negative relationship between strong shareholder policies and green corporate practices, we also expect that strong shareholder policies positively moderate the relationship between green investing and corporate environmental practices.

Hypothesis 2b: In countries where shareholder protection laws are stronger, the positive relationship between the proportion of green investing and firms' environmental performance is stronger.

Environmental Protection Policy and Green Investing

Strong environmental protection policies by which the state supports environmental goals are likely to have a positive effect on corporate environmental performance. In fact, state intervention is generally considered a crucial driver for corporate environmental performance (Henriques and Sadorsky, 1996; Rugman and Verbeke, 1998; Delmas, 2002; Kassinis and Vafeas, 2002; Delmas and Toffel, 2004; George and Nikos, 2006). States can impose taxes and penalties, set environmental standards, and enforce organizational compliance (Delmas and Toffel, 2008; Delmas and Montes-Sancho, 2011). Not surprisingly, Kassinis and Vafeas (2002) showed that pro-environment government policies are often associated with lower toxic emissions. Therefore, we propose the following baseline hypothesis:

Hypothesis 3a: Firms' environmental performance is stronger in countries where environmental protection laws are stronger.

However, it is not self-evident how environmental protection policies interact with the influence of green investing on corporate environmental performance. As with shareholder protection policy, environmental protection policy seems complementary with green investing, sharing the same institutional end goals. But the underlying means of these hybrid practices (state vs. financial logics) may be in competition.

The state's active involvement in environmental protection may delegitimize private sector initiatives, especially those arising from the financial sector with traditionally competing ends. Because government commitment to environmental protection is a key factor driving corporate environmental performance (Jennings and Zandbergen, 1995; Delmas, 2002; Lee and Lounsbury, 2015), states with stronger environmental regulations will be perceived as more effective in the environmental field (Frank, Hironaka, and Schofer, 2000). The centrality and dominance of the state is likely to institutionalize the homogeneous belief that environmental protection is primarily driven by compliance to regulation (DiMaggio and Powell, 1983), a belief likely to leave less space for novel hybrid practices (DiMaggio, 1988). A common concern shared by free-market advocates (Friedman, 1970) and by some environmental activists, such as

Friends of the Earth in France (Arjaliès and Durand, 2019), is that environmental policies should be set by states, not by private financial actors with no democratic legitimacy. They argue that the right tools to combat excessive carbon emissions are democratic actions and the rule of law, not environmentally conscious investors (Armstrong, 2020). In most countries, including the U.S., corporations perceive the state as their primary stakeholder for environmental issues, whereas investors have limited or little legitimacy on environmental issues (Eesley and Lenox, 2006). The illegitimacy of private initiatives intervening in public goods is likely to be stronger where the state is more involved in the administration of those goods. For those reasons, in countries with tighter environmental regulation, green investing may lack legitimacy as a hybrid practice. Thus it may have less influence on corporate practices, although environmental performance as a whole may be higher in those countries.

Another reason the legitimacy of green investing may be crowded out when state environmental policies are strong is that some of the arguments for green investing are premised on conditions that exist when the state is less active in environmental protection. One such argument is the pre-emption of more stringent regulations (King and Lenox, 2000; Lyon and Maxwell, 2003) by the adoption of higher voluntary standards. Another is that voluntary corporate environmental practices could become a source of reputation and competitive advantage. When state regulations are stronger, regulatory compliance becomes a license to operate, thus taking the wind out of green investing. In a similar vein, research has shown in the context of other social goods, such as charity and insurance (Cutler and Gruber, 1996; Andreoni and Payne, 2003), that public provisions tend to crowd out private voluntary initiatives. In the context of charity, Payne (1998) showed that for every dollar of government funding awarded to non-profit organizations, private donations declined by 50 cents.

Clearly, the relationship between strong environmental protection policies and corporate environmental performance is nuanced. Although we hypothesize a higher baseline environmental performance for corporations in countries with stronger environmental protection, we also propose that environmental protection policies will dampen the effect of green investment on environmental performance.

> **Hypothesis 3b:** In countries where environmental protection laws are stronger, the positive relationship between the proportion of green investing and firms' environmental performance is weaker.

METHODS AND ANALYSIS

Data Sources and Sample

We collected most firm-level variables from Thomson Reuters ASSET4 (now Refinitiv ESG) and Worldscope and the country-level variables from the World Bank, OECD, IMD Competitiveness report, FactSet, Factiva, and Bloomberg. See Table 3 for the list of variables and their sources. We collected information about green investing from Bloomberg because its analysts read carefully through each fund's prospectus and thoroughly classify the attributes of a fund, such as by indicating whether a fund is socially responsible, environmentally friendly, or both. We selected ''environmentally friendly'' from the ''general

Table 3. List of Variables and Definitions

Variable	Description	Source
Environmental performance	The environmental score measures a company's impact on living and non-living natural systems, including the air, land, and water, as well as complete ecosystems.	ESG ASSET4
Leverage ratio	Total liabilities over total equity (1-year lag)	Worldscope
Price-to-book ratio	Market capitalization over book value (1-year lag)	Worldscope
Return on equity	Pre-tax profits / equity (1-year lag)	ESG ASSET4
Firm size	Logged amount of firm assets (1-year lag)	Worldscope
Link with green NGOs	Whether the firm has a partnership with environmental NGOs and other environmental organizations (1-year lag)	ESG ASSET4
Institutional ownership	The percentage of ownership held by institutional investors (1-year lag)	FactSet
Peer environmental score	The average environmental score of firms that are in the same industry and country as the focal firm (1-year lag)	ESG ASSET4
GDP growth	The percentage of GDP increase over the prior year (1-year lag)	World Bank
Trade openness	(Imports + Exports) / GDP (1-year lag)	World Bank
Education	Years of schooling in primary and secondary education (1-year lag)	World Bank
Cohesion of green investing	The cohesive impact of green investing arising from countries that trade with the focal country (1-year lag)	ESG ASSET4
Environmental protest	The number of publicly reported protests involving environmental issues (1-year lag)	Factiva
Social investment forum	Whether a social investment forum exists in a given country-year (1-year lag)	Hand-coded
Shareholder protection policy	The extent to which shareholders' rights are sufficiently implemented (1-year lag)	IMD competitiveness report
Environmental protection policy	The stringency of national environmental regulation (1-year lag)	OECD
Green investing	The number of green investment funds in a country as a fraction of all funds (logistic transformed, 1-year lag)	Bloomberg

attributes'' in the Bloomberg fund screening function (FSRC) to obtain all the green funds. Compared with prior research examining institutional ownership in general (Dyck et al., 2019), our data better capture those funds that are openly ''green'' and active in terms of promoting the environmental logic. In our data, green funds represent 0.81 percent of the total number of funds and 0.39 percent of the total assets under management. These data are free from survivorship bias, as both active and dead funds are included in the database. These funds are publicly traded and thus are appropriate for our purpose to examine societal-level normative influence.

Our key firm-level variables came from Thomson Reuters' ASSET4, which specializes in providing objective, relevant, auditable, and systematic information on performance in corporate social, environmental, and governance metrics. All of the performance ratings are industry-adjusted and have been used in multiple studies as sources of non-financial information (Cheng,

Ioannou, and Serafeim, 2014; Ferrell, Liang, and Renneboog, 2016; Hawn and Ioannou, 2016; El Ghoul, Guedhami, and Kim, 2017). Reuters' analysts performed multiple checks and verifications on all of the variables to ensure accuracy and quality.

Our sample has both strengths and weaknesses. It is comparable and consistent with prior studies using the same database (Ferrell, Liang, and Renneboog, 2016; El Ghoul, Guedhami, and Kim, 2017). Our sample is more heavily weighted toward firms in the United States (35.93 percent of the sample) and Japan (14.65 percent of the sample), but it also includes firms from Australia, Canada, France, Germany, Korea, and many others. To alleviate concerns about outliers driving the results, we winsorized all continuous variables at the 1st and 99th percentage levels. Our sample is also evenly distributed across different industries, with no single industry representing more than 5 percent of the sample.

Admittedly, our sample is affected by data availability. Data on the variables of environmental protection law and shareholder protection law are available only for relatively more developed countries. This restricts the generalizability of our findings to those countries where green investing is present and where laws on the environment and shareholders are more established. Furthermore, our sample includes only publicly listed firms, so it is unclear whether our findings are generalizable to private firms. Our timeframe covers periods both before and after the 2008 financial crisis, but we tested the relationship between green investing and corporate environmental performance not only in the whole timeframe but also separately for the periods before and after the crisis (see difference-in-difference analyses in tables 6 and 7).

Dependent Variable: Environmental Score

We relied on Thomson Reuters' ASSET4 to measure the environmental performance of individual firms. ASSET4 provides standardized and comparable measures of corporate environmental performance across industries and countries (Ioannou and Serafeim, 2012). Scholars in other studies have used objective pollution levels (Berrone and Gomez-Mejia, 2009; Berrone, Cruz, and Gomez-Mejia, 2012) and adoption of energy-saving initiatives (Dowell and Muthulingam, 2017), but these measures apply only to specific sectors and are limited to the United States. The environmental score from ASSET4 is a z-score for each firm-year. It covers three major sectors, emission reduction, environmental product innovation, and resource deduction, and it represents an overall rating based on 136 public and objective data points compiled by trained analysts.

Independent Variables

Green investing. We measured the proportion of green investing in the financial sector by dividing the total number of green investment funds by the number of all funds in a country and performed a logistic transformation, following Gong (2003). This transformation, which takes the natural log of the odds ratio of a percentage, is helpful to correct for skewness in percentage variables. Given the high disparity in the percentage of green investing across countries (skewness = 9.8967), our measure for the independent variable (with a skewness of 0.6235) is less likely to be affected by a few extreme values. In our

robustness checks, we used the logged percentage of funds and the logged number of funds as alternative measures, with consistent results.

The higher the value of this logistically transformed variable, the more prevalent the environmental logic is in the investment profession relative to the mainstream financial logic. This variable is a conservative measure of the ''greenness'' or environmental tendency of the investment field because a portion of traditional investment managers might also be sympathetic to environmental causes (Hong and Kostovetsky, 2012). Thus it is a helpful indicator of the extent to which the environmental logic has seeped into the financial sector, and it better proxies for cultural influence than conventional measures that rely on the proportion of assets (Aggarwal et al., 2011; Dyck et al., 2019).

This country-level variable has the advantage of being relatively exogenous to firm-level outcomes, thus mitigating concerns about reverse causality. In other words, it is unlikely that firm-level outcomes would cause macro-societal variations in the investment domain.

Social investment forum. This dummy variable indicates whether an SIF existed in a given country-year. We hand-coded these data by first searching for the presence of SIFs online, then consulting internal informants and documents from different SIFs, and finally double checking with historical webpages that are archived online.[1] Overall, the presence of SIFs is concentrated in developed economies. Their founding years vary and do not correlate with the size of the SRI market. For example, Denmark has long had a sizable SRI market but established its SIF only in 2009. Italy has had a weaker SRI market, but its national SIF was founded in 2001. This variation further helps us clarify the normative role of SIFs because the existence of an SIF can be expected to amplify the green investment philosophy and the diffusion of green corporate practices.

Shareholder protection policy. We obtained the measure of shareholder protection policy from the IMD World Competitiveness Report, which started in 1989 and covers 71 countries. The original item comes from an indicator of ''the extent to which shareholders' rights are sufficiently implemented'' and is determined by a combination of an executive survey and analysis of other objective data conducted by the IMD World Competitiveness Center.

We also considered alternative measures as robustness checks and obtained consistent results. For example, we referred to the study by Guillén and Capron (2016), who created a composite index of minority shareholder protection laws across countries and time, but this measure is less helpful because it is based specifically on the protection of minority shareholders. Furthermore, we performed additional analyses with a dummy variable for common law tradition as a proxy for the degree of investor protection, with consistent results.

Environmental protection policy. We obtained the measure of states' environmental protection policy from the OECD (Botta and Koźluk, 2014).[2] This

[1] Obtained from https://archive.org/ on Feb. 28, 2017.
[2] Obtained from https://stats.oecd.org/Index.aspx?DataSetCode=EPS on Feb. 28, 2017.

measure covers a broad range of environmental regulations, such as emission limits for a given substance, the tax rate for emission of NO_x, and emission trading schemes for CO_2 and SO_x. There is a high degree of consistency between this variable and alternative proxies used in the literature (Botta and Koźluk, 2014), such as those derived from surveys on perceived environmental regulation, objective environmental outcomes such as pollution levels, and other composite policy-based measures.

Control Variables

At the firm level, we controlled for a set of seven characteristics: (1) leverage ratio, estimating financial slack, which may affect firm environmental performance; (2) price-to-book ratio, estimating firm potential value, which may impact commitment to non-financial performance; (3) return on equity, because profitable firms are more likely to engage in pro-social activities; (4) firm size, because larger firms tend to be more visible and hence tend to receive more pressure to improve their environmental records; (5) connections with green NGOs, a dummy variable indicating partnership with environmental NGOs, because social movement organizations, such as environmental NGOs, are considered an important force in driving firms to become more responsible; (6) institutional ownership, because the percentage of shares held by institutional investors can potentially affect corporate environmental performance (Dyck et al., 2019); and (7) the peer firm environmental score, proxied by the average environmental score of firms that are in the same country and industry with respect to the focal firm, because imitation can drive both the focal firm's green score and green investing.

At the country level, we controlled for a set of variables that may influence green investing, corporate environmental performance, or both: (1) GDP growth, because in high-growth countries environmental problems tend to be worse; (2) trade openness, measured by percentage of imports and exports to GDP, because economically open countries are more subject to world societal influences and hence have more stringent environmental protection (Biermann and Boas, 2010); (3) level of education, proxied by the number of compulsory years of primary and secondary education, because a more educated population might be more aware of environmental problems (Lim and Tsutsui, 2012) and be associated with a larger fund management industry (Khorana, Servaes, and Tufano, 2005) and a higher proportion of green investing in the economy; and (4) potential for international contagion of green investing, as proxied by an aggregate measure of the size of green investing in all of the trading partners weighted by the strength of trade relationships with the focal country (i.e., trade cohesion, as in Guler, Guillén, and Macpherson, 2002), because more green investing in trading countries can increase both the focal firm's environmental score and the size of green investing in the focal country. Finally, (5) we controlled for environmental protests by country and year in all models. We created this variable by first searching for <country> and <protest*> as keywords across 2001–2014 on Factiva (a news search engine) and then manually reading the news articles to determine whether the protest was related to environmental issues. After resolving disagreements (3.53 percent of the identified news items) between the first author and a research assistant, we eventually settled on 1,215 news items covering social movements related to

environmental issues by country and year. Despite the limitation of our search to English language news, which biases our search toward firms from the U.S. and the UK (50 percent of all of the news items), almost 25 percent of the news items we identified referred to protests in countries where English is not an official language. We used the unique count of environmental protests per country and year as an additional control variable throughout all models. Note that trade openness, peer firm environmental score, and potential for international contagion help control for explanations of practice contagion alternative to green investing.

Estimation Approach

We used firm-level fixed-effects ordinary least-square regressions with robust standard errors clustered at the country level to estimate the influence of green investing on firms' environmental performance. We performed a Hausman test, and the Sargan-Hansen statistic = 7782.915, chi-square = 13, and p = .00001. This confirmed that a fixed-effects model was a better choice than a random-effects model (Greene, 2012).

With this approach, we controlled for unobserved time-invariant heterogeneity across firms so that all cross-sectional variation was absorbed by the constant term. Therefore, only longitudinal variation in the sample drove the results. The coefficients should be interpreted as the unit change in the dependent variable brought about by a one-unit change in each independent variable, holding all other variables constant. Given that the variance of the error is likely to be different in a cross-country setting, the application of robust standard errors is preferred. By clustering robust standard errors at the country level, we focused our attention on the country-level main effect, which is consistent with our independent variable. We lagged the right-hand-side variables by one year to mitigate reverse causality and simultaneity bias.

We considered other modeling approaches, such as the generalized least squares (GLS) model with correction for panel-specific autocorrelation and heteroskedasticity (Cuervo-Cazurra and Dau, 2009). The results were consistent with the chosen model, but we preferred our choice because it is better able to account for firm-level differences than GLS models. We also used bootstrapped standard errors with 50, 1,000, and 2,000 replications, leading to similar results.

RESULTS

Main Results

Table 4a presents the summary statistics and correlation table. The average level of the dependent variable is 52.2 with a relatively high standard deviation of 32.3. Thus there is a high level of variation. The proportion of green investing is negative due to the logistic transformation to correct for skewness, but the corresponding value at the mean level is 0.0081. In other words, on average, 0.81 percent of investment funds in our sample are considered ''green funds.'' Table 4b illustrates how the average levels of non-transformed independent and dependent variables vary across countries and time.

Table 5 presents firm-level fixed-effects OLS regression results of the relationship between green investing at the country level and the environmental

Table 4a. Summary Statistics and Correlations

	Mean	S.D.	Min.	Max.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Firm environmental performance	52.23	32.3	9.12	96.12	1																
2. Leverage ratio	3.2	5.66	−6.66	33.49	.06	1															
3. Price-to-book ratio	2.47	1.84	.54	7.84	−.08	.04	1														
4. Return on equity	.17	.14	−.07	.41	.06	.06	.52	1													
5. Assets (log)	16.58	2.67	9.7	24	.32	.31	−.29	−.06	1												
6. Link with green NGOs	.38	.49	0	1	.56	.06	−.09	−.01	.19	1											
7. Institutional ownership	18.96	12	6.56	97	−.11	−.04	−.12	−.16	.04	−.08	1										
8. Peer environmental score	5.31	24	1.2	95.05	.71	.04	−.11	.02	.27	.42	−.05	1									
9. GDP growth	1.62	2.31	−5.53	1.26	−.10	−.02	.09	.13	.01	−.12	.05	−.13	1								
10. Trade openness	47.72	26.4	22.1	19.8	.15	.05	−.05	.01	−.07	.10	.19	.20	.05	1							
11. Education	12.24	.46	11	13	.07	.02	.03	.01	−.36	.06	.11	.10	−.10	.28	1						
12. Trade cohesion	1.63	2.48	.22	15.05	−.09	−.02	−.06	−.10	−.17	.02	.13	−.11	−.02	.27	−.06	1					
13. Environmental protests	7.53	8.24	0	39	−.10	−.01	.18	.12	−.37	−.11	−.27	−.16	.01	−.28	.22	−.14	1				
14. SIF	.94	.23	0	1	−.01	−.03	−.02	−.08	−.08	.02	−.07	−.01	−.26	−.22	.14	−.03	.21	1			
15. Shareholder protection policy	6.78	.9	4.09	8.53	−.12	−.05	.16	.08	−.49	−.04	−.09	−.16	.18	.13	.20	.15	.22	.04	1		
16. Environment protection policy	2.52	.78	.48	3.98	.07	−.03	−.10	−.12	−.19	.23	.06	.10	−.21	.29	.22	.38	−.24	.10	−.01	1	
17. Green investing	−5.73	1.07	−7.66	−2.35	.20	.03	−.13	−.06	.05	.15	.25	.27	−.07	.67	.39	.16	−.34	−.12	−.01	.45	1

Table 4b. Description of Key Variables (Mean Values) across Countries and Time

	Year 2002–2005		Year 2006–2009		Year 2010–2013	
Country	Percentage of Green Funds	Firm Environmental Performance	Percentage of Green Funds	Firm Environmental Performance	Percentage of Green Funds	Firm Environmental Performance
Australia	.61%	46.21	.61%	49.02	.63%	34.57
Austria	.81%	53.60	1.01%	5.10	1.22%	6.62
Belgium	.97%	47.03	.98%	54.18	1.15%	59.66
Canada	.18%	47.17	.41%	38.17	.40%	37.48
China	N/A	N/A	N/A	N/A	.31%	34.21
Denmark	.82%	44.50	1.23%	58.03	1.70%	67.69
Finland	.55%	68.65	.86%	72.35	1.35%	81.05
France	.91%	71.49	1.37%	77.72	1.95%	82.54
Germany	N/A	N/A	.18%	69.79	.30%	69.01
Hungary	N/A	N/A	N/A	N/A	.75%	73.69
Indonesia	N/A	N/A	.16%	43.07	.31%	47.12
Ireland	.26%	45.24	.47%	43.30	.84%	46.20
Italy	.60%	52.78	.84%	56.71	1.29%	61.33
Japan	.18%	61.55	.30%	6.64	.40%	63.18
Netherlands	1.96%	56.61	1.80%	75.76	1.81%	76.71
Norway	29.26%	51.86	3.04%	56.40	26.78%	58.64
South Africa	N/A	N/A	.23%	72.67	.29%	52.00
South Korea	N/A	N/A	.96%	76.58	1.94%	6.46
Spain	.08%	69.45	.06%	75.85	.06%	75.50
Sweden	8.79%	59.10	8.06%	69.55	6.49%	76.38
Switzerland	1.41%	65.87	1.79%	56.18	1.92%	58.43
Turkey	N/A	N/A	.25%	44.81	.20%	55.01
UK	.58%	59.27	.55%	61.85	.57%	62.07
U.S.	.05%	36.94	.13%	44.36	.18%	45.72
All	.92%	49.00	.87%	54.07	.73%	52.14

Table 5. Firm-Level Fixed-Effects OLS Regressions with Robust Standard Errors Clustered at Country Level Predicting Corporate Environmental Performance, 2002–2013*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Leverage ratio	−.11•	−.12••	−.12••	−.12••	−.12••	−.12••	−.12••	−.12••	−.12••
	(−2.70)	(−3.25)	(−3.27)	(−3.27)	(−3.50)	(−3.32)	(−3.49)	(−3.56)	(−3.43)
Price-to-book ratio	.13••	.21•••	.21•••	.20••	.24•••	.21•••	.23••	.21••	.20•••
	(2.99)	(3.89)	(3.82)	(3.76)	(4.63)	(5.08)	(3.63)	(3.75)	(5.44)
Return on equity	2.00•	2.60••	2.60••	2.50••	2.35••	2.16••	2.61•••	2.26••	2.00•
	(2.28)	(3.71)	(3.74)	(3.43)	(3.42)	(3.14)	(3.82)	(3.28)	(2.78)
Assets (log)	4.63•••	3.95•••	3.94•••	3.93•••	3.83•••	3.76•••	3.79•••	3.79•••	3.66•••
	(7.02)	(11.58)	(11.56)	(11.53)	(12.59)	(13.12)	(9.26)	(9.63)	(11.08)
Link with green NGOs	8.13••	6.98••	6.96••	6.97••	6.79••	6.93••	6.75••	6.91••	6.89••
	(3.28)	(3.30)	(3.27)	(3.28)	(3.46)	(3.54)	(3.14)	(3.18)	(3.40)
Institutional ownership	−.04•	−.04+	−.04•	−.04+	−.03	−.04+	−.03+	−.04•	−.03+
	(−2.76)	(−2.06)	(−2.08)	(−1.92)	(−1.71)	(−1.91)	(−1.93)	(−2.09)	(−1.89)
Peer environmental score	.44•••	.41•••	.41•••	.41•••	.41•••	.41•••	.41•••	.41•••	.41•••
	(11.80)	(18.32)	(18.07)	(17.92)	(19.41)	(19.33)	(18.08)	(17.61)	(18.51)
GDP growth	−.35•••	−.15+	−.14+	−.15+	.01	−.05	−.14	−.15	−.06
	(−3.90)	(−1.73)	(−1.72)	(−1.78)	(.12)	(−.42)	(−1.49)	(−1.41)	(−.50)
Trade openness	.19•	.07	.07	.06	.10•	.10•	.06	.08•	.09•
	(2.37)	(1.56)	(1.56)	(1.45)	(2.27)	(2.34)	(1.46)	(2.33)	(2.34)
Education	3.54	3.91	3.37	2.02	4.21	3.54	3.69	4.66+	1.41
	(1.14)	(1.18)	(.91)	(.56)	(1.26)	(1.02)	(1.15)	(1.73)	(.38)
Trade cohesion	.84••	.38	.37	.37	.55••	.56•	.26	.40•	.53••
	(3.71)	(1.48)	(1.46)	(1.51)	(2.99)	(2.81)	(1.08)	(2.54)	(3.46)
Environmental protests	−.00	−.00	−.00	−.00	−.00	−.01	.03	.03	.00
	(−.00)	(−.06)	(−.07)	(−.08)	(−.00)	(−.12)	(.50)	(.56)	(.07)
Green investing (H1a)		6.17•••	6.20•••	3.36••	5.80•••	−3.65	5.29•••	5.98•••	−6.59•
		(5.25)	(5.38)	(3.47)	(12.27)	(−1.34)	(4.68)	(6.49)	(−2.59)
SIF			1.44	18.39•••					17.99•••
			(.58)	(7.11)					(6.89)
Green investing × SIF (H1b)				2.94•••					2.62•••
				(6.55)					(6.30)
Shareholder protection policy (H2a)					−2.37•••	5.68•			6.30••
					(−5.70)	(2.33)			(3.03)
Green investing × Shareholder protection policy (H2b)						1.27••			1.32•••
						(3.34)			(3.85)
Environment protection policy (H3a)							1.07•	−4.66•	−1.42
							(2.45)	(−2.70)	(−1.37)
Green investing × Environment protection policy (H3b)								−1.04•••	−.33+
								(−4.67)	(−1.96)
Constant	−102.38••	−52.66	−46.80	−46.14	−42.01	−91.97•	−54.53	−64.12+	−86.85+
	(−3.10)	(−1.23)	(−1.01)	(−.99)	(−1.00)	(−2.10)	(−1.31)	(−1.85)	(−1.84)
Within R-square	.25	.263	.263	.265	.270	.271	.264	.266	.273

+ $p < .10$; • $p < .05$; •• $p < .01$; ••• $p < .001$.

* 25,688 observations and 3,706 firms; all continuous variables are winsorized at the 1st and 99th percentile; *t* statistics are in parentheses.

performance of companies in different countries in different years. As a high level of multi-collinearity would make our estimations less consistent, we mean-centered all continuous variables prior to these regression analyses. Model 1 includes only the control variables. The coefficient of the leverage ratio is negative and statistically significant, implying that firms with more debt are less likely to be associated with high environmental performance. The price-to-book ratio coefficient is positive and significant in all models, suggesting that firms with high valuation are generally ahead in green performance. The coefficient for return on equity is positive and significant, suggesting that profitable firms are on average more environmentally friendly. The coefficient for firm size is positive and significant, suggesting that larger firms tend to have a better level of corporate environmental performance. Connections with green NGOs

also show a significant and positive relationship with corporate environmental performance in all models, suggesting a positive role of social pressure in improving corporate environmental performance. Contrary to expectations, institutional ownership at the firm level has a negative and significant relationship with corporate environmental performance when other factors are controlled for. Other recent research has also questioned the extent to which large institutional ownership improves corporate environmental performance (Gibson et al., 2020).

H1a is supported by the results of model 2 in Table 5. The positive relationship between green investing and corporate environmental performance is significant at the .001 level. A one-standard-deviation increase in the logistically transformed share of green investing is associated with an increase in corporate environmental score of 6.17, or 19.1 percent of one standard deviation. For example, South Korea in 2007 can be characterized as an average country in terms of the level of green investing (median level of our independent variable). It had 4,736 funds, 16 of which (0.34 percent) were green funds. With a one-unit increase in our independent variable (from 0.34 to 0.91 percent, from 16 to 43 funds), South Korea would move up four places, from 9th to 5th, in the 2007 ranking of average corporate environmental performance among all countries in our sample.

Model 4 provides support for H1b. The interaction term between the presence of an SIF and the proportion of green investing is statistically significant at the .001 level. Figure 1 shows the relationship between green investing and corporate environmental performance when SIFs are present and when they are not.

Model 5 provides support for H2a. The coefficient of shareholder protection policy is negative and significant. H2b is supported by model 6. The interaction term of green investing and shareholder protection policy is positive and significant, suggesting that the relationship between green investing and corporate environmental performance is stronger in states with strong shareholder protection policies. For example, France and Australia have similar scores for the strength of their environmental protection laws, but Australia has a 15.68-percent higher score for shareholder protection laws. This may explain why the predicted size of the effect of green investing on environmental performance in Australia is nearly double that in France. Overall, shareholder protection policy has a negative relationship with corporate environmental performance, but this effect is mitigated by the moderating effect of shareholder protection policy on the relationship between green investing and corporate environmental performance. In Figure 2 we display the relationship between green investing and corporate environmental performance at different levels of shareholder protection policy.

H3a is supported by model 7. The coefficient of environmental protection policy is significant and has the expected sign. H3b is supported by model 8. The interaction term of green investing and state environmental protection policy is negative and significant, suggesting that the relationship between green investing and corporate environmental performance is weaker in countries with strong environmental protection policies; in other words, while both green investing and environmental protection policies have a positive relationship with corporate environmental performance, they are substitutes of each other. For example, Denmark and Finland are comparable in terms of shareholder

Figure 1. Effects of Green Investing on Corporate Environmental Performance (Y-axis) with and without Social Investment Forum (H1b)

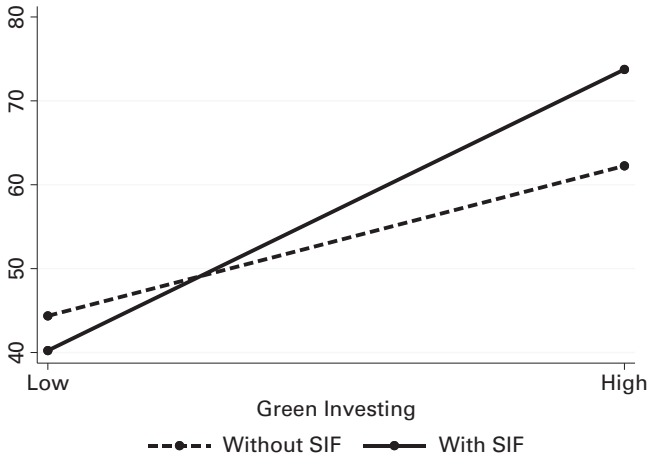
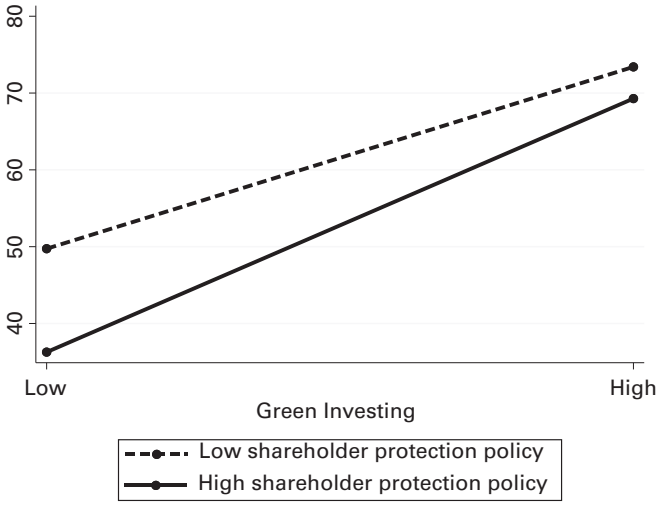
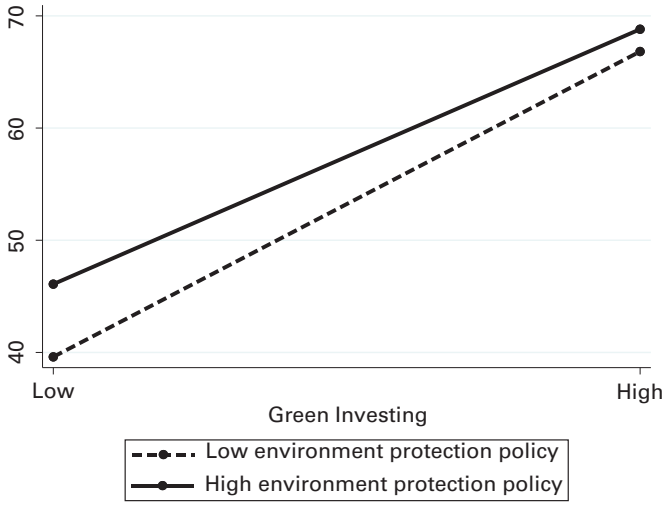


Figure 2. Effects of Green Investing on Corporate Environmental Performance (Y-axis) at Different Levels of Shareholder Protection Policy (H2b)



protection law (8.1 score), but the increase in environmental protection associated with an increase in green investing is 35 percent higher in Finland, potentially related to its lower score for the strength of environmental protection laws (0.36 lower in Finland). We display the effects of green investing on corporate environmental performance at different levels of environmental protection policy in Figure 3. We tested all interactions in a fully saturated regression in model 9 and found confirmatory results.

Figure 3. Effects of Green Investing on Corporate Environmental Performance (Y-axis) at Different Levels of Environment Protection Policy (H3b)



Difference-in-Difference Analysis

One alternative explanation for our results is that an omitted variable could be positively related to both green investing and corporate environmental performance. To address that concern, we performed a difference-in-difference analysis. As a quasi-natural treatment event we chose the ratification of the Kyoto Protocol in 2005. Although 54 countries had signed the protocol before then, it was hard to anticipate when the protocol would become effective as this required at least 55 nations to participate. Russia signed on in 2005, which made the protocol effective for all signatories. We considered this event as an exogenous shock, which heightened the impact of green investors on firms in countries that had signed the Kyoto Protocol (treated) more than firms in non-signatory countries, such as the United States and Australia (control). This event thus exogenously strengthened the normative influence of green investors in the treated countries. Environmental performance was likely to be perceived as more compatible with the financial logic in countries that had signed the protocol. Given the same degree of green investing in the financial sector, firms in the treated group were more likely to be persuaded by green investors than were firms in the control group. We took 2004 and 2005 as the pre-event period and 2006 and 2007 as the post-event period.

We first checked the assumption that in the absence of treatment, the treated and control groups would have followed a parallel trend in corporate environmental performance (Angrist and Pischke, 2009). In Figure 4a, we plot the absolute levels of average corporate environmental performance for the treated and control groups. The trend lines are approximately parallel between 2004 and 2005 but diverge after 2006, providing support for the validity of a difference-in-difference design. We also graph the year-in-year change rate of the average corporate environmental performance for both groups. The figure again illustrates a similar pattern, with an obvious shift in relative levels of environmental performance between the two groups.

Figure 4a. Graphical Checks on Parallel Trend Assumption for Kyoto Protocol as Exogenous Shock

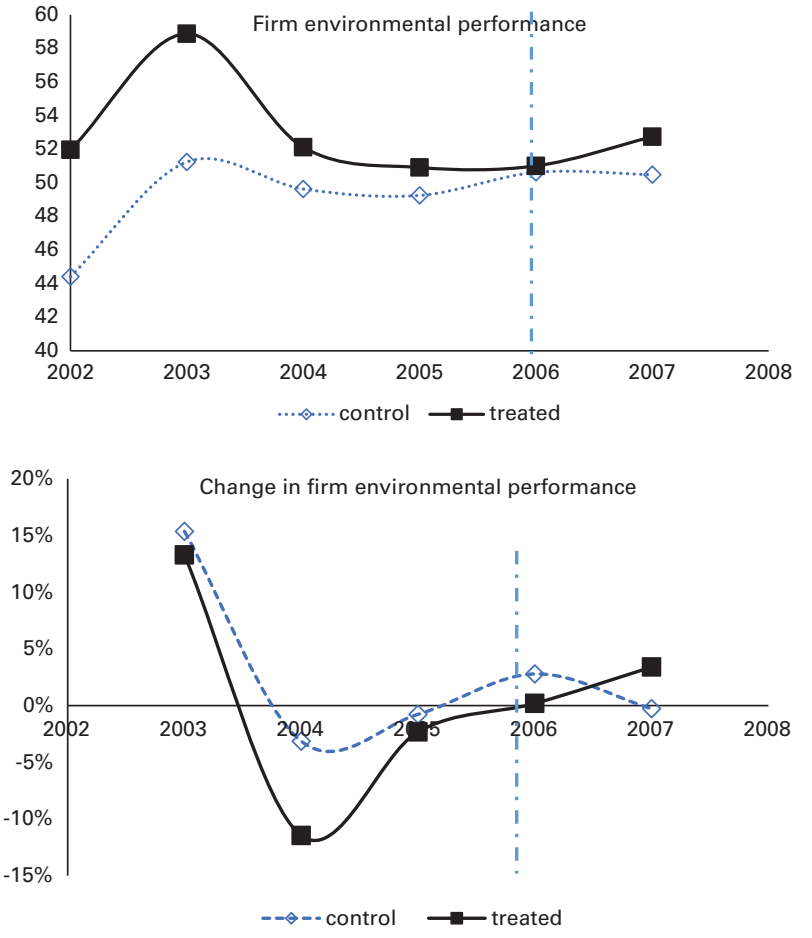


Table 6 presents our difference-in-difference analysis. Because we aimed to examine whether the impact of green investing was exogenously enhanced due to the shock, the test depended on whether the three-way interaction—green investing × treated firms × post-event—confirmed our prediction. To ensure that the effect was driven by the "green investing × treated firms" variable rather than variation in green investing itself, we kept the green investing variable constant to the average levels of green investing prior to the event. We used random effects in all models in Table 6, because the inclusion of dummy and treatment variables and six interaction terms significantly reduces the degrees of freedom in the regression. The post-event dummy variable and the constant level of green investing before and after the exogenous shock also made a fixed-effects model less appropriate.

In model 10, the three-way interaction term is statistically significant, supporting H1a. In the following models, we used split-sample analysis to test H2 and H3. Because the three-way interaction term is dropped when we divide the sample using the median values of the moderating variables as the cut-off

Table 6. Difference-in-Difference Analysis Based on Kyoto Protocol Ratification*

	(10) H1a Full	(11) H1b Higher Peer Green Score (25–100th Percentile)	(12) H1b Lower Peer Green Score (0–75th Percentile)	(13) H2b Stronger Shareholder Policies (25–100th Percentile)	(14) H2b Weaker Shareholder Policies (0–75th Percentile)	(15) H3b Stronger Environmental Policies (25–100th Percentile)	(16) H3b Weaker Environmental Policies (0–75th Percentile)
Green investing	–.356	–.724	–1.014	4.212•••	16.729	.748	–2.624
	(–.14)	(–.24)	(–.35)	(3.65)	(1.57)	(.45)	(–.78)
Post-treatment	–6.325•••	–8.872•••	8.046•••	–3.889•••	.000	–113.881	–5.721•••
	(–8.35)	(–8.59)	(7.95)	(–4.02)	(.)	(–1.14)	(–6.86)
Kyoto Protocol	4.203	7.494	7.922	–27.160•••	–72.918	–106.512	18.335
	(.36)	(.56)	(.61)	(–3.31)	(–.83)	(–1.17)	(1.46)
Green investing × Post-treatment × Kyoto Protocol	2.261•••	3.012•••	.387	1.087+	1.408	1.388	1.584•
	(5.23)	(5.61)	(.63)	(1.66)	(1.14)	(.64)	(2.44)
Other interaction terms	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Within R-square	.063	.051	.067	.073	.063	.043	.025
Observations	6981	5235	5233	5233	4834	5012	5207
Treated observations	4219	3487	2652	2523	3518	3637	3104
Firms	2105	1780	1753	1618	1863	2053	1774
Treated firms	1367	1196	1015	881	1143	1362	1088

+ $p < .10$; • $p < .05$; •• $p < .01$; ••• $p < .001$.

* All continuous variables are winsorized at the 1st and 99th percentile; *t* statistics are in parentheses.

line, we used the range of the 0–75th percentile for lower levels and 25–100th percentile for higher levels of the moderating variables as the cut-off line. Following a suggestion from one of the reviewers, we used the peer environmental score as a basis to confirm a normative peer-influence mechanism, which is in line with our theorizing. Model 11 includes observations of countries with high peer firm environmental scores, and the three-way interaction term is significant. In contrast, that same term is not significant in model 12 for countries with low peer firm environmental scores, which is evidence in support of H1b.

In model 14, we find that in countries with weaker shareholder protection policies, the effect of green investing in the three-way interaction term is not significant, but such an effect is marginally significant in model 13, in countries with stronger shareholder policies, thus marginally supporting H2b. In model 15, we find that in countries with stronger environmental protection policies (in the 25–100th percentile), the relationship of green investing with corporate environmental performance is not significant, but it is significant in model 16 in countries with weaker environmental protection policies (ranging in the 75th percentile), thus supporting H3b. In short, our difference-in-difference analysis also lends support to our hypotheses.

Robustness Checks

BP oil spill as alternative for difference-in-difference analysis. We also performed an alternative difference-in-difference analysis based on the BP oil spill, which received widespread public attention across the globe. On April 20, 2010, the largest marine oil spill in history, the Deepwater Horizon spill, occurred. It was caused by British Petroleum (BP), headquartered in the UK, in

the Gulf of Mexico (U.S.) and resulted in a discharge of 4.9 million barrels. We seized this event as an exogenous shock that accentuated the positive relationship between green investing and corporate environmental performance, particularly in the U.S. and the UK. As suggested by Hoffman and Jennings (2011), the BP oil spill was a ''cultural anomaly'' in that its magnitude was sufficient to help create a crisis within the existing paradigm of environmental management and to raise public demand for an immediate solution. Prior research has used the oil industry and extractive industries as a way to differentiate between treated and control firms in the context of the BP spill (Dyck et al., 2019).

In our case, because our independent variable is at the country level, our treatment should also be identified at that level. We thus opted to select UK and U.S. firms as the treated group: UK firms because of the British ownership of BP and U.S. firms because they are in the country most affected by the spill. This choice seems appropriate for three reasons. First, consistent with our study's focus on cultural influence, both countries were highly exposed to the crisis through the media. Between April and August 2010, the U.S. media covered the incident 1,376 times, and the UK media covered it 2,355 times (Schultz et al., 2012). Second, although the crisis was clearly most directly relevant to the oil and gas industry, research has found a substantial increase in time and money devoted to environmental causes in general since the disaster (Farrell, 2014; Bergstrand and Mayer, 2017), and the media highlighted stories illustrating historical environmental harm and corporate negligence (Farrell, 2014; Kleinnijenhuis et al., 2015). Third, in the absence of other country-level identifiers relevant to the oil industry for creating treatment and control groups, our current treatment approach provides a viable solution. Following prior research that has also used the BP spill as an opportunity for difference-in-difference analysis (Dyck et al., 2019), we created a post-event dummy variable, setting it to 1 for the years 2011 and 2012 and 0 for the years 2009 and 2010.

In Figure 4b, we also plot the absolute levels of average corporate environmental performance for the treated group and the control group. The trend lines are approximately parallel between 2009 and 2010 but diverge after 2010, providing support for the validity of a difference-in-difference design. We also graph the year-in-year change rate of the average corporate environmental performance for both groups.

Table 7 presents this difference-in-difference analysis. Similar to the prior difference-in-difference analysis, we focused on the three-way interaction green investing $\times$ treated firms $\times$ post-event. Model 1 from Table 7 confirms our main effect. Models 2 and 3 respectively split the sample based on the 25–100th percentile and 0–75th percentile ranges of shareholder protection policy. Similarly, we used the 25–100th percentile and 0–75th percentile ranges of environmental protection policy in models 4 and 5 of Table 7. The results of this analysis are compatible with H2b but not with H3b.

Other analyses. We performed a set of additional analyses to strengthen the confidence in the validity of our findings, as summarized in tables A1 to A8 in the Online Appendix (http://journals.sagepub.com/doi/suppl/10.1177/00018392211005756), all with similar results. First, we checked whether the

Figure 4b. Graphical Checks on Parallel Trend Assumption for BP Oil Spill as Exogenous Shock

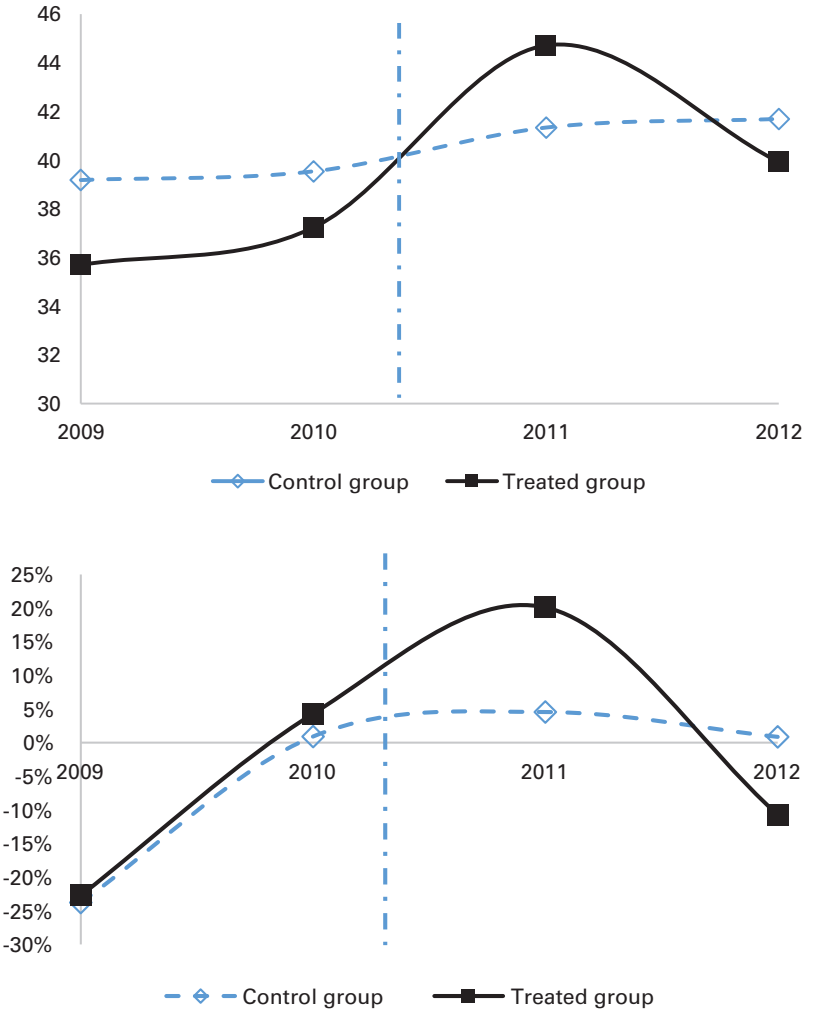


Table 7. BP Oil Spill as Alternative for Difference-in-Difference Analysis*

	(1) Full	(2) Stronger Shareholder Policies (25–100th Percentile)	(3) Weaker Shareholder Policies (0–75th Percentile)	(4) Stronger Environmental Policies (25–100th Percentile)	(5) Weaker Environmental Policies (0–75th Percentile)
Green investing ×	1.041••	4.389•	.997	.607	–.442
Post-treatment × U.S./UK firms	(2.79)	(2.02)	(1.59)	(1.36)	(–.64)
Controls	Yes	Yes	Yes	Yes	Yes
Other interaction terms	Yes	Yes	Yes	Yes	Yes
Constant	–68.119	–61.904	–129.957	–76.135	–108.800+
	(–1.29)	(–1.33)	(–1.35)	(–1.32)	(–1.70)
Observations	11591	8542	8048	8950	8783
Firms	3265	3037	2803	3049	3124

+ $p < .10$; • $p < .05$; •• $p < .01$; ••• $p < .001$.

* t statistics are in parentheses.

results were sensitive to the logistic transformation of our independent variable. Second, we checked alternative estimation models, such as a GLS model with correction for panel-specific autocorrelation and heteroskedasticity (Cuervo-Cazurra and Dau, 2009). We also used bootstrapped standard errors as an additional check with different numbers of replications (50, 1,000, and 2,000), because we used firm-level fixed effects and yet we clustered the standard errors at the country level. Third, we checked whether our main results were robust to different time lags (two to three years) for the predictor variables, because the normative effects of green investing that form the basis of our theorizing may need more than one year to affect corporations' behavior. Fourth, we used the focal country's legal tradition, i.e., civil law vs. common law, to proxy for countries with strong environmental protection policy and for countries with strong shareholder protection policy, respectively. Prior research has suggested that shareholder protection is stronger in common law countries (La Porta et al., 1998). Because such legal traditions were established long before green investing was introduced, a comparative analysis of the impact of green investing across these legal traditions provides additional insights. We find that in common law countries with stronger shareholder protection policies and weaker environmental protection policies, on average, the relationship of green investing with corporate environmental performance is significant. In contrast, the relationship of green investing with corporate environmental performance is not significant in civil law countries (see Table A8 in the Online Appendix).

DISCUSSION AND CONCLUSION

Our results show a positive relationship between green investing and corporate environmental performance. Given the small size of green investment, we propose that the most plausible mechanism explaining this relationship is through its normative and cultural influence, even though our analysis cannot rule out the governance mechanism. Because green investing may simply be one component of a broader environmental social movement, we did our best to control for the effect of that wider environmental movement influencing corporate practices. We also performed a difference-in-difference analysis that provides additional support for the plausibility of green investing as the central explanation.

This relationship between green investing and corporate environmental performance is stronger in countries with stricter shareholder protection policies, presumably because in those countries the legitimacy of investors is higher, thus amplifying the normative or cultural influence of green investing. For that reason, we claim that shareholder protection policies are complementary with green investing's promotion of environmental ends. When supported by a more legitimate financial logic, green investing can have more wide-reaching effects on firms. The relationship between green investing and corporate environmental performance is weaker in countries with strong state environmental protection policies, presumably because in those countries, the state may be perceived as the sole legitimate actor to bring about environmental change.

The dynamic interaction of multiple institutional logics in society suggests the possibility of shifts in whether two institutional logics or hybrid practices become more or less compatible over time. Yan and colleagues (2019)

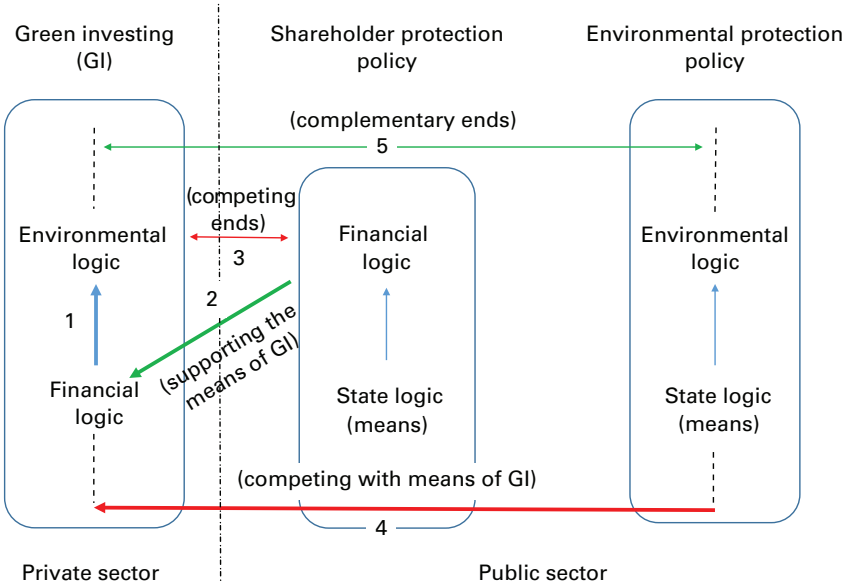
explored how, as the financial logic became more prevalent in society, its relationship with the social logic of SRI shifted from complementary to competing: as the financial logic's profit-maximizing ends became taken for granted, it shifted from enabling to constraining the ends of SRI. Inspired by one of our reviewers, we explored whether the complementarity between shareholder protection policy and green investing was increasing or diminishing over time, and we found no significant change (see Table A9 in the Online Appendix). We also explored empirically whether the ''substitution effect'' between environmental protection policy and green investing on their relationship with corporations' environmental practices dampened over time, and we found that it has done so significantly, which means that those two hybrid practices are becoming ''less incompatible'' or more complementary (see Table A10 in the Online Appendix). This result suggests that the delegitimization of green investing by state environmental policies decreases over time. Perhaps as the environmental logic is strengthened in society through a variety of mechanisms, including the normative impact of the law, state policies may be perceived as a taken-for-granted lower bar, leaving more room for the legitimacy of other actors and thus not interfering with the normative influence of green investing. Unlike the shift in Yan, Ferraro, and Almandoz (2019) from complementary to competing, the shift in this paper would result from how a state hybrid policy interacts with the financial logic, which does not operate as the end but as the means of green investing.

It is possible that over time the environmental and financial logics may become more compatible for other reasons as well. The literature has documented a gradual transition among financial analysts from dismissing corporate social responsibility to seeing it neutrally or even positively since the early 2000s (Ioannou and Serafeim, 2015). Perhaps the business case for green investment strategies will gain traction in the financial sector as it becomes empirically supported, increasing the growth of green investing and its influence on corporate environmental practices. Our window of observation closes in 2013, and explosive growth of ESG and green investing has taken place since. As Gillian Tett wrote in the *Financial Times* in 2021, ''Green is Good'' is the new mantra of Wall Street. The business case for environmental practices may over time become an additive source of legitimacy for green investing, not competing with the state as the dominant player in environmental protection.

Contribution to Research on Institutional Complexity

We contribute to institutional research by exploring mechanisms of the compatibility and incompatibility of logics in complex institutional environments, focusing on how decomposing institutional logics into instrumental means and aspirational ends presents important cues about how institutional logics relate to each other. Prior studies have usefully explored how compatibility (Lee and Lounsbury, 2015), prioritization (Durand and Jourdan, 2012), and jurisdictional overlap (Heimer, 1999; Greenwood et al., 2010; Goodrick and Reay, 2011) can explain different configurations of institutional complexity (Raynard, 2016). But we still do not fully understand the key theoretical generalizable factors driving the compatibility and incompatibility of logics and practices. Our theory, which adopts the much-neglected macro approach to logics with a focus on corporate

Figure 5. Complementary and Competing Hybrid Practices*



* The width of the arrows reflects their importance to the complementarity of practices.

practices (Casasnovas and Ventresca, 2019; Gümüsay, Claus, and Amis, 2020; Lounsbury and Wang, 2020; but see Yan, 2020), is a step in that direction.

The environmental and financial logics may seem incompatible because they provide different prescriptions that drive opposite practices in corporations; however, the financial logic may play an instrumental role as a means of supporting the environmental logic in two key ways. First, the very existence of green investing as a hybrid practice is an example of the instrumental role of the financial logic. In this hybrid practice—regardless of the motivations of particular green investors or fund managers—the machinery of the financial sector is placed at the service of environmental goals, as shown by arrow 1 in Figure 5. Second, as this paper shows, strong shareholder protection policies positively moderate the relationship between green investing and corporate environmental performance. In countries with stronger shareholder policies, the financial logic serves as a legitimate means that provides complementary support to the environmental logic (arrow 2). Thus we suggest that paradoxically, the financial and environmental logics in this case are collaboratively competing, which we define as having competing ends (arrow 3) but ultimately being complementary because a more legitimate financial logic reinforces the influence of green investing (arrow 1).

We also suggest that in some cases, different hybrid practices, such as green investing and state-enforced environmental policies, can be competitively collaborative, which we define as having compatible ends but ultimately not being complementary because those state policies delegitimize the financial logic as an instrument for environmental goals. In those cases, we may find that certain institutional logics leveraged as means, such as the state logic at

the service of the environmental logic, diminish the instrumental support of the financial logic in green investing, the implication being that state and financial actors in support of green investing act more as substitutes than as complements (arrow 4). Alignment in terms of ends (arrow 5), therefore, is not sufficient for researchers to conclude that certain hybrid practices may be complementary or have positive synergies. In this study, we show that the compatibility of institutional logics and hybrid practices with the means of a novel hybrid practice may be more important than compatibility with its end.

In other words, hybrid practices, as combinations of diverse logics, operate in complex and perhaps counterintuitive ways. By decomposing practices into logics and by analyzing how they relate to each other as means and ends, we can shed light on how some practices that appear to be complementary and mutually reinforcing from the perspective of ends, such as green investing and state-enforced green policies, can in fact undermine each other due to incompatibilities in the means they use. We can similarly show how logics and hybrid practices that seem incompatible from the perspective of ends, such as green and financial logics and state-enforced shareholder policies and green investing, can actually be complementary because one is subordinated to the other as a means to an end. In short, the means/ends distinction can be a powerful lever to grasp complexity.

Thinking of logics in terms of means and ends may lead to theoretical explanations of surprising synergies among competing logics that would be analogous to the influence of state shareholder policies on green investing. For example, one interpretation of Max Weber's well-known argument of the synergies between Protestantism and capitalism (institutions rooted in logics with arguably incompatible ends) may be that Protestantism provided the means that furnished capitalism with both more hours of work and a larger pool of savings, which resulted in greater investment, productivity, and material wealth. Paradoxically, by reinforcing the market logic, Protestantism may have led people to focus less on salvation and more on their present life (Weber, 1930). Thus a dominant logic in society, such as the religious logic at the time, may sow the seeds of its decline by providing the instrumental means for other institutional logics. The same may be happening today with the financial logic in society: as it becomes a vehicle to other social goals it may transform over time, weakening its role as the standard-bearer for shareholder wealth maximization.

Contribution to Research on the Public–Private Relationship

We contribute to research on the public–private relationship in pursuit of collective goods (Lee and Lounsbury, 2015; York, Vedula, and Lenox, 2018) by engaging an institutional logics perspective and showing how financial markets may play a role in driving a cultural enlightenment with positive repercussions for sustainability (Hoffman and Jennings, 2018). The first insight is that the same regulatory state infused with a particular logic, such as the environmental logic, could have opposing direct and indirect effects on corporate green practices. Enacting a strong environmental protection policy would have a positive effect on corporate environmental performance but could also undermine the positive effect of green investments on corporate environmental performance. The active involvement of the state in environmental protection may

delegitimize private sector initiatives aiming for public goods, especially those arising from the financial sector, which has traditionally had competing ends. Financial and environmental logics may be perceived as less compatible, and green investing as a hybrid practice may lose influence, as the state takes on a primary role and is perceived as the legitimate actor in support of environmental goals. Our results suggest that a more effective environmental policy would be to introduce regulatory changes in the financial sector favoring its actors' environmental transition. The EU Sustainable Finance Action Plan is introducing multiple measures to facilitate such a transition.[3]

Second, our findings may generalize to other settings in which the state as a dominant actor in society engages with other institutional orders. For example, the state is a dominant player in the field of education—which broadly aims to prepare young people for the future—by providing certain goals, resources, standards, and policies. Charter schools could be viewed as hybrid practices in the educational space arising from other institutional logics in society, including the market, family, community, and religion. In countries where the state is a more dominant player in education, charter schools are likely to be less legitimate because the alternative institutional logics they stem from are not perceived as appropriate to the education domain. But the state may strengthen the effectiveness of those other institutional orders through policies involving taxes or school choice that may favor them as potential sources of educational initiatives, including charter schools. This would be consistent with the principle of subsidiarity, according to which a problem is addressed and resolved at the level that is most proximate to the problem rather than by a more distant authority, which can, however, provide subsidiary support when needed (Baldwin and Wyplosz, 2009). The state may thus multiply its indirect influence in a pluralistic way while losing some control over the process of reaching its educational goals.

Limitations and Future Research

We acknowledge several limitations of our study, which suggest opportunities for further research. First, we are constrained by our data. Our theory focuses on the normative influence of green investing, yet we cannot fully rule out a mechanism by which direct governance from green investors acts on firms. This problem of untangling distinct mechanisms is common in institutional research. As Tracey (2016: 1007) put it, ''A core limitation of institutional theory's macrolevel focus is that the dynamics between persuaders and targets remain poorly understood.'' Nevertheless, this alternative mechanism of direct governance does not appear plausible. We know that green investing involves only a small share of countries' total investing capital, and we sampled from the overall population of companies in a country; therefore, it is unlikely that direct ownership would be the mechanism explaining the relationship. We also used a difference-in-difference approach that we think addressed the problem of endogeneity, which would otherwise open up multiple alternative explanations of the relationship between green investing and green corporate practices. Finally, the moderating influences of the presence of a social investment forum, strong state environmental policies, and strong state

[3] Obtained from https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52018DC0097

shareholder-oriented policies all give credence to the cultural-normative argument. This general argument builds on the growing importance of investors in driving the behavior of public corporations. Given our level of analysis, our study does not consider the likely variation in investment and engagement practices, which is likely to affect corporate environmental performance. Future research would benefit from in-depth qualitative and ethnographic work with fine-grained process engagement data to explain how investment funds with social missions can change the behavior of corporations, either by more effective persuasion strategies or better coordination with other socially minded investment funds or organizations. Engaging in this quest with the institutional logics and social movement literatures would be especially helpful.

Second, our data mainly cover large public firms, but both listed and nonlisted firms are affected by environmental regulation, and thus the scope of regulatory action is broader than that of investors. The aggregate environmental performance of a country like Germany, where the total market capitalization of the stock market is only 44 percent of GDP, might depend more on regulatory intervention than green funds. Thus it is unclear whether our findings could be generalized to all firms or to countries where private or small firms are the main share of the market economy. Privately owned firms are obviously immune from the direct governance pressure of green investors but might still be influenced by their normative influence. Future research can examine whether private and small firms are affected by green lenders or green private investors. Because our study theorizes a normative influence arising from the green investing sector, which is embedded in the stock market, it is unclear whether the same mechanisms would operate in companies that have no public shareholders. An opportunity exists to analyze the impact of green investors on the behavior of unlisted or private companies.

Finally, future research should further examine the conditions under which market-based socially oriented organizations, such as green funds, can have a positive impact on society and flourish as well as market organizations. Future research should also explore the conditions under which those social organizations can reshape the ends of the institutional logic they are embedded within. Organizations that combine market and nonmarket logics, such as green investment funds, impact investors (Hehenberger, Mair, and Metz, 2019), community banks (Almandoz, 2014), and micro-finance organizations (Battilana and Dorado, 2010; Zhao and Wry, 2016), are flourishing, suggesting that market capitalism may possibly be able to reinvent itself and drive changing societal demands. If market transformation is ever going to happen, our study suggests that the financial sector is likely to be central to that change. We show the positive impact of green investing, but there is certainly more to explore in the field of sustainable finance.

CONCLUSION

We hope our study will contribute to the broader project of developing institutional theory in ways that can help us deal with the grand challenge of climate change, which requires coordinated action from multiple stakeholders. As others have already pointed out (Hoffman and Jennings, 2018; Gümüsay, Claus, and Amis, 2020), institutional theory seems to be in a unique position to help us understand how the climate crisis is unfolding by providing a macro

perspective with conceptual language and mechanisms that bridge multiple institutions, both public and private. It may also help us understand the ripple effects of climate change in society and anticipate effective pathways and governance solutions. Researchers can find such solutions only if they courageously confront crucial questions for society, such as the environmental consequences of green and ESG investing and their complex relationship with state policies. Data may not always be easily accessible to rigorously test these larger questions with appropriate methodological designs, but the questions' urgency challenges scholars to contribute with their ideas and empirical evidence to the biggest policy debate of the next decades: how to change our institutions to tackle the climate crisis.

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Supplemental Material

Supplemental material for this article can be found in the Online Appendix at http://journals.sagepub.com/doi/suppl/10.1177/00018392211005756.

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