Environmental awareness and shareholder proposals: the case of the Deepwater Horizon oil spill disaster

Carlo D'Augusta, Francesco Grossetti and Claudia Imperatore

Abstract

Purpose – *The authors study the effect of increasing environmental awareness on shareholders' activism. Specificallly, this study aims to examine whether growing environmental awareness is reflected in more aggressive environmental shareholder proposals.*

Design/methodology/approach – *This study uses the 2010 Deepwater Horizon oil spill disaster as an exogenous event that increased shareholders' environmental awareness. This study analyzes the spill's effect on the tone of proposals about environmental issues and nonenvironmental topics.*

Findings – *After the disaster, the tone of environmental proposals (i.e. the treatment group) is significantly more negative. In contrast, the tone of nonenvironmental proposals (i.e. the control group) is unaffected. This study interprets this finding as direct evidence that the oil spill led to increased shareholder environmental activism through proposals that targeted the environmental risks surrounding the business more aggressively. By contrast, this study finds no effect of the oil spill on the tone of managers' responses to the proposals, consistent with managers refraining from emphasizing environmental threats.*

Originality/value – *Anecdotal evidence and recent studies suggest a link between environmental disasters and shareholder pressure for corporate change. However, no prior research has investigated the channel through which shareholders could have exerted such pressure or has looked for direct evidence of it in the negotiations between shareholders and managers. By finding such evidence in shareholder proposals, this study fills in this gap.*

Keywords *Activism, Shareholder proposals, Environment, Textual analysis*

Paper type *Research paper*

Carlo D'Augusta is based at the Department of Accounting, Bocconi University, Milan, Italy. Francesco Grossetti is based at Bocconi Institute for Data Science and Analytics (BIDSA), Milan, Italy; Center for Applied Research on International Markets, Money Banking and Regulation (BAFFI-CAREFIN), Milan, Italy and the Department of Accounting, Bocconi University, Milan, Italy. Claudia Imperatore is based at the Department of Accounting, Bocconi University, Milan, Italy.

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1. Introduction

Environmental issues are receiving growing attention in the business community (Cundill *et al.*, 2018). Media, regulators and market players increasingly request firms to discuss whether and how they deal with environmental risks. At the same time, recent literature has paid more attention to shareholder activism (Korac-Kakabadse *et al.*, 2001; Denes *et al.*, 2017; Cundill *et al.*, 2018; Guimaraes *et al.*, 2018; Yang *et al.*, 2018; Abdennadher and Cheffi, 2020), an evolving characteristic of financial markets (Gillan and Starks, 2000; Goranova and Ryan, 2014) and increasingly considered a corporate governance tool (Ferri and Sandino, 2009; Ertimur *et al.*, 2011; Renneboog and Szilagyi, 2011; Goranova and Ryan, 2014; Viviers and Mans-Kemp, 2020). This paper studies whether the deepwater horizon (DH) oil spill in 2010 (hereafter "oil spill") affected shareholder activism channeled through environmental shareholders' proposals.

The oil spill was an environmental disaster that occurred on April 20, 2010, when the DH oil rig exploded in the Gulf of Mexico. This event gained worldwide media coverage for its large-scale environmental repercussions and focused the business community's attention on the environmental consequences of companies' activities. Such an attention-grabbing disaster likely made shareholders more mindful of how business operations can create environmental risks that materially threaten shareholders' wealth and the community at large (Alareeni and Hamdan, 2020; Korkmaz, 2022). Hence, the oil spill can be considered an exogenous shock that increased shareholder awareness of environmental risks. Recent literature and anecdotal evidence suggest that such growing awareness translated into renewed shareholder activism directed at calling attention to the environmental threats faced by the company and urging managers to address them (Kolk and Pinkse, 2007; Flammer, 2013). However, to the best of our knowledge, no prior study has investigated the channel through which shareholders could have exerted such pressure or has looked for direct evidence of it in the negotiations between shareholders and managers. We fill in this gap by examining the oil spill's effect on the content of environmental shareholder proposals.

Shareholder proposals represent a prominent shareholder activism feature. According to the Securities and Exchange Commission Shareholder Proposal Rule 14a-8 [1], investors can raise a specific concern around a firm's performance or behavior in a shareholder proposal to be discussed and voted on in the Annual General Meeting (AGM). A proposal presented in such a meeting is highly relevant, as it is deemed proxy material on which investors can express their opinion. Shareholder proposals are increasingly considered a direct way for investors to urge management to act upon specific topics. Extant literature shows how proposals, despite rarely reaching the required majority to be enforced, effectively increase public pressure on managers to act, particularly around social and environmental issues (Gillan and Starks, 2000; Dyck *et al.*, 2019).

Proposals represent an ideal channel for shareholder activists to voice their concerns about environmental threats. While other nonactivist shareholders may have previously given little thought to environmental issues, they will focus on them when facing a written proposal to be voted on at the AGM. Therefore, an environmental proposal can be a very effective tool to spread awareness about such issues and win other shareholders' support for the cause. It can also succeed at disseminating disappointment about the managers' inertia and lack of proactiveness. Both effects can give the activist substantial leverage to conduct private, behind-the-scene negotiations with managers, regardless of whether the proposal wins enough votes to pass.

To achieve these goals, activists must word the proposal to capture the reader's attention and effectively convey the activist's concerns, emphasizing the urgency of the matter and, thus, the need for rapid corporate change and actions. Therefore, if the oil spill raised the environmental awareness of shareholder activists, and if such activists chose to use environmental proposals as a channel to exert pressure on managers and bring about corporate change, then the oil spill will have a detectable impact on the language properties of such proposals. In particular, the spill will make the tone of the proposal more negative – i.e. the proposals will contain more negative, pessimistic-looking words rather than positive, optimistic ones.

To test whether this is the case, we analyze the tone of a large US sample of proposals before and after the oil spill. To properly evaluate the causal effect, we implement a difference-in-difference framework that analyzes the change in the tone of proposals after the oil spill. This approach is consistent with prior studies suggesting a framework to analyze whether an exogenous shock causally impacts a given variable of interest (Ashenfelter and Card, 1984; Angrist and Pischke, 2009, 2010; Gow *et al.*, 2016). In particular, we select the environmental proposals as our treatment group and the nonenvironmental ones as our control group. We hypothesize and find that the oil spill significantly decreases the tone of proposals on environmental issues (i.e. the treatment group) but has no significant effect on proposals on nonenvironmental issues (i.e. the control group). We interpret this finding as direct evidence of the oil spill leading to increased shareholder environmental activism that is conveyed with a more aggressive tone in the proposals.

Next, we look at the tone of the managerial response to the proposal – i.e. the document section where managers respond to the activists' concerns before the vote and, in most cases, rebut such concerns, recommending to vote against the proposal. We note that none of the arguments that allow predicting a negative effect of the oil spill on the tone of environmental proposals hold for the managers' response to them. First, managers may adopt a more upbeat tone to reassure other shareholders and dispute the activist's points. In this case, the oil spill will increase the managers' response tone. Alternatively, managers may go for a less risky strategy and dismiss the activists' concerns in the same way they did before the spill, without pushing back with strong language that could further spotlight the proposal or expose the managers to legal or reputation concerns later on. In this case, we would expect no effect of the oil spill on the tone of managers' responses. The results support the latter expectation (i.e. no effect).

We make various contributions to extant literature. First, we add to the growing literature on shareholder activism (Ghahramani, 2015; Uche *et al.*, 2016; Subramanian, 2017; Girard and Gates, 2020)[2]. We show how activism can be affected by exogenous events that focus shareholders' attention on issues that may have been previously overlooked, such as the environmental risks threatening the company. Also, we add to the literature that examines the contents and features of shareholder proposals, which have gained increasing attention in recent years (Foley *et al.*, 2015; Baier *et al.*, 2020; Raghupathi *et al.*, 2020; Hafeez *et al.*, 2021). Moreover, we add to the discussion about the proposals' role as a tool for environmental and social change in corporate activities. Indeed, recent literature (Dyck *et al.*, 2019) has questioned such a role relative to other channels like private engagement with managers. Finally, by examining whether managers strategically alter the tone of their responses to environmental proposals after environmental disasters, we contribute to the literature examining the opportunistic choice of language properties in managerial disclosures and communications (Hassan *et al.*, 2018; Bacha and Ajina, 2019).

Because society's attention to environmental issues has been growing steadily and will likely continue to rise, our findings have prospective practical implications for managers and regulators. For instance, showing that shareholder activism grows in response to environmental disasters helps managers predict when activists' demand will likely intensify, resulting in stronger shareholder pressure and public scrutiny. Also, the findings suggest that shareholder activism can be instrumental in pressuring executives into changing corporate behavior and achieving environmental policy goals. Prospectively, this consideration has significant implications for public policy since it suggests that shareholder participation can help policymakers encourage and press for environmental reforms that could significantly affect society. Aligned with this consideration, the European Commission has recently stressed the role played by corporate governance in aiding stakeholders in assessing a company's approach to climate-related issues (European Commission, 2020).

The remainder of this paper is as follows. Section 2 discusses the relevant institutional investor setting and provides an overview of the related literature. It also introduces the hypotheses. Section 3 explains the research design and the data used in the paper. It introduces the textual variables of interest and defines the regression specifications to test our hypotheses. Section 4 reports and discusses the empirical results. Section 5 concludes the paper.

2. Background and hypotheses

2.1 Shareholder activism as corporate governance

Shareholder activism is becoming a prominent phenomenon, increasingly affecting and shaping corporate policies. For instance, Edmans and Holderness (2017) show how shareholder activism is associated with higher CEO turnover likelihood, lower CEO compensation and less managerial control. In line with Edmans and Holderness (2017), other studies suggest that shareholder activism can play a corporate governance role in disciplining executives' behavior and maximizing stakeholders' value. For instance, Renneboog and Szilagyi (2011) "examine the corporate governance role of shareholder proposals" suggesting that they are a "useful device of external control" (p. 167). Similarly, Amao and Amaeshi (2008) suggest that shareholder activism can lead to improved corporate governance practices in emerging markets. More recent evidence by Viviers and Mans-Kemp (2020) consistently suggests that shareholder activism shapes executive remuneration in emerging contexts such as South Africa. Notably, they argue that their findings can encourage investors to take a more active role "to change unethical and unsustainable corporate policies and practices" (p. 92). Ferri and Sandino (2009) and Ertimur *et al.* (2011) further highlight shareholder activism's corporate governance role in shaping board structure and executive compensation in the US context.

2.2 Shareholder activism and environmental issues

Nowadays, firms are increasingly pressured to adopt a stakeholder perspective and undertake activities beyond maximizing financial wealth. These activities range from providing employee benefits to selecting supplies that comply with the global (and local) regulations on child labor or more environment-friendly production processes. External pressures to adopt environmental-friendly practices are especially salient and have tremendously increased in the past 20 years (Flammer, 2013). These usually come from legislators as well as from financial institutions. Firms also have incentives to improve internal environmental practices as they can lead to a manifold of benefits, including reduced waste production, cost savings and increased customer satisfaction (Simpson *et al.*, 2004; Gadenne *et al.*, 2009). Notably, prior literature has shown that corporate governance devices influence the implementation of internal procedures in the context of environmental issues.

For instance, several recent studies focused on the association between corporate governance and environmental, social and corporate governance (ESG) disclosure, including climate change and carbon disclosure (Chithambo and Tauringana, 2017; Khan *et al.*, 2019; Aladwey *et al.*, 2021; Cosma *et al.*, 2022). In addition, Post *et al.* (2011) document that the board composition significantly affects environmental corporate social responsibility (ECSR). Specifically, ECSR is higher in boards with a larger proportion of outside directors, composed of three or more female directors and with a higher proportion of Western European directors. Literature showed that board gender diversity increases the likelihood of climate-related voluntary disclosure (Ben-Amar *et al.*, 2017) since women are more sensitive to environmental or ethical issues (Tingbani *et al.*, 2020) and more stakeholder focused (Jouber, 2020; Aladwey *et al.*, 2021).

Moreover, Gadenne *et al.* (2009) suggest that existing and potential shareholder groups exert strong external (i.e. public) pressures to adopt environmental practices. Shareholder activism plays an essential role in this regard, as activist investors can change business strategies inducing improvements in firm performance, leverage, dividend payouts, corporate innovation and long-term productivity, among others. A growing number of institutional investors are actively integrating ESG considerations into their investment analyses and ownership practices (Viviers and Mans-Kemp, 2020). Institutional investors are rational players who can read the financial market well and interpret its signals. In line with this idea, Murashima (2020) documents that, contrary to individual investors, institutional investors are more concerned about negative CSR news. This leads them to develop an awareness of specific topics that might be very sensitive and subject to public scrutiny. Moreover, institutional investors often mobilize with social movements to change (or adjust) a given firm's social and political actions (Clark and Crawford, 2012). Notably, Barko *et al.* (2022) find that activism focused on environmental and social issues improves

ESG practices and corporate sales. Prior literature has shown a link between corporate governance practices and environmental performance (Walls *et al.*, 2012).

Shareholders can use both exit and voice mechanisms to express their concerns (Goodman *et al.*, 2014; Viviers and Mans-Kemp, 2020). In an exit strategy, the shareholder sells part or all of the shares. Alternatively, shareholders can use private or public voice mechanisms to seek confrontation with managers. Recent studies also suggest that activist investors, especially religious groups (Subramanian, 2017), adopt a shareholding approach and form coalitions with other stakeholders to gain voting support. Among the several voice mechanisms that shareholders can use, shareholder proposals are especially important, as they publicly expose concerns (including misconduct) about a specific firm's behavior (Clark and Crawford, 2012).

2.3 Shareholder proposals

Shareholder proposals are the de-facto system to expose critical issues regarding many topics publicly. They cover four broad areas: corporate governance, executive compensation, social policy and voting rules. This distinction reflects firms' attention to goals beyond mere profit maximization (Liang and Renneboog, 2017). As shown by Michelon *et al.* (2020), environmental proposals account for around 50% of the submitted requests in the USA. Environmental issues dominate the agenda by a considerable margin (Copland and O'Keefe, 2015) relative to the early 2000s (Thomas and Cotter, 2007). There are numerous examples of shareholders' groups shifting their attention to such topics (Horster and Papadopoulos, 2019)[3].

At the same time, prior literature has suggested that environmental proposals are a tool to urge management to act on specific issues. Del Guercio and Tran (2012) find this to be the case for the US firms, as public pressure arising from shareholder proposals can be used to increase the leverage in institutions' private negotiations. Moreover, Eding and Scholtens (2017) document that firms are more likely to receive shareholder proposals on environmental issues in the presence of responsible institutional ownership. As often happens in other domains, activists generate a spillover effect. Reid and Toffel (2009) argue that a firm is more likely to engage in practices consistent with the goals of a social movement if a proposal has targeted other peers (i.e. firms within the same institutional field). In other words, shareholders submit their proposals with the additional effect of raising the awareness of other firms' shareholders. In addition to this mechanism, another interesting aspect of proposals is that activist investors can strongly influence the management to the point where there is a noticeable change in the firm's perception of environmental risk (Vasi and King, 2012). In practice, through shareholder proposals, activists can push investors to "start a dialogue with corporations that do not respond to behind-the-scenes discussions" (Orol, 2010) (p. 3).

Proposals are more effective if the targeted environmental risks directly threaten the firm. Southwood (2003) and Sjöström (2008) conclude that an effective strategy that activists should implement to succeed with their proposals is to pursue a social or environmental agenda that strongly relates to long-term shareholder value [4]. An analogy can be made after Bogoslaw's (2010) report on large firms in the tobacco and construction industries. Bogoslaw (2010) argues that the "tobacco giants wound up ceding enormous, profit-generating power to the U.S. government and how asbestos lawsuits forced such major industrial outfits as Johns-Manville into bankruptcy. The common denominator linking British Petroleum (BP) with these companies is growing clear: they all failed to anticipate risks that could threaten their business foundations" (p.1). In other words, managers' inability to timely intercept and understand the social and environmental risks that threaten their business may come at a steep price for shareholders. Therefore, when shareholders are more aware of such risks, they are incentivized to pressure management into taking action to mitigate the threat. This paper focuses on the 2010 oil spill as an exogenous event that raised shareholders' awareness of such risks. We investigate whether and how it affected the tone of proposals that shareholders can use to voice their environmental concerns.

2.4 The 2010 British Petroleum oil spill

The 2010 oil spill was an attention-grabbing event that had a vast resonance worldwide and gained broad media coverage. Although BP was not brought to bankruptcy, the disaster triggered a systematic rise in public concern around environmental issues to the point where it led to a mobilization that demanded increasing transparency on the environmental effects of corporate activities (Michelon *et al.*, 2020). As noted by He *et al.* (2021), the oil spill "increased the perceived value of having strong environmental policies" (p. 30) and "represented a fundamental shock [that resolved] uncertainty surrounding the value of strong ES policies [because it] attracted attention to and provided substantial information on the costs of environmental-related disasters" (p.30). In addition, the disaster likely pushed even more investors to engage with and support environmental initiatives in other firms (He *et al.*, 2021).

Given its global media coverage and impact on public opinion worldwide, other studies have adopted the oil spill disaster as an exogenous shock to shareholder environmental awareness. For instance, Liang and Renneboog (2017) show that the spill affected consumer demand in a way that forced companies to adjust their CSR. Also, Heflin and Wallace (2017) show that the spill caused an "increase in environmental disclosure, specifically disclosures of disaster readiness plans" (p. 337). Michelon *et al.* (2020) find similar evidence, consistent with "public concern [becoming] a determinant of mobilization and additional pressure for transparency on the environmental effects of corporate activities" (p.9). Moreover, He *et al.* (2021) report that the oil pill increased the votes gained by environmental proposals, and Dyck *et al.* (2019) find that the oil spill motivated institutional investors to demand better E&S performance, consistent with the spill "focusing investors' attention on [...] the potential risks of weak environmental policies even in the most developed countries" (p. 700). Overall, these studies are consistent with the oil spill raising shareholders' awareness of environmental issues and how they can threaten the company. However, they offer limited (if any) insights into the channels shareholders use to express their growing awareness and obtain corporate change. We argue that shareholder proposals are likely one such channel.

2.5 Hypotheses

The previous discussion suggests that after an event that raises their environmental awareness, shareholders modify the language attributes of their proposals to raise their voices and demand corporate actions. Rudkin *et al.* (2018) show that the UK firms use corporate communication as a legitimacy strategy to restore trust after negative scandals, including environmental scandals. In contrast with Rudkin *et al.* (2018), we investigate whether and how shareholders modify the tone of their environmental proposals – computed as the difference between the number of optimistic, positive-sentiment words and pessimistic, negative ones – after a negative event makes them more aware of environmental risks. Specifically, we argue that if the oil spill made shareholders more aware of the risk posed by environmental issues threatening the company, and if their desire to see management address such issues becomes more pressing, the environmental proposal's tone will become more negative. When writing the proposal and developing its main arguments, investors will increasingly choose to use negative, pessimistic words and avoid positive, optimistic ones.

Such an effect could reflect that shareholders have gained consciousness of severe environmental threats previously overlooked, and discussing such risks requires using negative tone words. It can also be the result of a deliberate strategic decision. The choice of pessimistic words can better convey the urgency and relevance of the environmental issue at stake, emphasizing managers' need to take action. It can also increase the salience of the proposal. By doing so, it will raise its chance of success, and it will also ensure the message reaches a larger audience, thus increasing both the proposal's role as a leverage tool in private, behind-the-scenes negotiations with management (Orol, 2010) as well as a way to surge public pressure (Dyck *et al.*, 2019; Michelon *et al.*, 2020). Either way, we expect that, after the oil spill, shareholder proposals will become more pessimistic. Therefore, we formulate the following hypothesis:

H1. After the oil spill, the narrative tone of environmental shareholder proposals is more negative.

We note that several counterarguments add tension to *H1.* For instance, the public scrutiny brought by an event such as the oil spill could have caused managers to be proactive and inform investors and environmental organizations about their plans to address environmental threats without the need for explicit shareholder activism. Also, shareholder activists may have opted for other substantially private channels (Dyck *et al.*, 2019) to interact with the management while occasionally exploiting public pressure by submitting proposals. Moreover, most shareholders may view environmental threats as an idiosyncratic risk that they can just diversify away without the need for much activism. These arguments would predict no change in the tone of the proposals after the oil spill.

A typical shareholder proposal contains different sections. The first section is related to the formulation and description of the proposal's subject by the activist, while the second is related to the management's response to it. The arguments that allow predicting the oil spill's negative effect on the proposal's tone do not hold for the managerial response. Suppose the oil spill increased managers' recognition of environmental threats and the actions necessary to mitigate them. In that case, managers could take such actions eliminating the need for a proposal in the first place. Also, it arguably goes against managers' interests to increase the salience of a public document publicly exposing the looming threats that managers have failed to address adequately. Therefore, the oil spill is unlikely to make the tone of managers' responses more negative. However, it could make it more positive if managers attempted to mitigate shareholders' concerns by deliberately choosing a reassuring, optimistic-looking language (i.e. emphasizing the bright side).

Indeed, the literature finds evidence of managers' strategic use of tone and other language properties for self-serving purposes [5]. However, doing so would not be devoid of risk: for one, managers could later be held accountable for statements that would turn out to be excessively optimistic or, worse, deliberately crafted to paint a picture rosier than reality. For another, engaging in a "tone battle" with activists could further raise the salience of the proposal, ultimately playing in the activist's favor. Given these countervailing arguments, we formulate our second hypothesis in the null form:

H2. After the oil spill, the narrative tone of the management's response does not change.

3. Nature of the study and research design

This section presents the research design we adopt to study the oil spill's effect on the tone of environmental shareholder proposals. We discuss the procedures to build the variables of interest and our model specification. We also describe the different data sources that form the sample under study.

3.1 Sample selection and data collection

We analyze a sample of shareholder proposals documents submitted, discussed and voted on during the AGM of the US public firms in the period ranging from 2006 to 2013. We exclude observations without available data from the sources discussed below to compute the variables needed for the regression models. We adopt a difference-in-difference design testing the effect of a treatment variable (i.e. the oil spill) on a treatment subsample (i.e. environmental proposals) and a control subsample (i.e. nonenvironmental proposals).

We develop a scraping algorithm over the publicly available website Proxy Monitor to obtain such documents [6]. The scraper carefully navigates the website and downloads each proposal as a Rich-Text Format file. These files do not need strong pre-processing to remove extraneous text, as Proxy Monitor already provides a high-quality machine-readable version. Using the open-source R programming language (R Core Team, 2021), we build the corpus with the R package quanteda (Benoit *et al.*, 2018) while the package data.table (Dowle and Srinivasan, 2019) is used to further process the data. At hand, we have 3,604 shareholder proposals organized into four categories: corporate governance, executive compensation, social policy and voting rules. For each of these categories, there exist several subcategories. For instance, the subcategory of interest for this paper is environmental, located under social policy.

In general, a shareholder proposal contains several components. In addition to the description of the proposal itself, which we refer to as the proposal section, we find the sponsorship and the management response, plus some other parts which are gathered under the label other. We use a set of regular expressions for each proposal in the sample to carefully identify and split the proposal into its fundamental components. In this paper, we only focus on the proposal and the management response (or statement) sections.

The corpus of the shareholder proposals allows us to extract the textual features used in our regression analyses. In addition, we obtain data to build the necessary set of control variables from Compustat. In Table 1, we define each variable used in the paper, whereas in Table 2, we provide some descriptive statistics of our data set.

3.2 Textual features

We compute several textual features for both the proposal and the management response. In particular, we rely on a widely used technique called Bag-of-Words (Loughran and McDonald, 2016; Lewis and Young, 2019) which considers the frequency of the words found in the corpus. One of the known difficulties when working with financial disclosures is the high degree of interpretability that narratives can have. That is, words might slightly change their meaning, valence and interpretation, conditional on the domain. As clearly shown in the seminal paper by Loughran and McDonald (2011) (LM2011), domain-specific word lists can

Table 1 Variable definitions

Dependent variables	
Tone – LM2011	Net tone as defined by equation (1) computed with the Loughran and McDonald (2011) dictionary (Source: Proxy Monitor from www.proxymonitor.org)
Tone - GI	Net tone as defined by equation (1) computed with the Stone *et al.* (1966) dictionary (Source: Proxy Monitor from www.proxymonitor.org)
Independent variables	
POST	Dummy variable equal to one if the proposal is voted after or in 2010, and zero otherwise
ENV	Dummy variable equal to one if the proposal is classified as environmental, and zero otherwise (Source: Proxy Monitor from www.proxymonitor.org)
# WORDS	Number of words in the proposal (Source: Proxy Monitor from www.proxymonitor.org)
SIZE	Logarithm of total assets (Source: Compustat)
ROA	Income before extraordinary items scaled by total assets (Source: Compustat)
LEVERAGE	Total liabilities scaled by total assets (Source: Compustat)
MTB	Market value of equity scaled by the book value of equity (Source: Compustat)
DIVIDEND	Dividends declared scaled by total assets (Source: Compustat)

Source: Authors' own work

Table 2 Descriptive statistics								
	N	*Mean*	*SD*	*Min.*	*P25*	*P50*	*P75*	*Max.*
Panel A. Proposal section								
Tone-LM2011	3,604	−0.06	0.533	−1	−0.2	0	0	1
Tone-GI	3,604	0.378	0.38	−1	0	0.333	0.667	1
ENV	3,604	0.071	0.257	0	0	0	0	1
POST	3,604	0.512	0.5	0	0	1	1	1
#WORDS	3,604	100.394	65.887	2	57	80	119	609
SIZE	3,597	11.119	1.633	5.311	10.065	10.737	11.986	14.674
ROA	3,597	0.051	0.062	−0.35	0.013	0.044	0.083	0.272
LEVERAGE	3,597	0.691	0.198	0.136	0.537	0.685	0.866	1.937
MTB	3,120	4.267	33.156	−98.864	1.41	2.168	3.472	759.618
DIVIDEND	3,597	0.018	0.026	0	0.002	0.011	0.026	0.522
Panel B. Response section								
Tone LM2011	3,604	−0.078	0.49	−1	−0.111	0	0	1
Tone GI	3,604	0.337	0.384	−1	0	0.333	0.6	1
ENV	3,604	0.071	0.257	0	0	0	0	1
POST	3,604	0.512	0.5	0	0	1	1	1
#WORDS	3,604	431.582	342.094	3	61	413	660	2,052
SIZE	3,597	11.119	1.633	5.311	10.065	10.737	11.986	14.674
ROA	3,597	0.051	0.062	−0.35	0.013	0.044	0.083	0.272
LEVERAGE	3,597	0.691	0.198	0.136	0.537	0.685	0.866	1.937
MTB	3,120	4.267	33.156	−98.864	1.41	2.168	3.472	759.618
DIVIDEND	3,597	0.018	0.026	0	0.002	0.011	0.026	0.522

Source: Authors' own work

indeed be considered as a way to prevent misjudgment. This paper follows this approach in spirit and computes word frequencies for each category in the LM2011 dictionary.

We produce a matrix of counts for each document according to the matched words in LM2011. Categories include positive and negative words, and litigious and uncertainty words, among others.

We are interested in the negative and positive categories for which LM2011 defines 2,355 and 354 words, respectively. Hence, for each shareholder proposal section *s*, we compute the frequency of positive and negative words as defined in the dictionaries and build the following narrative tone measure:

$$Tone_s = \frac{v_s^+ - v_s^-}{v_s^+ + v_s^-} \in [-1; +1], \tag{1}$$

Where v_s^+ and v_s^- represent the frequencies of positive and negative words, respectively, as detected in the section *s* of a given shareholder proposal. In our case, the index *s* represents either the proposal or the management response section. The final metric is computed at the firm-year level, so if a given firm registered two proposals in a given fiscal year, equation (1) would be aggregated by calculating the mean as follows:

$$Tone_{i,t}^s = \left\{ \frac{1}{N} \sum_{n=1}^{N} Tone_n \right\}_{i,t}^s, \tag{2}$$

where $Tone^s{}_{i,t}$ represents the average narrative tone of either the proposal or management response section, indexed by *s*, for firm *i* at fiscal year *t* [7].

LM2011 is an *ad-hoc* dictionary whose main goal is to evaluate that part of the narrative which refers to the financial discourse around which LM2011 has been conceived. This feature is well known as it comes into play naturally whenever we perform and consider dictionary-based inferences. Hence, as a counterfactual, we also define equation (1) with a generalist dictionary. We use the well-known General Inquirer (GI) (Stone *et al.*, 1966), which only defines two categories, negative and positive, with 2,010 and 1,653, respectively. The main difference between GI and LM2011 is the much broader applicability of the former. This is not only due to the total number of words included but also to how they are labeled [8].

3.3 Main regression models

Below, we build the regression models that aim to test whether the disaster caused a decrease in the narrative tone of the environmental shareholder proposal subtype. More precisely, we conjecture that, as the oil spill increases the shareholders' awareness of environmental threats, the tone in the narrative used to describe the environmental proposal will become more negative. We estimate the following regression, which acts as our baseline model:

$$Tone_{i,t} = \beta_1 \cdot ENV_{i,t} + \beta_2 \cdot POST_{i,t} + \beta_3 \cdot ENV_{i,t} \times POST_{i,t} + FE_i + \varepsilon_{i,t}, \tag{3}$$

where $ENV_{i,t}$ is a dummy variable indicating if the proposal is classified as environmental, and $POST_{i,t}$ is a dummy variable identifying the period after the oil spill shock. $POST_{i,t}$ assumes the value one when $t >$ 2010 and zero otherwise. Our focus is on the coefficient β_3, which is predicted to be negative (insignificant) by *H1* (*H2*). To increase the robustness of the regression model, we include firm-fixed effects (FE_i) and cluster the standard errors at the firm level.

In addition, we introduce a second model specification, including several financial and non-financial controls. In particular, we include the total number of words (#WORDS), size computed as the ln(*AT*) (SIZE), return on assets (ROA), leverage (LEVERAGE), market-to-book ratio (MTB) and dividends scaled by total assets (DIVIDEND). We formalize our second regression model as follows:

$$Tone_{i,t} = \beta_1 . ENV_{i,t} + \beta_2 \cdot POST_{i,t} + \beta_3 \cdot ENV_{i,t} \times POST_{i,t} + \mathbf{Controls}_{i,t} + FE_i + \varepsilon_{i,t}, \tag{4}$$

where $\mathbf{Controls}_{i,t}$ is the vector of controls described above.

Both equations (3) and (4) are OLS models whose estimation procedure is carried out with the R package fixest (Bergé *et al.*, 2018). In Tables 3 and 4, we report the empirical results, which we discuss in detail in Section 4.

Table 3 Effect of the deepwater horizon oil spill on the narrative tone of the proposal section based on the LM2011 dictionary

	Tone – LM2011 – Proposal (1)	(2)
ENV	0.0665 (0.0653)	0.0548 (0.0531)
POST	0.0277 (0.0315)	0.0213 (0.0288)
ENV × POST	−0.1677 (0.0782)**	−0.1535 (0.0682)**
#WORDS		0.0163 (0.0171)
SIZE		−0.0040 (0.0529)
ROA		0.4243 (0.2809)
LEVERAGE		0.2642 (0.1621)
MTB		−0.0003 (0.0003)
DIVIDEND		−0.5385 (0.3272)
Observations	3,604	3,120
*R*2	0.2323	0.2186

Notes: The tone measure refers to the proposal section of environmental shareholders' proposals against nonenvironmental ones. The table reports panel regressions with baseline and full model specifications. All regressions include firm-fixed effects. Standard errors are clustered at the firm level and are reported in parentheses *** ,** and *respectively, denote significance at the 1, 5 and 10% levels
Source: Authors' own work

Table 4	Effect of the deepwater horizon oil spill on the narrative tone of the management response section based on the LM2011 dictionary
	Tone – LM2011 – management response	
	(1)	*(2)*
ENV	0.0231 (0.0475)	0.0277 (0.0499)
POST	0.0426 (0.0259)	0.0368 (0.0277)
ENV × POST	−0.0669 (0.0671)	−0.0773 (0.0675)
#WORDS		0.0005 (0.0073)
SIZE		0.0246 (0.0459)
ROA		−0.0512 (0.2791)
LEVERAGE		0.2940 (0.1808)
MTB		0.0000 (0.0004)
DIVIDEND		−0.0968 (0.4384)
Observations	3,604	3,120
R^2	0.2286	0.2329

Notes: The tone measure refers to the proposal section of environmental shareholders' proposals against nonenvironmental ones. The table reports panel regressions with baseline and full model specifications. All regressions include firm-fixed effects. Standard errors are clustered at the firm level and are reported in parentheses. ***, ** and *respectively, denote significance at the 1, 5 and 10% levels
Source: Authors' own work

4. Results

4.1 Preliminary evidence

We begin our analysis by looking for visual evidence that the oil spill disaster affected the tone of environmental shareholder proposals. We do so by analyzing the trend of the tone of environmental proposals and comparing it to the trend of nonenvironmental ones. Specifically, we calculate the average tone value in four subsamples: environmental vs. nonenvironmental proposals and before vs. after the event.

As Figure 1 illustrates, before the oil spill, environmental proposals' tone is, on average, less negative than nonenvironmental ones' (i.e. −0.021 vs. −0.067). However, the environmental proposals' tone shows a strong downward trend (i.e. from −0.021 to −0.119). By contrast, the nonenvironmental proposals trend shows the opposite tendency, rising to −0.052. The direction of (and the difference between) the two trends is consistent with the oil spill alerting investors to the existence and implications of potential environmental threats and making them channel such growing awareness through the tone of environmental proposals.

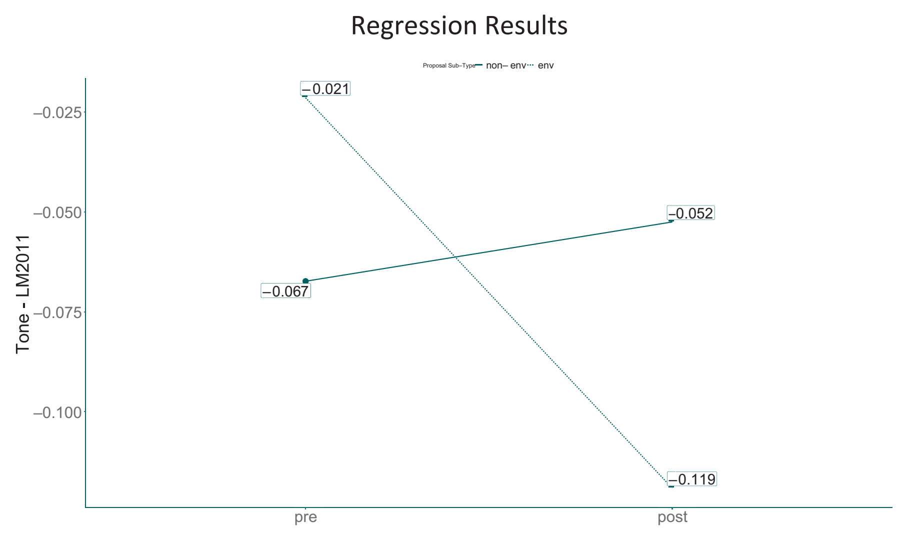
4.2 Regression results for H1: shareholder proposal

To formally test our *H1*, we run the regressions as given in equations (3) and (4). Table 3, Column 1, reports the results. Consistent with the preliminary evidence of Figure 1, the coefficient of POST suggests that nonenvironmental proposals tended to become less pessimistic, but this trend is not statistically significant [9]. By contrast, after the spill, environmental proposals became significantly more pessimistic: the coefficient of ENV × POST is −0.1677, significant at less than 5%. Column 2 shows that the coefficient estimates are robust to including the control variables, suggesting that they are not driven by omitted variable bias. Overall, the results strongly support the hypothesis, showing that the oil spill significantly impacted the tone of shareholder environmental proposals relative to nonenvironmental ones, consistent with growing shareholders' environmental awareness that had important repercussions on their activism.

4.3 Regression results for H2: management response

To test *H2*, which predicts no oil spill effect on the tone of the managerial response, we run the same regression of equations (3) and (4). Table 4 reports the results. The coefficient of

Figure 1 Parallel trend assumption visualization



Notes: The solid line represents the nonenvironmental proposal, whereas the dashed line is our treatment group of environmental proposals. We note a much more negative tone in the environmental proposal after the shock
Source: Authors' own work

ENV × POST is insignificant, suggesting that managers did not alter their tone when responding to environmental proposals before and after the oil spill, consistent with the null hypothesis.

4.4 Sensitivity analysis: nonfinancial tone

In addition to the tests implemented in equations (3) and (4), which adopted the LM2011 dictionary to compute the tone in the proposal and management response sections, we use the dictionary developed by Stone *et al.* (1966) (GI). Unlike LM2011, GI is a generalist dictionary not conceived to capture nuances in financial disclosures. Therefore, it is likely unfit to detect variations of narrative tone used to describe and discuss business risks and financial threats[10].

Hence, we expect no significant results on our main variables of interest, as given in equations (3) and (4). In Table 5, we report our sensitivity analysis results. As expected, the coefficient β_3 is not significant.

5. Conclusion

This paper studies the link between shareholders' environmental awareness and their activism. Specifically, by treating the DH oil spill of 2010 as an exogenous shock, we examine its effects on shareholders' awareness of environmental threats to a firm's business and society. We argue that shareholder activism is channeled through proposals to be voted on at the AGM to urge management to address environmental threats. This translates into a growing and more consistent environmental awareness by activist shareholders. To test whether this is the case, we analyze the language properties of such proposals by computing a measure of narrative tone. We expect a more negative tone after the oil spill, as activists are more likely to choose pessimistic

Table 5 Sensitivity regression analysis: effect of the deepwater horizon oil spill on the narrative tone of both the proposal (columns [1] and [2]) and management response (columns [3] and [4]) sections based on the GI dictionary

	Tone – GI			
	(1)	*(2)*	*(3)*	*(4)*
ENV	−0.0166 (0.0398)	−0.0209 (0.0397)	−0.0120 (0.0379)	0.0008 (0.0378)
POST	0.0188 (0.0267)	0.0144 (0.0262)	−0.0202 (0.0203)	−0.0152 (0.0251)
ENV × POST	0.0415 (0.0698)	0.0452 (0.0707)	−0.0618 (0.0470)	−0.0693 (0.0509)
#WORDS		−0.0060 (0.0123)		−0.0024 (0.0064)
SIZE		0.0327 (0.0444)		−0.0345 (0.0363)
ROA		−0.0074 (0.2834)		−0.4003 (0.3174)
LEVERAGE		0.2922* (0.1484)		−0.1766 (0.1887)
MTB		0.0002** (0.0001)		0.0001 (0.0001)
DIVIDEND		0.2438 (0.2547)		−0.2663 (0.2892)
Observations	3,604	3,120	3,604	3,120
R^2	0.2359	0.2279	0.2224	0.2176

Notes: The tone measure refers to the proposal section of environmental shareholders' proposals against nonenvironmental ones. The table reports panel regressions with baseline and full model specifications. All regressions include firm-fixed effects. Standard errors are clustered at the firm level and are reported in parentheses. ***, ** and *respectively, denote significance at the 1, 5 and 10% levels
Source: Authors' own work

language to emphasize the risks faced by the company and the urgency of managerial action. We use a difference-in-difference approach to test the effect of the change in the tone of environmental proposals (i.e. the treatment group) relative to proposals about non-environmental topics (i.e. the control group) before and after the oil spill.

Our findings have relevant implications for academic literature. We find a significant negative effect of the oil spill on environmental proposals and no effect on other proposals. These results show how an exogenous shock that shifts shareholders' attention toward sensitive topics, such as those related to environmental issues, affects shareholder activism. They also imply that shareholders view these issues as potentially threatening the company's operations. This results in a direct empirical observation through increased activity in the form of shareholder proposals that encourage, or even force, the management to take action. Indeed, our paper sheds light on how activists view proposals as a tool to voice their ongoing concerns and to pressure managers into addressing relevant environmental issues, thus contributing to the growing researchers' interest in shareholder activism and its channels.

In addition, our analysis of shareholder proposals' language properties and features suggests interesting implications for current research in the textual analysis of corporate communications. In particular, while most recent literature has focused on managers' strategic language choices in their disclosures to shareholders, communications from shareholders to managers have received less empirical attention. Using such information in an empirical model, we show that the structure of a proposal is affected by shareholders' environmental awareness.

Our results also have practical implications for regulators and corporate executives. For instance, our findings are helpful to managers facing increasing pressure from shareholders and public scrutiny, as they reveal when activists become more aggressive with their requests. The results also imply that shareholder activism can be a mechanism to exert pressure on managers and obtain corporate change, especially in the wake of renewed attention to environmental threats that affect not just the company but the public domain. The above consideration has important public policy implications, as it suggests that regulators could rely on shareholder engagement to foster and push for environmental changes that could have important consequences on society at large. Indeed, the European Commission deems corporate governance a fundamental element for stakeholders for evaluating a company's approach to climate-related issues (European Commission, 2020).

Notes

1 See www.sec.gov/corpfin/staff-legal-bulletin-14l-shareholder-proposals.

2 For additional resources, see also Korac-Kakabadse *et al.* (2001), Denes *et al.* (2017), Guimaraes *et al.* (2018), Abdennadher and Cheffi (2020).

3 One of these groups is Chevedden Group, whose focus before the years 2017 and 2018 was more towards governance.

4 This concept refers to what the authors call "balance of reason."

5 See, for instance, Huang *et al.* (2014), Hassan *et al.* (2018), Bacha and Ajina (2019), D'Augusta and DeAngelis (2020).

6 Proxy Monitor offers a publicly available database that tracks shareholder proposals in (almost) a real-time fashion. The database is available at www.proxymonitor.org.

7 In an untabulated robustness test, we find that subtracting from Tone its industry-year average does not materially affect the results. This shows that time-series or cross-industry differences in the importance of pessimistic words do not influence our findings.

8 The classic example, which serves as the title of the paper by Loughran and McDonald (2011), is the word liability. This is defined as negative in GI but does not appear in LM2011.

9 Importantly, the positive and insignificant coefficient of POST suggests that the results are not driven by an overall pessimism trend that overlaps with our sample period because of parallel changes in the societal context. This could be the case if the slow recovery from the Great Recession drove a negative outlook on corporate performance prospects. It could also arise because of the increasing presence of women among executives and board members. However, such factors would affect both environmental and nonenvironmental proposals, which is inconsistent with the POST coefficient. They would also drive higher pessimism in the management response, which is inconsistent with the results discussed in Section 4.3.

10 This is one of the main arguments used by Loughran and McDonald (2011). That is, words in a financial narrative may not reflect the same meaning/semantic concept as in a more general context.

References

Abdennadher, S. and Cheffi, W. (2020), "The effectiveness of e-corporate governance: an exploratory study of internet voting at shareholders' annual meetings in France", *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 4, pp. 673-702.

Aladwey, L., Elgharbawy, A. and Ganna, M.A. (2021), "Attributes of corporate boards and assurance of corporate social responsibility reporting: evidence from the U.K", *Corporate Governance: The International Journal of Business in Society*, Vol. 22 No. 4, pp. 748-780.

Alareeni, B.A. and Hamdan, A. (2020), "ESG impact on the performance of U.S. S&P00-listed firms", *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 7, pp. 1409-1428.

Amao, O. and Amaeshi, K. (2008), "Galvanising shareholder activism: a prerequisite for effective corporate governance and accountability in Nigeria", *Journal of Business Ethics*, Vol. 82 No. 1, pp. 119-130.

Angrist, J.D. and Pischke, J.-S. (2009), *Mostly Harmless Econometrics: An Empiricist's Companion*, Princeton University Press, Princeton (NJ).

Angrist, J.D. and Pischke, J.-S. (2010), "The credibility revolution in empirical economics: how better research design is taking the con out of econometrics", *Journal of Economic Perspectives*, Vol. 24 No. 2, pp. 3-30.

Ashenfelter, O.C. and Card, D. (1984), "Using the longitudinal structure of earnings to estimate the effect of training programs", *The Review of Economics and Statistics*, Vol. 67 No. 4, pp. 648-660.

Bacha, S. and Ajina, A. (2019), "CSR performance and annual report readability: evidence from France", *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 2, pp. 201-215.

Baier, P., Berninger, M. and Kiesel, F. (2020), “Environmental, social and governance reporting in annual reports: a textual analysis”, *Financial Markets, Institutions & Instruments*, Vol. 29 No. 3, pp. 93-118.

Barko, T., Cremers, M. and Renneboog, L. (2022), “Shareholder engagement on environmental, social, and governance performance”, *Journal of Business Ethics*, Vol. 180 No. 2, pp. 777-812.

Ben-Amar, W., Chang, M. and McIlkenny, P. (2017), “Board gender diversity and corporate response to sustainability initiatives: evidence from the carbon disclosure project”, *Journal of Business Ethics*, Vol. 142 No. 2, pp. 369-383.

Benoit, K., Watanabe, K., Wang, H., Nulty, P., Obeng, A., Müller, S. and Matsuo, A. (2018), “Quanteda: an R package for the quantitative analysis of textual data”, *Journal of Open Source Software*, Vol. 3 No. 30, p. 774.

Bergé, L., *et al.* (2018), “Efficient estimation of maximum likelihood models with multiple fixed-effects: the r package FENmlm”, Department of Economics at the University of Luxembourg, available at: www.cran.r-project.org/web/packages/FENmlm/vignettes/FENmlm.html (accessed 14 March 2023).

Bogoslaw, D. (2010), “Shareholder activists set to drill oil companies”, available at: www.bloomberg.com/news/articles/2010-06-13/shareholder-activists-set-to-drill-oil-companies?leadSource=uverify%20wall (accessed 14 March 2023).

Chithambo, L. and Tauringana, V. (2017), “Corporate governance and greenhouse gas disclosure: a mixed-methods approach”, *Corporate Governance: The International Journal of Business in Society*, Vol. 17 No. 4, pp. 678-699.

Clark, C.E. and Crawford, E.P. (2012), “Influencing climate change policy: the effect of shareholder pressure and firm environmental performance”, *Business & Society*, Vol. 51 No. 1, pp. 148-175.

Copland, J.R. and O’Keefe, M.M. (2015), “A report on corporate governance and shareholder activism, Manhattan institute”, available at: www.proxymonitor.org/pdf/pmr_09.pdf (accessed 14 March 2023).

Cosma, S., Principale, S. and Venturelli, A. (2022), “Sustainable governance and climate change disclosure in European banking: the role of the corporate social responsibility committee”, *Corporate Governance: The International Journal of Business in Society*, Vol. 22 No. 6, pp. 1345-1369.

Cundill, G.J., Smart, P. and Wilson, H.N. (2018), “Non-financial shareholder activism: a process model for influencing corporate environmental and social performance”, *International Journal of Management Reviews*, Vol. 20 No. 2, pp. 606-626.

D’Augusta, C. and DeAngelis, M.D. (2020), “Does accounting conservatism discipline qualitative disclosure? Evidence from tone management in the MD&A”, *Contemporary Accounting Research*, Vol. 37 No. 4, pp. 2287-2318.

Del Guercio, D. and Tran, H. (2012), “Institutional investor activism”, in Baker H.K. and Nofsinger J.R. (Eds), *Socially Responsible Finance and Investing: Financial Institutions, Corporations, Investors, and Activists*, John Wiley & Sons, Ltd, Hoboken (NJ), pp, pp. 359-380.

Denes, M.R., Karpoff, J.M. and McWilliams, V.B. (2017), “Thirty years of shareholder activism: a survey of empirical research”, *Journal of Corporate Finance*, Vol. 44, pp. 405-424.

Dowle, M. and Srinivasan, A. (2019), “Data.table: extension of data.frame. R package version 1.12.0”, available at: www.cran.r-project.org/web/packages/data.table/index.html (accessed 14 March 2023).

Dyck, A., Lins, K.V., Roth, L. and Wagner, H.F. (2019), “Do institutional investors drive corporate social responsibility? International evidence”, *Journal of Financial Economics*, Vol. 131 No. 3, pp. 693-714.

Eding, E. and Scholtens, B. (2017), “Corporate social responsibility and shareholder proposals”, *Corporate Social Responsibility and Environmental Management*, Vol. 24 No. 6, pp. 648-660.

Edmans, A. and Holderness, C.G. (2017), “Blockholders: a survey of theory and evidence”, *The Handbook of the Economics of Corporate Governance*, Vol. 1, pp. 541-636.

Ertimur, Y., Ferri, F. and Muslu, V. (2011), “Shareholder activism and CEO pay”, *The Review of Financial Studies*, Vol. 24 No. 2, pp. 535-592.

European Commission (2020), “Sustainable corporate governance”, available at: www.ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12548-Sustainable-corporate-governance_en (accessed 14 March 2023).

Ferri, F. and Sandino, T. (2009), “The impact of shareholder activism on financial reporting and compensation: the case of employee stock options expensing”, *The Accounting Review*, Vol. 84 No. 2, pp. 433-466.

Flammer, C. (2013), “Corporate social responsibility and shareholder reaction: the environmental awareness of investors”, *Academy of Management Journal*, Vol. 56 No. 3, pp. 758-781.

Foley, M., Cebula, R., Jun, C. and Boylan, R. (2015), “An analysis of withdrawn shareholder proposals”, *Corporate Governance*, Vol. 15 No. 4, pp. 546-562.

Gadenne, D.L., Kennedy, J. and McKeiver, C. (2009), “An empirical study of environmental awareness and practices in SMEs”, *Journal of Business Ethics*, Vol. 84 No. 1, pp. 45-63.

Ghahramani, S. (2015), “Sovereign wealth funds and shareholder activism: applying the Ryan-Schneider antecedents to determine policy implications”, *Corporate Governance: The International Journal of Business in Society*, Vol. 13 No. 1, pp. 58-69.

Gillan, S.L. and Starks, L.T. (2000), “Corporate governance proposals and shareholder activism: the role of institutional investors”, *Journal of Financial Economics*, Vol. 57 No. 2, pp. 275-305.

Girard, C. and Gates, S. (2020), “Institutional contradictions of the French state as a shareholder”, *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 3, pp. 545-558.

Goodman, J., Louche, C., van Cranenburgh, K.C. and Arenas, D. (2014), “Social shareholder engagement: the dynamics of voice and exit”, *Journal of Business Ethics*, Vol. 125 No. 2, pp. 193-210.

Goranova, M. and Ryan, L.V. (2014), “Shareholder activism: a multidisciplinary review”, *Journal of Management*, Vol. 40 No. 5, pp. 1230-1268.

Gow, I.D., Larcker, D.F. and Reiss, P.C. (2016), “Causal inference in accounting research”, *Journal of Accounting Research*, Vol. 54 No. 2, pp. 477-523.

Guimaraes, P., Leal, R.P., Wanke, P. and Morey, M. (2018), “Shareholder activism impact on efficiency in Brazil”, *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 1, pp. 141-157.

Hafeez, B., Kabir, M.H. and Wongchoti, U. (2021), “Are retail investors really passive? Shareholder activism in the digital age”, *Journal of Business Finance & Accounting*, Vol. 49 Nos 3/4, pp. 423-460.

Hassan, M.K., Abbas, B.A. and Garas, S.N. (2018), “Readability, governance, and performance: a test of the obfuscation hypothesis in Qatari listed firms”, *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 2, pp. 270-298.

He, Y., Kahraman, B. and Lowry, M. (2021), “ES risks and shareholder voice”, European Corporate Governance Institute Finance Working Paper No. 786, www.ecgi.global/sites/default/files/working_papers/documents/hekahramanlowryfinal.pdf (accessed 14 March 2023).

Heflin, F. and Wallace, D. (2017), “The BP oil spill: shareholder wealth effects and environmental disclosures”, *Journal of Business Finance & Accounting*, Vol. 44 Nos 3/4, pp. 337-374.

Horster, M. and Papadopoulos, K. (2019), “Climate change and proxy voting in the U.S. and Europe”, available at: www.corpgov.law.harvard.edu/2019/01/07/climate-change-and-proxy-voting-in-the-u-s-and-europe/ (accessed 14 March 2023).

Huang, X., Teoh, S.H. and Zhang, Y. (2014), “Tone management”, *The Accounting Review*, Vol. 89 No. 3, pp. 1083-1113.

Jouber, H. (2020), “Is the effect of board diversity on CSR diverse? New insights from one-tier vs. two-tier corporate board models”, *Corporate Governance: The International Journal of Business in Society*, Vol. 21 No. 1, pp. 23-61.

Khan, I., Khan, I. and Senturk, I. (2019), “Board diversity and quality of CSR disclosure: evidence from Pakistan”, *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 6, pp. 1187-1203.

Kolk, A. and Pinkse, J. (2007), “Towards strategic stakeholder management? Integrating perspectives on sustainability challenges such as corporate responses to climate change”, *Corporate Governance: The International Journal of Business in Society*, Vol. 7 No. 4, pp. 370-378.

Korac-Kakabadse, N., Kakabadse, A.K. and Kouzmin, A. (2001), “Board governance and company performance: any correlations?”, *Corporate Governance: The International Journal of Business in Society*, Vol. 1 No. 1, pp. 24-30.

Korkmaz, O. (2022), “Sustainability risk management: a survey of the literature”, in Grima, S., Özen, E. and Gonzi, R.E.D. (Eds), *Insurance and Risk Management for Disruptions in Social, Economic and Environmental Systems: Decision and Control Allocations within New Domains of Risk (Emerald Studies in Finance, Insurance, and Risk Management)*, Emerald Publishing Limited, Bingley (U.K.), pp. 207-232.

Lewis, C. and Young, S. (2019), “Fad or future? automated analysis of financial text and its implications for corporate reporting”, *Accounting and Business Research*, Vol. 49 No. 5, pp. 587-615.

Liang, H. and Renneboog, L. (2017), “On the foundations of corporate social responsibility”, *The Journal of Finance*, Vol. 72 No. 2, pp. 853-910.

Loughran, T. and McDonald, B. (2011), “When is a liability not a liability? Textual analysis, dictionaries, and 10-ks”, *The Journal of Finance*, Vol. 66 No. 1, pp. 35-65.

Loughran, T. and McDonald, B. (2016), “Textual analysis in accounting and finance: a survey”, *Journal of Accounting Research*, Vol. 54 No. 4, pp. 1187-1230.

Michelon, G., Rodrigue, M. and Trevisan, E. (2020), “The marketization of a social movement: activists, shareholders and CSR disclosure”, *Accounting, Organizations and Society*, Vol. 80, p. 101074, pp. 1-18.

Murashima, M. (2020), “Do investors’ reactions to CSR-related news communication differ by shareholder? an empirical analysis from Japan”, *Corporate Governance: The International Journal of Business in Society*, Vol. 20 No. 5, pp. 781-796.

Orol, R.D. (2010), “After disasters, shareholder pressure tactics get new life: investor-activists see strong momentum for environmental risk proposals”, Market Watch, available at: www.marketwatch.com/story/green-shareholder-pressure-seen-on-the-rise-2010-08-08 (accessed 14 March 2023).

Post, C., Rahman, N. and Rubow, E. (2011), “Green governance: boards of directors’ composition and environmental corporate social responsibility”, *Business & Society*, Vol. 50 No. 1, pp. 189-223.

R Core Team (2021), *R: A Language and Environment for Statistical Computing*, R Foundation for Statistical Computing, Vienna (Austria).

Raghupathi, V., Ren, J. and Raghupathi, W. (2020), “Identifying corporate sustainability issues by analyzing shareholder resolutions: a machine-learning text analytics approach”, *Sustainability*, Vol. 12 No. 11, p. 4753.

Reid, E.M. and Toffel, M.W. (2009), “Responding to public and private politics: corporate disclosure of climate change strategies”, *Strategic Management Journal*, Vol. 30 No. 11, pp. 1157-1178.

Renneboog, L. and Szilagyi, P.G. (2011), “The role of shareholder proposals in corporate governance”, *Journal of Corporate Finance*, Vol. 17 No. 1, pp. 167-188.

Rudkin, B., Kimani, D., Ullah, S., Ahmed, R. and Farooq, S.U. (2018), “Hide-and-seek in corporate disclosure: evidence from negative corporate incidents”, *Corporate Governance: The International Journal of Business in Society*, Vol. 19 No. 1, pp. 158-175.

Simpson, M., Taylor, N. and Barker, K. (2004), “Environmental responsibility in SMEs: does it deliver competitive advantage?”, *Business Strategy and the Environment*, Vol. 13 No. 3, pp. 156-171.

Sjöström, E. (2008), “Shareholder activism for corporate social responsibility: what do we know?”, *Sustainable Development*, Vol. 16 No. 3, pp. 141-154.

Southwood, P. (2003), “Shareholder engagement: prospects for improving corporate social responsibility”, *International Journal of Business Performance Management*, Vol. 5 Nos 2/3, pp. 223-236.

Stone, P.J., Dunphy, D.C. and Smith, M.S. (1966), *The General Inquirer: A Computer Approach to Content Analysis*, MIT Press, Boston, (MA).

Subramanian, R. (2017), “Shareholder spring and social activism: a study of 2013-2015 proxy filings”, *Corporate Governance: The International Journal of Business in Society*, Vol. 17 No. 3, pp. 560-573.

Thomas, R.S. and Cotter, J.F. (2007), “Shareholder proposals in the new millennium: shareholder support, board response, and market reaction”, *Journal of Corporate Finance*, Vol. 13 No. 2-3, pp. 368-391.

Tingbani, I., Chithambo, L., Tauringana, V. and Papanikolaou, N. (2020), “Board gender diversity, environmental committee and greenhouse gas voluntary disclosures”, *Business Strategy and the Environment*, Vol. 29, No. 6, pp. 2194-2210.

Uche, C., Adegbite, E. and Jones, M.J. (2016), “Institutional shareholder activism in Nigeria”, *Corporate Governance*, Vol. 16 No. 4, pp. 680-692.

Vasi, I.B. and King, B.G. (2012), “Social movements, risk perceptions, and economic outcomes: the effect of primary and secondary stakeholder activism on firms’ perceived environmental risk and financial performance”, *American Sociological Review*, Vol. 77 No. 4, pp. 573-596.

Viviers, S. and Mans-Kemp, N. (2020), “Successful private investor activism in an emerging market”, *Corporate Governance: The International Journal of Business in Society*, Vol. 21 No. 1, pp. 92-110.

Walls, J.L., Berrone, P. and Phan, P.H. (2012), “Corporate governance and environmental performance: is there really a link?”, *Strategic Management Journal*, Vol. 33 No. 8, pp. 885-913.

Yang, A., Uysal, N. and Taylor, M. (2018), “Unleashing the power of networks: shareholder activism, sustainable development and corporate environmental policy”, *Business Strategy and the Environment*, Vol. 27 No. 6, pp. 712-727.

Corresponding author

Carlo D'Augusta can be contacted at: carlo.daugusta@unibocconi.it