Environmental Penalties and Green Talk: evidence from conference calls

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Abstract
This paper investigates how firms adjust their environmental disclosure strategies in response to environmental sanctions. Using natural language processing (NLP) techniques, we analyze the environmental content of earnings conference calls held by U.S.-listed firms from 2012 to 2022, focusing on changes around the announcement of environmental violations.
Our findings document a "*green evasion effect*", where CEOs talk less about environmental topics in calls immediately preceding the announcement of environmental penalties. This effect is stronger for firms that are expected to uphold high environmental standards. Conversely, analysts increase their focus on environmental topics after the announcement of an environmental penalty, particularly for firms with higher environmental reputations. We further document that investors respond negatively to environmental sanctions, with more pronounced market reactions to penalties issued to firms perceived as environmentally responsible.

Keywords: environmental sanctions, conference calls, environmental disclosure

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1. Introduction

Investors are increasingly interested in environmental and sustainability issues which can significantly impact firm's performance. Indeed, recent studies document that environmental risk affects the pricing of stocks, bonds, and real estate (Bernstein et al. 2019, Painter 2020). There is also evidence that higher climate risk exposure can affect the firm's borrowing cost (Ginglinger and Moreau, 2023) as well as the cost of equity capital (Becchetti et al. 2023).

To make informed investment decisions, it is essential to have reliable environmental disclosure. However, despite significant regulatory changes aimed at standardizing and improving environmental reporting, there remains a lot of heterogeneity in the quality of information firms provide to market participants. This is especially true for earnings conference calls which firms do not seem to yet consider as an opportunity to discuss environmental sustainability and/or climate change (Dzielinski, et al. 2022).

Earnings conference calls are widely recognized as one of the most important corporate events companies hold to convey crucial corporate information to investors and financial analysts (Tetlock et al., 2008; Brown et al. 2019). Evidence shows that the stock market reacts to the hard as well as the soft information disclosed during conference calls, and analysts rely on such information to issue their earnings forecasts (Price et al. 2012; De Amicis et al. 2021).

This paper investigates whether the environmental content of earnings conference calls changes around the announcement of an environmental violation that results in a fine. To this purpose, we employ natural language processing techniques (NLP) on a sample of quarterly earnings conference calls held by US listed and incorporated firms between 2012 and 2022 to build a measure of environmental disclosure, "*green talk*", that captures the amount of environment-related news firm's managers and financial analysts disclose during the call. Data on environmental sanctions are obtained from Violation Tracker which provides data at the firm or facility level. Our final sample includes 1,705 environment-related violations perpetrated by facilities of 338 parents incorporated and listed in the US, with no missing records on Compustat, during the period 2012–2022[1].

Our findings reveal a notable "*Green Evasion Effect*": CEOs significantly reduce discussions of environmental topics in calls immediately preceding the announcement of environmental penalties. This effect is especially pronounced for firms with higher environmental ratings and those headquartered in Democrat-leaning (blue) states, which the market considers less likely to be associated with environmental misconduct.

1 The number of observations rises to 4,400 environment-related violations perpetrated by facilities of 572 unique parent companies incorporated and listed in the US, with no missing records on Compustat, for the period 2000–2022.

Analyst behavior contrasts with the CEO evasion approach. Following the announcement of environmental sanctions, analysts increase their focus on environmental topics, asking more environmentally specific questions. This response is particularly strong for firms perceived as holding higher environmental standards, such as those with fewer past violations, higher environmental scores, or blue-state headquarters. Finally, we find that investors react strongly to environmental sanctions. The announcement of penalties triggers significant negative abnormal stock returns (CAR[-1;1]), with the reaction more severe for firms perceived as environmentally responsible in line with other result. These results highlight the reputational and financial risks associated with environmental misconduct.

Our paper contributes to a young but relevant stream of research that employs earnings conference calls to better understand companies' climate risk exposure and environmental strategy. In a recent paper, using a sample of more than 400,000 earnings conference calls of 11,000 worldwide public firms between 2002 and 2022, Dzielinski et al. (2024) document that companies do "walk the talk" that is managerial environmental talk in conference calls is associated with a reduction of future carbon emissions. The result is stronger outside of the US and in countries with long-term orientation and low individualism. De Lisle et al. (2024) show that the management tone becomes more negative following an ES incident which they measure using a firm level RepRisk index irrespective of the firm's financial performance. Sautner et al. (2023) develop a novel measure of a company's climate change exposure using a machine learning keyword discovery algorithm to identify and categorize climate change-related discussions for a large sample of listed firms from 34 countries between 2002 and 2020. They find that their climate change exposure measure is associated with a higher likelihood of creating green jobs and file for green patents, suggesting a proactive approach towards climate-related opportunities. They also document that their measure contain information that is priced in options and equity markets.

Our paper makes several important contributions to this recent literature. First, it is the first paper that investigates the environmental content of earning conference calls around episodes of environmental misconduct that result in firms being sanctioned with fines. Most other papers use media coverage measures such as RepRisk to capture environmental incidents. Sanctions are tangible evidence of the firm's misconduct and we would expect firms to manage potential investors' concerns during the conference calls. The paper also contributes to the literature by shedding lights on how analysts engage with companies involved in environmental misconduct during earning conference calls.

The rest of the paper is organized as follows. In the next Section we review the literature and formulate our main hypothesis. Section 3 provide an overview of the institutional process of of environmental sanctions in the US. In Section 4 we describe our sample while Section 5 outlines our empirical strategy. The results of our analysis are reported in Section 6 and 7. In Section 8 we discuss some robustness issues. Section 7 concludes.

2. Literature Review and Hypothesis Development

Evidence suggests that investors increasingly display sustainability preferences and have become more attentive to firms' environmental performance. Bolton and Kacperczyk (2021) for instance show that financial markets price carbon risk and that investors screen out "brown" stock from their portfolios. Using an international sample, Dyck et al. (2019) further document that institutional investors are increasingly pressing firms for better E&S performance and that this is achieved through more direct engagement. This is consistent with further evidence of a growing number of shareholder proposals and activist campaigns focused on environmental issues (Hoepner et al. 2024; Berkman et al. 2024). Flammer (2013) provides evidence of negative market reaction to news of eco-harmful corporate behaviour. Taken together the existing evidence suggests that investors respond to companies that receive environmental sanctions. This leads to our first hypothesis:

> ***Hp 1:*** *The market reaction, measured by the Cumulative Abnormal Returns, to the announcement of an environmental sanction is negative.*

If the market reacts to environmental sanctions, companies might use conference calls to discuss their environmental strategy in order to mitigate investors' concerns. Flammer et al. (2021) show the market values enhanced voluntary environmental disclosure by firms.

An extensive literature employes NLP techniques to study the language and content of corporate disclosures. These studies show that managers' linguistic choices when communicating their companies' news and performance are related to the quantity and quality of information disclosed by the firm and that the market reacts to the soft signals conveyed through their linguistic styles (Henry, 2006; Tetlock et al., 2008; Mayew and Venkatachalam, 2012; Price et al., 2012). This research also suggests that managers strategically manage their communication style and language for instance to obfuscate negative news. Huang, Teoh, and Zhang (2014), for example, find that abnormally optimistic tones predict negative future earnings and cash flows. Gow, Larcker and Zakolyukina (2021), instead, find that financial analysts' questions about the firm's performance are more likely to remain unanswered by the company's managers when the firm's results are more negative. On the other hand, following an environmental sanction, the management might use the conference call as an opportunity to mitigate analysts' and investors' concerns about the potential future cost of the sanction in terms of reputation loss or firm's value (De Lisle et al. 2024). Billing et al. (2021) show that following litigation, managers do not tamp down the amount of voluntary disclosure. Based on the previous discussion we would therefore expect environmental sanctions

to alter the amount of managerial "green talk" in conference calls, but we remain agnostic about the direction of such impact which in turn leads to our first hypothesis.

***Hp. 2**: The MD "green talk" is affected by the announcement of an environmental sanction.*

There is a large evidence that suggest that female CEOs tend to be more sensitive to ESG issues than their male colleagues. For instance, a recent study by Altunbas et al. (2022) shows that female managers are more inclined toward environmental protection than their male peers, and that a firm with more female managers is likely to display greater CO2 reduction. Greater female representation in corporate boards has been documented to be associated with less environmental lawsuits (Liu, 2018) and more renewable energy consumption (Atif et al. 2021) while Javed et al. (2023) find a positive link between female CEOs and green innovation for a sample of Chinese firms between 2008 and 2016. It is therefore possible that female CEOs more pro-actively address environmental concerns in conference calls than male CEOs. Consequently, we formulate the following hypothesis.

***Hp. 3:** Female CEOs are associated with more "green talk" in MD session of conference calls.*

In contrast to the MD session, which is scripted presentation, the Q&A session is more dynamic and spontaneous and, evidence shows that the interaction between management and financial analysts conveys important information about the firm's performance which is valued by the market (Brockman et al., 2018). Research consistently shows that financial analysts' questions move stock prices during the discussion (Chen et al., 2018) and that investors respond to the linguistic signals conveyed through financial analysts' questions during earnings calls (Twedt and Rees 2012; Brockman et al. 2015). Analysts' recommendations have also been shown to reflect firms' CSR performance (Ioannou and Serafeim, 2014), and that earnings forecasts are revised downward following negative ESG news in the anticipation of their negative impact on the firm's future cash flow (Derrien et al. 2024). This would suggest analysts are likely to probe firms about their environmental strategy around the announcement of a sanction during the Q&A session.

However, some evidence documents that conference calls are not the only ways through which analysts can obtain valuable information regarding the firm. Some analysts in fact avoid asking questions during public conference calls and use private conversations with the management to gather further details beyond the information disclosed in public calls (Brown et al. 2019). Analysts could potentially privilege private meetings with the managers to investigate more in depth the impact of environmental misconduct rather than using the Q&A of the conference call.

Drawing from the above discussion suggests we formulate the following hypothesis:

Hp 4: *Financial analysts ask more about environmental-related questions in earnings conference calls around the announcement of an environmental sanction.*

Finally, we investigate whether firms' *green talk* depends on the salience of environmental issues in the state where the company is headquartered. We capture salience in two ways. Firstly, we account for the state political orientation, i.e. whether it is a Democrat (Blue) or Republican state (Red). Secondly, we use the Google trends index to measure the state public attention to environmental issues. We would expect that firms headquartered in states where environmental issues are more salient exhibit adjust more the environmental content of the calls around the announcement of a sanction. This leads to our last hypothesis:

Hp 5: *Firms headquartered in states where environmental concerns are more salient display larger adjustments of the MD green talk around the announcement of an environmental sanction.*

3. Institutional Background

There are multiple environmental agencies that operate in the US. Agencies differ with respect to their jurisdictions which can be at the federal, state or local level. The Environmental Federal Agency (EPA) has broad federal authority and oversees national environmental laws including Clean Air Act, Clean Water Act, and the Resource Conservation and Recovery Act. In contrast, state and local agencies focus on enforcement within their borders, sometimes with stricter standards. The EPA can issue fines, penalties, and also request remedial actions for violations of federal laws. The majority of violations are administrative. However, the EPA may also pursue legal action through the Department of Justice (DOJ) for more serious offenses, which can lead to court-ordered settlements or criminal charges.

In contrast, state and local agencies can issue fines and enforcement actions more tailored to state laws and concerns. It is possible for a firm to receive sanctions from both the EPA and a state or local environmental agency for the same violation (*dual enforcement*) when both federal and state (or local) agencies have jurisdiction over the same environmental laws and regulations.

In our sample, sanctions are issued by 116 different agencies of which, however, nearly a quarter is issued by the EPA. The distribution of sanctions by agencies is presented in Appendix D.

4. Data

4.1. Earnings Conference Calls

We obtain the transcripts of quarterly earnings conference calls for US incorporated and listed companies between 2012 and 2022 from Capital IQ. Each transcript is organized into two sessions: *management discussion* (MD) and *questions and answers* (QA). The MD consists of scripted presentations on the firm's current results and future prospects, presented by senior managers. The QA, which follows the MD, consists of a dialogue between the financial analysts invited to participate in the call and the managers. The full text of each transcript is parsed to extract the name and ticker symbol of the firm conducting the call, the date of the event, and the full name and the title of the company representative(s) delivering the speech. We match the names of the CEOs in the transcripts with Execucomp and BoardEx annual data to obtain their gender and full name. We then use the ticker symbol and company name indicated in each transcript to merge the transcript data with balance sheet data and information about returns obtained from Compustat and CRSP, respectively. Companies that cannot be merged by ticker symbol are merged manually and all observations with missing records on the Compustat and CRSP databases are excluded.

4.2. Violation Tracker

We obtain data on the environment-related violations perpetrated by the firms in our sample of quarterly conference calls from Violation Tracker. Violation Tracker is a comprehensive data set of all corporate misconducts that resulted in an enforcement action and a penalty of at least $5,000 since 2000.[2] Offenses are grouped in nine different categories: competition, consumer protection, employment, environmental, financial, government contracting, healthcare, safety related and miscellaneous. For each corporate misconduct the data set indicates the type of offence that led to the penalty, the penalty amount, the date when the penalty was announced, the name and address of the facility involved in the case, and the parent company at the time the penalty was announced. If the violation has been sanctioned by multiple agencies, VT classifies it as a single data point and reports the amount of the combined penalty issued by all the agencies involved. VT does not always report the cost of the remedial actions (*compliance cost)* the firm has been required to undertake. This implies that the penalty amounts we employ in our empirical analysis is underestimating the real cost of the sanction.

The database also tracks "mega-scandals" which are violations that have been sanctioned with penalties larger than $25million in which harm was done to large numbers of consumers, workers, investors or community members.

In the database there are 3,884 environment-related violations perpetrated by facilities of US public companies during our sample period from 2012 to 2022. We use the ISIN number of the parent company

[2] The penalty would also include the money paid as the result of a settlement between the company and the environmental agency.

at the time of the penalty to match Violation Tracker data with our sample of quarterly earnings conference calls. We complement the data from Violation Tracker with data on firms' environmental performance measured by the environmental ratings (ER) provided by Refinitiv Eikon.

The matching with Refinitiv reduces our final sample from 8,387 to 6,414 calls held between 2012-2022 by companies that received at least one environment-related penalty over that period.

5. Methodology

5.1. *Green talk* during earnings conference calls

Our measure of environmental disclosure is based on the frequency of environment-related words spoken during conference calls by CEOs and financial analysts. The list of environment-related words is based on the ESG wordlist compiled by Baier, Berninger, and Kiesel (2020). Their environmental wordlist consists of 55 words, such as *toxic*, *pesticide*, and *greenhouse*. However, it does not include other terms, such as *green bond* , *Co2*, or *EPA*, which can also be used to describe the firm environmental performance or strategy. We therefore supplement the Baier et al. (2020) wordlist with the inclusion of additional 147 environment-related words for a total of 202 words in our list. The list of words that we use to compute our measure of environmental disclosure is included in Appendix A. Our main measures of *green talk* during conference calls are $GreenTalk_{CEO}$ and $GreenTalk_{FA}$. $GreenTalk_{CEO}$ measures the environmental disclosure of the CEO in the MD and it is defined as the number of environment-related words spoken by the CEO scaled by the total number of CEO words in the MD. $GreenTalk_{FA}$ measures the frequency of environmental-related words in the financial analysts' questions and is calculated as the number of environment-related words spoken by analysts divided by the total length of the analysts' questions.

To test our first hypothesis whether the CEO's green talk in the MD is affected by the news of environment-related offences we run the following regression model:

$$CEO_{env\_ti} = \alpha + \beta_1 Violation_{PRE} + \beta_2 Violation_{POST} + \beta_3 Prior\ Pen + \\ + FemCEO + Firms\ Controls + \quad Quarter - YearFE + IndustryFE \tag{1}$$

This is an event study model (Flammer, 2021; Miller, 2023) where the main independent variables of interest in this model are the dummies $Violation_{POST}$ and $Violation_{PRE}$. The variable is set equal to one if the environmental penalty is issued in the quarter after (before) the conference call happens, and zero otherwise. The amount of environmental disclosure is likely to depend on whether the firm has received other environmental sanctions in the past. We therefore control for the total number of environmental sanctions in the year before the conference call takes place, *Prior Pen.* We also add the firm's environmental

rating from LSEG database (previously, Refinitiv), *ER*, as this is likely to influence how much a firm talks about environmental issues in earnings conference calls. We next control for the CEO gender that has been shown in the literature to influence voluntary corporate disclosure (De Amicis et al. 2022). We thus include the binary variable *FemCEO* which is set equal to one if the call is held by a female CEO.

We further control for several measures of firm's performance and characteristics that might affect the environmental content of the call. We include the logarithm of the firm's age counted from the first year it appears in Compustat (*Firm age*), the (log of the) quarterly total assets of the firm (*Size*), the (log of 1+ the) return on assets for the quarter (*ROA*), the quarterly long-term debt scaled by the firm's total assets in the quarter (*Leverage*), the quarterly cash-to-assets ratio (*Cash*) and quarterly capital expenditures (*Capex*) scaled by total assets, *InstOwn* is the percentage of common stock held by institutional investors as reported on Form 13F filed with the SEC. To partially capture growth opportunities and expectations of future performance, we also include the (log of) firm's quarterly market-to-book ratio (*MB*).

Recent evidence highlights the important role that Investor Relation Officers (IROs) play in shaping corporate disclosures, and more specifically in managing the queue of analysts' questions in the Q&A (Brown et al. 2019). We would expect IROs to be even more crucial when the firm is involved in negative news. We hence add the dummy variable *IRO* equal to 1 if an IRO is present in the call, and 0 otherwise.

The state environmental agenda in the US is strongly influenced by the State political orientation. Republicans are known to be more environment-skeptical and this could influence the environmental disclosures of companies headquartered in Republican states. To address this, we use data on Presidential elections from Britannica to construct a dummy *Red_State* that takes value 1 if the company is headquartered in a state that has voted for the Republican candidate in the last US Presidential elections and 0 otherwise. Public attention to environmental issues in a given state in a given year can also influence firms' level of environmental disclosure in corporate calls. We capture public attention to environmental issues by the Google trend index for each state over our sample period. The index is extracted for the following web query "environment + climate change + climate risk". Google calculate values on a scale from 0 to 100, where 100 is the state with the most popularity as a fraction of total searches in that location. Hence, a value of 50 indicates a location where the topic is half as popular. A value of 0 is assigned when there are not enough data for a given location.[3] Finally, we include quarter-year fixed effects, and industry fixed effects in all regressions. Definitions of all the variables used are provided in Appendix B.

6. Baseline Results

[3] It should be noted that the index is constructed so that a higher value means a higher proportion of all queries, not a higher absolute query count. So, as Google explains "a tiny country where 80% of the queries are for 'bananas' will get twice the score of a giant country where only 40% of the queries are for 'bananas'"

6.1. Summary statistics

Over our time period there are 439 unique firms that receive environmental sanctions. On average each firm receives two penalties per year.

Table 1 presents the summary statistics for the main variables used in our empirical analysis. We note that the environmental content of the CEO talk during the MD accounts on average for less than 0.29% of the entire CEO talk and 0.12% of the total analyst talk in the QA. In line with previous findings (De Amicis et al. 2021), female CEOs are largely underrepresented in the sample as only 6.5% of conference calls are held by a female CEO. Interestingly, investor relation officers (IROs) participate in more than 50% of calls. The average (median) environmental ratings of firms in our sample is 48 (50) out of 100. Figure 1 shows how the average environmental score has changed over our sample period, and also relative to the average ESG score. The figure shows, perhaps surprisingly, that scores have been relatively stable over time with only small improvements in the last couple of years of our sample. Table 2 reports the distribution of the average dollar amount of environmental penalties by year compared to the average dollar amount of other non-environmental penalties. The table indicates that since 2019, the median dollar amount of environmental penalty has surpassed the median dollar amount of other penalties.

Finally, Figure 2 shows the 10 sectors that receives the largest (mean) penalties in our sample period. As expected, they tend to be more "brown" sectors such as metal mining and oil and gas extraction. Similarly, there are some sectors that tend to discuss more environmental issues in their conference calls. Figure 3 reports the ten sectors with the largest (mean) environmental talk during our sample period and suggests this is concentrated in sectors that are more exposed to climate change. [4]

6.2. Market Reaction to the announcement of a sanction

We start our analysis by conducting an event study to assess the market response to the announcement of a sanction for an environmental violation perpetrated by facilities of the parent companies in our sample (Hp 1).

The market reaction is measured by the Cumulative Abnormal Return in the interval [-1,+1] around time 0 which is the announcement date. The results reported in Table 3 show that the market reaction depends on the amount of the penalty received which reflects the gravity of the violation. Although the market reaction is always negative it becomes larger and statistically significant at 5 per cent level when the penalty is more than $30,000.

In Table 4 we explore the cross-sectional variation of the market response to environmental sanctions. The results of this table provide interesting insights. The market reaction is negative and statistically

[4] We find that the distribution of the environmental content across sectors in our sample maps quite closely the measure of climate change exposure proposed by Sautner et al. (2023)

significant only for firms that are less expected to receive an environmental sanction that is companies with environmental ratings higher than the median rating and that are headquartered in a "blue" state or in a state where the public is more attentive to environmental issues, i.e. higher G-trend index. We also find that investors react more negatively to the company has a male CEO although we interpret this result with caution due to the very small number of female CEO in our sample.

Finally, it appears that investors have become more sensitive to firms being involved in environmental violations post-Covid which support the evidence on the importance of environmental responsibility during the Covid crisis (Garel and Petit-Romec, 2021).

[Table 4 here]

6.3. CEO's green talk around the announcement of a sanction

In this section we test Hp 2. To this purpose, we estimate the pooled OLS regression model described by Eq. (1) to assess whether CEO adjusts the environmental disclosure of the conference call around the announcement of a sanction.

Results are reported in Table 5. Column 1 reports results for a set of firm's controls and shows that CEOs talk less about environmental issue in the conference call that precedes the announcement of the penalty. The coefficient estimate of $Violation_{PRE}$ is also negative but not statistically significant. Among the other firm specific controls, it is worth noting that perhaps surprisingly a higher institutional ownership does not statistically affect the CEO's green talk. In Column 2 we expand the set of controls to include the CEO gender and the dummy IRO. We now find that a significant reduction in the CEO green talk also in the conference call that follows the announcement of the penalty. Furthermore, in line with the existing literature female CEOs tend to disclose the firms' environmental news. In contrast, the presence of an IRO does not influence the CEO's environmental disclosure. The next column further controls for the firm's environmental rating at the time of the call as well as the firm's prior penalties. Both variables have positive and statistically significant coefficient estimates, hence firms with higher environmental ratings or that have received previous penalties tend to talk more about environmental issues. Our variables of interest remain both negative and statistically significant. Column 3 also includes state fixed effects. In Column 4 we augment the regression to control for whether the firm is headquartered in a red or blue state. Although the sign of the coefficient estimates is of the expected sign it is not statistically significant. There is no change in our main variables. Column 5 replicates the regression of Eq. (1) including firm and state fixed effects. Results are broadly unchanged but $Violation_{PRE}$ is no longer statistically significant.

Overall our findings provide support to our Hp. 2 and suggest that CEOs tend to steer the market attention away from the imminent announcement of the penalty by talking less about environmental issues

in the conference call that immediately precedes the announcement of the penalty. We label this the "*green evasion*" effect. We find also some evidence, albeit weaker, that CEOs also reduce their green talk in conference calls that follow the announcement.

[Table 5 here]

6.4 The role of financial analysts

An extensive body of work shows that analysts play an important role in analyzing, interpreting, and disseminating information to capital market participants. Similarly, in the presence of environmental sanctions, analysts can effectively question the firm to better gauge the potential reputational as well as financial costs the company can incur as consequence of being sanctioned for environmental misconducts.

To investigate whether analysts ask more environmental related questions around the announcement of a sanction we run again the regression in Eq. (1) using $GreenTalk_{FA}$ as dependent variable while we control for the amount of CEO environmental disclosure on the right-hand side of the regression. Results from this regression are reported in Table 6.

Results are generally consistent across all 5 regression models and show that analysts ask more environmental-related questions when the firm's CEO talks more about environmental issues in the MD session. The coefficient estimate of $GreenTalk_{CEO}$ is in fact always positive and statistically significant at one per cent level. Furthermore, analysts ask more environmental-related questions in the conference calls that follows the announcement of an environmental penalty whereas there is no evidence of an anticipation effect. Finally, we note that $GreenTalk_{FA}$ increases in the firm's environmental rating. In contrast, and quite interestingly, neither the CEO gender nor the presence of an IRO or the political orientation of the state where the firm is headquartered affect the analyst's green talk.

Our findings provide support to our Hp 4 and show that analysts do respond to firms' environmental sanctions.

[Table 6 here]

7. Cross-Sectional Analysis

In this section we explore whether there is any cross-sectional variation in the way CEOs and analysts adjust their green talk around in conference calls around the announcement of an environmental penalty.

In Table 7 we report the results of our cross-sectional analysis for the CEO green talk. We divide the sample along 5 main dimensions: the amount of the penalty announced before or after the call is below (above or equal to) $90000 which corresponds to the 75% percentile; the median of the number of prior penalties; the

median of the environmental score; the state's Google trend index and political orientation and whether the environmental violation was before or after Covid, where the post-Covid period covers the years 2020 to 2022.

The findings provide some interesting insights. Firms with an environmental rating higher than the sample median value talk significantly less about environmental issues both before and after the announcement of the sanction, although the effect is slightly stronger in the call that precedes the announcement. Results are similar when we consider the political orientation of the state where the firm is headquartered also matters. Firms with HQs in blue states exhibit lower CEO green talk both before and after the announcement of the sanction. In conclusion, our analysis document that firms that expected to uphold high environmental standard exhibit a stronger "*green evasion*" effect, that is they talk less about environmental issues most likely in an attempt to divert the investors' attention from the environmental misconduct and mitigate the reputational cost. The number of prior penalties is also negatively correlated to the amount of environmental talk in the call. The last two columns of Panel B of Table 7 examine the effect of Covid and show that after Covid the green evasion effect is reduced relative to the pre-Covid period and is limited to the conference call that precedes the announcement of a sanction. It is worth noting that the majority of sanctions occur after 2019 but we are cautious to draw a general conclusion as our sample period includes only a few year post-Covid. Finally, Panel C examines the impact of the CEO gender and the IRO. We find that male CEOs talk less about the environment both before and after the sanction, whereas for female CEO the effect is only weakly significant for calls before the sanction. Finally, the absence of an IRO reduces the CEO green talk in post-sanctions. This would suggest that IROs helps manage the environmental voluntary disclosure around the announcement of a sanction more transparently.

[Table 7 here]

In Table 8 we replicate the cross-sectional analysis for the analysts' green talk which shed further light on how analysts respond to firms' environmental sanctions. In line with our baseline regression results, the sub-sample analysis further confirms that analysts ask more environmental-related questions in the call that follows the announcement of the sanction. However, this applies only to firms that have received fewer environmental sanctions in the year before, have higher environmental ratings, are headquartered in blue states and in the pre-Covid period. Overall, the findings are consistent with the previous ones as analysts challenge more companies that are less expected to engage in environmental misconduct. Interestingly, the CEO gender does not affect the FA green talk while the absence of an IRO increases it, which is consistent with the findings in Table 7 and confirms that IROs improve the transparency of corporate communications around environmental incidents.

[Table 8 here]

8. Robustness analysis

To further validate our findings, we conducted a placebo test as a robustness check. This approach involves randomly reassigning the treatment, in our case environmental sanction announcements, across firms within the sample and estimating the resulting effects on our main dependent variables. By doing so, we ensure that any observed patterns are not driven by random variation or spurious correlations unrelated to the actual sanctions. This placebo test provides a critical benchmark for determining whether our estimated effects are statistically distinguishable from noise.

The results of the placebo test are illustrated in Figure 1 for the CEO green talk and Figure 2 for the FA Green talk. The histogram represents the distribution of placebo effects across all random permutations, while the kernel density estimates overlays a smooth representation of the same distribution. Notably, the distribution is centered around zero, as expected under the null hypothesis of no effect. The vertical dashed line represents the actual estimated effect from our primary analysis. Importantly, this observed effect lies well outside the bulk of the placebo distribution, suggesting that the likelihood of the result being driven by random chance is minimal.

Overall, the placebo effects indicates that, on average, the environmental content of conference calls is unaffected when environmental sanctions are randomly reassigned and that the impact of environmental sanctions on green talk is both statistically significant and meaningful. The findings from the placebo test strongly reinforce the validity of our main results. The findings from the placebo test strongly reinforce the validity of our identification strategy and provide compelling evidence that the changes in environmental content are genuinely attributable to the sanctions and not the result of random variation.

[Figures 1 and 2 here]

9. Conclusions

Investors' interest in environmental and sustainability issues, along with the demand for robust environmental disclosures, has grown substantially over the past 20 years. In recent years, companies have increasingly utilized earnings conference calls to communicate their environmental strategies to investors (Dzielinski et al., 2022). However, significant variation remains in the extent of voluntary environmental disclosures during these calls (Sautner et al., 2023).

This paper contributes to the literature by examining how voluntary environmental disclosure changes when firms face environmental sanctions. Specifically, we investigate whether the environmental content of earnings conference calls shifts around the announcement of environmental violations.

Using a sample of quarterly earnings calls by U.S.-listed firms from 2012 to 2022, we employ natural language processing (NLP) techniques to develop a measure of "*green talk*" for CEOs and financial analysts. To this end, we compile a comprehensive list of 202 environmentally related words and gather data on environmental penalties from *Violation Tracker*, the most comprehensive database of corporate misconduct.

Our findings reveal a strong "*Green Evasion Effect*": CEOs tend to avoid discussing environmental topics during earnings calls held immediately prior to the announcement of an environmental penalty. This effect is more pronounced for firms with higher environmental ratings and those headquartered in "blue" (Democrat-led) states, which are less expected to engage in environmental misconduct.

We also examine analysts' behaviour during these calls. Following the announcement of an environmental sanction, analysts ask more environmentally focused questions, particularly for firms with strong environmental reputations—those with fewer prior sanctions, higher environmental scores, or Democratic-state headquarters. We also document that IROs help firms managing corporate communication more transparently around environmental incidents.

Finally, we demonstrate that investors respond to environmental sanctions. The market reaction, measured by the CAR[-1;1], is significantly negative, with a more pronounced effect for firms perceived as environmentally responsible. This underscores the reputational and financial risks associated with environmental misconduct.

To our knowledge, this paper is the first to explore whether environmental disclosures during earnings conference calls reflect the reputational and financial risks stemming from environmental misconduct. Our findings provide valuable insights for investors, regulators, and corporate decision-makers seeking to understand the strategic use of disclosure to manage environmental risk and investors' expectations.

Table 1. Summary statistics

This table reports summary statistics for our sample of earnings conference calls held by US listed firm that received an environmental sanction in the period between 2012-2022. Variable definitions are available in Appendix 1.

Variable	Mean	Std Dev	Min	p25	Median	p75	Max	N
Green $Talk_{CEO}$	0.286	0.405	0.000	0.000	0.140	0.384	4.171	6418
Green $Talk_{FA}$	0.120	0.169	0.000	0.018	0.058	0.154	1.961	6418
$Violation_{POST}$	0.164	0.370	0.000	0.000	0.000	0.000	1.000	6418
$Violation_{PRE}$	0.168	0.374	0.000	0.000	0.000	0.000	1.000	6418
Prior Pen	17.846	29.262	1.000	3.000	9.000	20.000	401.000	6418
E_score	48.291	25.388	0.000	29.380	50.022	68.384	96.404	6418
FemCEO	0.065	0.246	0.000	0.000	0.000	0.000	1.000	6418
IRO	0.539	0.499	0.000	0.000	1.000	1.000	1.000	6418
ROA	0.011	0.025	-0.358	0.004	0.012	0.020	0.092	6418
Leverage	0.618	0.169	0.066	0.510	0.625	0.734	0.998	6418
Size	9.219	1.441	3.628	8.138	9.259	10.307	12.328	6418
Cash	0.066	0.065	0.000	0.017	0.048	0.094	0.532	6418
Capex	0.033	0.033	0.000	0.011	0.023	0.043	0.353	6418
MB	0.494	0.400	0.000	0.247	0.404	0.627	2.799	6418
Firm age	3.597	0.675	0.000	3.219	3.829	4.159	4.290	6418
InstOwn%	0.798	0.140	0.000	0.731	0.823	0.899	1.000	6418
G-trends	50.857	12.389	29	41	50	57	100	6418
Red state	0.482	0.140	0.000	0.000	0.000	1.000	1.000	6418
CAR[-1;1]	-0.001	0.037	-0.106	-0.016	-0.001	0.013	0.032	3884

Table2. Dollar amounts of penalties by year

This table reports descriptive statistics of dollar amounts of penalties imposed on the firms in our sample of US listed firm in the period between 2012-2022. Panel A shows statistics of penalties imposed for environment related violations perpetrated by the firms where the penalty is greater than $5,000. Panel B shows statistics of penalties imposed for other type of violations perpetrated by firms in our sample that have also environmental penalties.

Panel A. Environmental penalties

Year	Mean	Min	p25	Median	p75	Max	Obs.
2012	2,762,065	5,000	16,000	49,986	233,625	265,000,000	780
2013	10,300,000	5,000	13,750	53,000	296,800	1,010,000,000	604
2014	1,376,474	5,000	15,268	50,000	327,130	53,000,000	501
2015	13,500,000	5,000	16,457	50,000	320,300	5,150,000,000	774
2016	2,536,675	5,000	16,718	67,200	189,394	337,000,000	595
2017	10,800,000	5,265	17,900	50,000	220,000	1,030,000,000	611
2018	3,479,726	5,000	15,928	47,105	370,900	164,000,000	347
2019	2,740,523	5,000	17,950	66,000	243,902	360,000,000	547
2020	3,252,989	5,040	16,315	64,440	350,000	213,000,000	684
2021	9,816,386	5,000	19,149	71,360	479,593	855,000,000	480
2022	3,824,564	5,500	22,944	84,547	610,000	128,000,000	139
Total	6,239,483	5,000	16,718	58,100	268,824	5,150,000,000	6,062

Panel B. Other penalties

Year	Mean	Min	p25	Median	p75	Max	Obs.
2012	10,500,000	5,000	18,500	59,853	1,057,934	388,000,000	498
2013	132,000,000	5,000	13,000	61,088	989,000	15,500,000,000	396
2014	29,300,000	5,000	17,500	52,904	771,511	1,640,000,000	364
2015	43,600,000	5,000	18,655	71,235	1,955,970	2,940,000,000	466
2016	14,800,000	5,000	26,894	96,250	1,436,692	785,000,000	416
2017	5,785,483	5,000	20,243	70,223	2,207,211	159,000,000	449
2018	17,900,000	5,000	20,470	69,467	590,000	615,000,000	245
2019	33,500,000	5,000	16,400	59,014	762,156	2,220,000,000	356
2020	87,900,000	5,000	13,653	49,000	1,240,999	15,500,000,000	396
2021	34,200,000	5,000	13,653	65,365	579,025	2,590,000,000	309
2022	107,000,000	5,000	18,783	59,325	777,757	5,490,000,000	93
Total	42,400,000	5,000	17,842	64,217	1,107,000	15,500,000,000	3,988

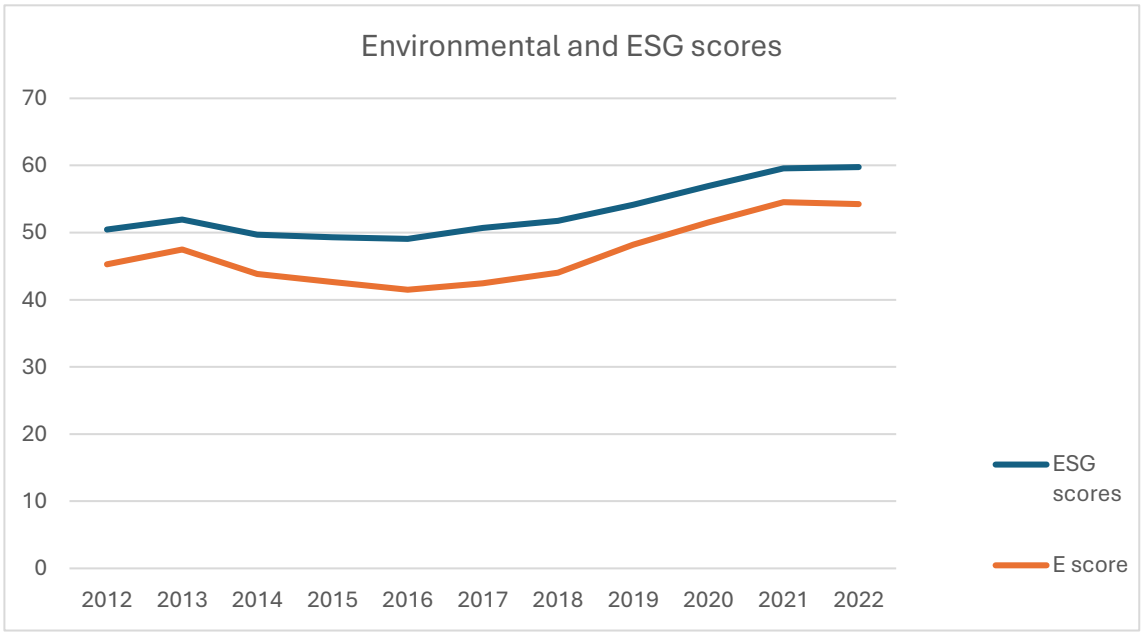


Figure 1: ESG and E score of firms in our sample of US firms that received one or more environmental penalties during the period 2012-2022.

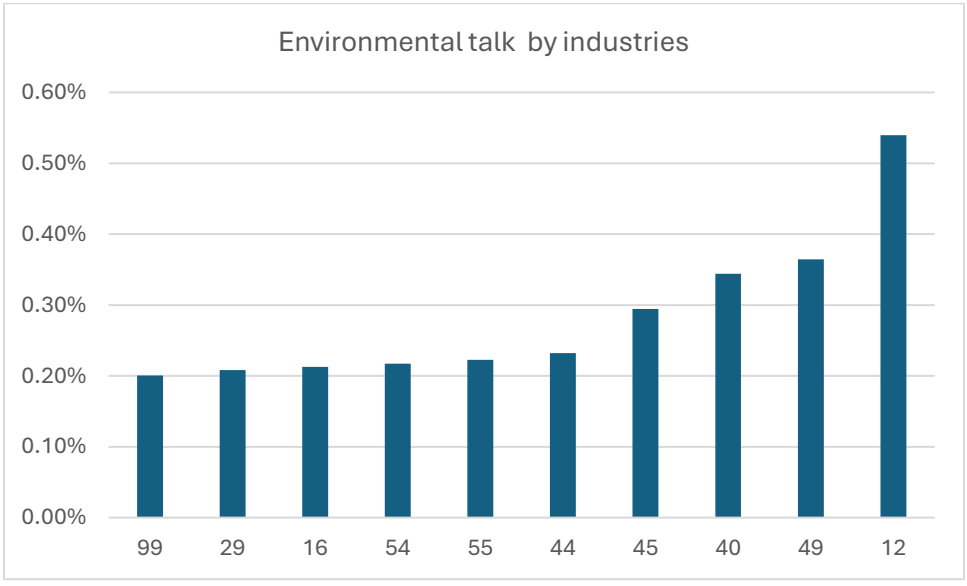


Figure 2: Distribution of the CEO environmental talk in conference calls by industry (SIC2) over the period 2012-2022 – top 10 industries with the highest mean environmental talk

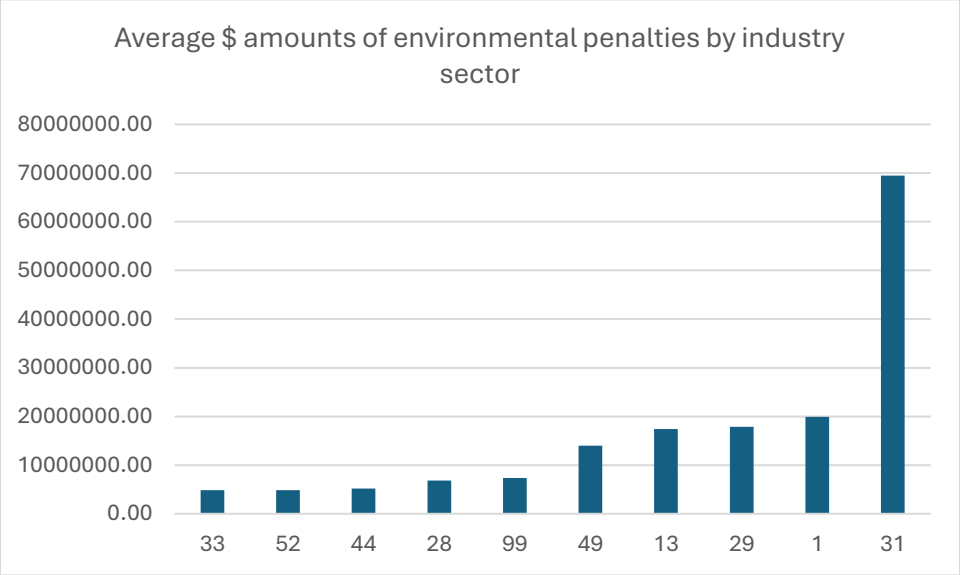


Figure 3: Distribution of the average dollar amount of environmental penalties by industry (SIC2) – top 10 industries with largest mean dollar amount of penalties.

Table 3. Stock market reaction to the announcement of an environmental violation.

This table reports the average cumulative abnormal return (CAR[-1;1]) for a three-days event window around the announcement of a penalty for environmental violations. The initial sample consists of 3,884 unique announcements of penalties for environmental violations of 5000 $ (column 1) and above (columns 2 to 5). *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Penalty Amount	**≥$5000**	**≥$20000**	**≥$30000**	**≥$50000**	**≥ $70000**
	(1)	(2)	(3)	(4)	(5)
CAR[-1;1]	-0.001	-0.001*	-0.002**	-0.002**	-0.002*
	(-1.32)	(-1.83)	(-2.50)	(-2.23)	(-1.91)
Obs.	3,884	2,364	1,958	1,509	1,280

Table 4. Cross-sectional analysis of CAR

This table reports the average CAR[-1;1] around the announcement of a penalty of 30000 $ and above for environmental violations for different subsamples. Panel A distinguishes between penalties received by parent companies located in a non-republican (*Blue_State*) versus a republican state (*Red_State*). Panel B distinguishes between penalties received by parent companies with a male CEO and those with a female CEO. Panel C distinguishes between penalties received by parent companies with an environmental score above 55 versus below 55. Panel D distinguishes between penalties received by parent companies that did not receive any environmental penalty in the year before versus those who did. Panel E distinguishes between penalties received before January 2020 and after. *, **, and *** denotes significance at the 10%, 5%, and 1% level, respectively.

Panel A. Gender of the CEO				
	Male CEO	*t-stat*	*Female CEO*	*t-stat*
CAR[-1;1]	-0.003***	-3.07	0.001	0.23
Obs.	1,761		92	
Panel B. Environmental score				
	E-score≥50	*t-stat*	*E-score<50*	*t-stat*
CAR[-1;1]	-0.002*	-1.76	-0.002	-1.36
Obs	922		621	
Panel C. Number of prior penalties				
	Prior Penalties≥9	*t-stat*	*Prior Penalties<9*	*t-stat*
CAR[-1;1]	-0.002**	-2.41	0.000	0.12
Obs	1,285		258	
Panel D. Covid period				
	Pre-COVID	*t-stat*	*COVID*	*t-stat*
CAR[-1;1]	-0.001	1.62	-0.004*	1.88
Obs	1,419		606	
Panel E. State color				
	Blue_State	*t-stat*	*Red_State*	*t-stat*
CAR[-1;1]	-0.003**	-3.03	-0.001	-0.81
Obs.	840		1,118	
Panel F. Google trends				
	G-trends≥50	*t-stat*	*G-trends<50*	*t-stat*
CAR[-1;1]	-0.002**	-2.06	-0.002	-1.24
Obs.	1,539		848	

Table 5. CEOs' *green talk* in the MD session

This table reports results from the regression model described by Eq. (1). Independent variables are defined in Appendix B. The t-statistics in parenthesis are computed using industry-clustered standard errors. *, **, and *** indicate significance at 10, 5, and 1% levels, respectively.

	GreenTalk$_{CEO}$	**GreenTalk$_{CEO}$**	**GreenTalk$_{CEO}$**	**GreenTalk$_{CEO}$**	**GreenTalk$_{CEO}$**	**GreenTalk$_{CEO}$**
	(1)	(2)	(3)	(4)	(5)	(6)
Violation$_{POST}$	-0.032**	-0.032**	-0.035***	-0.036***	-0.036***	-0.028***
	(-2.57)	(2.53)	(-2.83)	(-2.85)	(-2.81)	(-2.61)
Violation$_{PRE}$	-0.019	-0.025**	-0.030**	-0.029**	-0.029**	-0.018
	(-1.49)	(1.99)	(-2.25)	(-2.05)	(-2.04)	(-1.64)
ROA	-0.043	-0.019	0.150	0.109	0.105	-0.012
	(-0.17)	(0.08)	(0.69)	(0.50)	(0.48)	(-0.07)
Leverage	-0.155	-0.184*	-0.188**	-0.255***	-0.253***	-0.071
	(-1.64)	(1.88)	(-1.97)	(-2.75)	(-2.70)	(-0.80)
Size	0.010	0.005	-0.032**	-0.033*	-0.033*	-0.071***
	(0.89)	(0.51)	(-2.04)	(-1.92)	(-1.91)	(-2.96)
Cash	-0.105	-0.090	-0.203*	-0.266**	-0.265**	-0.142
	(-0.84)	(0.73)	(-1.95)	(-2.41)	(-2.40)	(-1.57)
Capex	-0.422*	-0.445*	-0.131	-0.323	-0.314	-0.104
	(-1.82)	(1.87)	(-0.45)	(-1.03)	(-1.00)	(-0.62)
MB	-0.037*	-0.035*	-0.023	-0.026	-0.027	-0.026
	(-1.78)	(1.69)	(-1.03)	(-1.07)	(-1.10)	(-1.26)
Firm age	-0.033*	-0.032*	-0.082***	-0.071***	-0.071***	-0.132
	(-1.83)	(1.78)	(-3.66)	(-3.90)	(-3.91)	(-1.56)
InstOwn%	-0.143	-0.151	-0.106	-0.083	-0.084	0.098
	(-1.54)	(1.57)	(-1.03)	(-0.79)	(-0.78)	(1.12)
FemCEO		0.110**	0.108**	0.122**	0.120**	
		(1.99)	(2.18)	(2.17)	(2.17)	
IRO		0.026	0.020	0.013	0.015	
		(1.64)	(1.13)	(0.76)	(0.88)	
Prior pen			0.001**	0.001*	0.001*	
			(2.01)	(1.78)	(1.76)	
E_score			0.002***	0.003***	0.003***	
			(2.86)	(3.11)	(3.04)	
Red_State				-0.027		
				(-1.44)		
G-trends					0.002**	
					(2.12)	
Constant	0.57***	0.609***	0.971***	0.976***	0.860***	1.391***
	(3.17)	(3.27)	(4.05)	(4.04)	(3.51)	(4.02)
Quarter*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	No
State FE	No	No	Yes	No	No	No
Firm FE	No	No	No	No	No	Yes
Obs.	8,387	7,969	6,414	6,414	6,414	8,368
Adj-R^2	0.37	0.38	0.43	0.41	0.41	0.54

Table 6: Financial analysts' *green talk* in the QA session

This table reports results from the regression model described by Eq. (2). Independent variables are defined in Appendix B. The t-statistics in parenthesis are computed using industry-clustered standard errors. *, **, and *** indicate significance at 10, 5, and 1% levels, respectively.

	GreenTalk$_{FA}$	**GreenTalk$_{FA}$**	**GreenTalk$_{FA}$**	**GreenTalk$_{FA}$**	**GreenTalk$_{FA}$**	**GreenTalk$_{FA}$**
	(1)	(2)	(3)	(4)	(5)	(6)
Violation$_{POST}$	0.008*	0.007	0.007	0.007	0.007	0.005
	(1.81)	(1.58)	(1.31)	(1.38)	(1.37)	(1.15)
Violation$_{PRE}$	0.010**	0.011**	0.011**	0.013**	0.012**	0.008**
	(2.42)	(2.51)	(2.12)	(2.44)	(2.43)	(2.03)
GreenTalk$_{CEO}$	0.174***	0.176***	0.161***	0.166***	0.166***	0.115***
	(13.12)	(12.45)	(11.41)	(11.58)	(11.53)	(10.48)
ROA	-0.135	-0.084	-0.099	-0.110	-0.112	-0.103
	(-1.57)	(1.10)	(1.08)	(-1.21)	(1.24)	(1.31)
Leverage	-0.087***	-0.086***	-0.116***	-0.101***	-0.102***	-0.056*
	(-3.32)	(3.22)	(3.44)	(-3.23)	(3.23)	(1.72)
Size	-0.003	-0.003	-0.010*	-0.009*	-0.009**	-0.010
	(-0.89)	(0.78)	(1.93)	(-1.92)	(2.00)	(1.37)
Cash	-0.049	-0.036	-0.047	-0.053	-0.054	-0.063*
	(-1.29)	(0.95)	(1.17)	(-1.34)	(1.36)	(1.82)
Capex	-0.105	-0.104	-0.111	-0.109	-0.107	-0.026
	(-1.21)	(1.18)	(0.96)	(-0.90)	(0.88)	(0.39)
MB	0.004	0.004	0.007	0.008	0.008	-0.001
	(0.52)	(0.53)	(0.95)	(0.98)	(0.97)	(0.11)
Firm age	-0.005	-0.006	-0.013	-0.015**	-0.015**	0.026
	(-0.87)	(1.00)	(1.58)	(-2.34)	(2.37)	(1.19)
InstOwn Perc	-0.029	-0.032	-0.031	-0.034	-0.035	0.028
	(-1.06)	(1.16)	(0.98)	(-0.94)	(0.95)	(0.86)
FemCEO		0.009	0.012	0.010	0.010	
		(0.57)	(0.63)	(0.61)	(0.63)	
IRO		0.003	0.003	0.002	0.002	
		(0.53)	(0.46)	(0.30)	(0.33)	
Prior pen			0.000	0.000	0.000	
			(1.37)	(1.49)	(1.47)	
E_score			0.000*	0.000**	0.000**	
			(1.81)	(2.16)	(2.26)	
Red_State				-0.006		
				(-0.87)		
G-trends					0.000	
					(0.50)	
Constant	0.196***	0.193***	0.284***	0.275***	0.266***	0.107
	(4.03)	(3.99)	(4.38)	(4.59)	(4.37)	(1.14)
Quarter*Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	No	No	No	No	No	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	No
State FE	No	No	Yes	No	No	No
Obs.	8,387	7,969	6,414	6,414	6,414	8,368
Adj-R^2	0.47	0.48	0.47	0.46	0.46	0.57

Table 7: Cross-Sectional Analysis of the CEO *green talk*

This table presents the results of the cross-sectional analysis of the CEO environmental talk using sub-samples. We divide our sample along the following dimensions: the median number of prior penalties, the median environmental score, the median Google trends, whether the state where the company is headquartered is blue or red, and whether the sanction was issued pre or post Covid. Independent variables are defined in Appendix B. The t-statistics in parenthesis are computed using industry-clustered standard errors. *, **, and *** indicate significance at 10, 5, and 1% levels, respectively.

Panel A

	Penalty amount		**Prior Penalties**		**Environmental Score**	
	Penalty≥90k	*Penalty<90k*	*Prior pen ≥9*	*Prior pen<9*	*E_score ≥50*	*E_score<50*
Dependent	**GreenTalk$_{CEO}$**		**GreenTalk$_{CEO}$**		**GreenTalk$_{CEO}$**	
variable	(1)	(2)	(3)	(4)	(5)	(6)
Violation$_{POST}$	-0.077***	-0.001	-0.032**	-0.011	-0.051***	-0.012
	(-3.63)	(-0.05)	(-2.19)	(-0.60)	(2.98)	(-1.02)
Violation$_{PRE}$	-0.029	-0.041***	-0.014	-0.026	-0.047**	-0.024
	(-1.22)	(-3.21)	(-0.87)	(-1.32)	(-2.48)	(-1.28)
Constant	1.144***	0.735***	-0.004	1.007***	1.325**	0.647***
	(3.57)	(3.08)	(-0.02)	(3.36)	(2.55)	(2.95)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year*qtr FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2,748	3,654	3,289	3,118	3,385	3,197
Adj-R^2	0.44	0.48	0.45	0.57	0.51	0.39

Panel B

	G-trends		**State Color**		**Covid**	
	G-trends ≥50	*G-trends<50*	*Blue State*	*Red State*	*Pre-Covid*	*Post-Covid*
Dependent	**GreenTalk$_{CEO}$**		**GreenTalk$_{CEO}$**		**GreenTalk$_{CEO}$**	
variable	(1)	(2)	(3)	(4)	(5)	(6)
Violation$_{POST}$	-0.026*	-0.033	-0.038**	-0.027	-0.072**	-0.029**
	(-1.78)	(-1.61)	(2.10)	(-1.59)	(-2.37)	(-2.36)
Violation$_{PRE}$	-0.012	-0.032	-0.035*	-0.018	-0.052*	-0.017
	(-0.81)	(-1.49)	(-1.86)	(-0.90)	(-1.66)	(-1.31)
Constant	1.061***	0.656***	0.8198	0.7955	1.5368	0.6667
	(4.35)	(2.80)	(2.91)***	(2.70)***	(3.86)***	(3.34)***
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year*qtr FE	Yes	Yes	Yes	Yes	No	No
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	No	No	Yes	Yes
Obs.	3,350	3,050	3,319	3,087	2,070	4,337
Adj-R^2	0.51	0.41	0.47	0.43	0.41	0.47

Continued on next page

Table 7. continued

Panel C

	CEO gender		**IRO**	
	Male CEO	*Female CEO*	*IRO*	*No IRO*
Dependent	**GreenTalk$_{FA}$**		**GreenTalk$_{FA}$**	
variable	(1)	(2)	(3)	(4)
Violation$_{POST}$	-0.036***	-0.044	-0.013	-0.042**
	(-2.95)	(-0.73)	(-0.86)	(-2.18)
Violation$_{PRE}$	-0.029**	-0.100*	-0.007	-0.028
	(-2.09)	(-1.78)	(-0.41)	(-1.53)
Constant	0.938***	2.231	0.832***	0.962***
	(4.06)	(1.04)	(4.06)	(2.81)
Controls	Yes	Yes	Yes	Yes
Year*qtr FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes
Obs.	5,999	410	2,946	3,448
Adj-R^2	0.41	0.72	0.53	0.45

Table 8: Cross-Sectional Analysis of the FA *green talk*

This table presents the results of the cross-sectional analysis of the FA environmental talk using sub-samples. We divide our sample along the following dimensions: the median number of prior penalties, the median environmental score, the median Google trends, whether the state where the company is headquartered is blue or red, and whether the sanction was issued pre or post Covid (from January 2020). Independent variables are defined in Appendix B. The t-statistics in parenthesis are computed using industry-clustered standard errors. *, **, and *** indicate significance at 10, 5, and 1% levels, respectively.

Panel A

	Penalty amount		**Prior Penalties**		**Environmental Score**	
	Penalty≥90k	*Penalty<90k*	*Prior pen ≥9*	*Prior pen<9*	*E_score ≥50*	*E_score<50*
Dependent	**GreenTalk$_{FA}$**		**GreenTalk$_{FA}$**		**GreenTalk$_{FA}$**	
variable	(1)	(2)	(3)	(4)	(5)	(6)
GreenTalk$_{CEO}$	0.158***	0.146***	0.131***	0.160***	0.128***	0.175***
	(9.16)	(6.97)	(8.31)	(8.85)	(8.61)	(9.13)
Violation$_{POST}$	0.010	0.003	0.004	0.012	0.007	0.001
	(1.10)	(0.57)	(0.78)	(1.17)	(0.91)	(0.18)
Violation$_{PRE}$	0.006*	0.011*	0.009	0.018**	0.013**	0.003
	(0.79)	(1.77)	(1.53)	(2.18)	(2.03)	(0.45)
Constant	0.230**	0.373***	0.137	0.242***	0.469***	0.158***
	(2.85)	(3.98)	(1.11)	(3.11)	(2.78)	(2.71)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year*qtr FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	2748	3,654	3,289	3,118	3,208	3,197
Adj-R^2	0.48	0.47	0.48	0.52	0.54	0.43

Panel B

	G-trends		**State Color**		**Covid**	
	G-trends ≥50	*G-trends<50*	*Blue State*	*Red State*	*Pre-Covid*	*Post-Covid*
Dependent	**GreenTalk$_{FA}$**		**GreenTalk$_{FA}$**		**GreenTalk$_{FA}$**	
variable	(1)	(2)	(3)	(4)	(5)	(6)
GreenTalk$_{CEO}$	0.182***	0.131***	0.150	0.149	0.132	0.176
	(9.91)	(7.49)	(9.39)	(8.24)	(7.10)	(9.57)
Violation$_{POST}$	0.006	0.011	0.002	0.009	0.019	-0.001
	(0.86)	(1.25)	(0.32)	(1.44)	(1.40)	(0.17)
Violation$_{PRE}$	0.10	0.013*	0.017**	0.009	0.030**	0.002
	(1.54)	(1.83)	(2.22)	(1.45)	(2.58)	(0.43)
Constant	0.293***	0.220***	0.258***	0.276***	0.403***	0.224***
	(4.82)	(2.93)	(4.11)	(2.87)	(3.31)	(3.60)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Year*qtr FE	Yes	Yes	Yes	Yes	No	No
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
State FE	No	No	No	No	Yes	Yes
Obs.	3,350	3,050	3,319	3,087	2,070	4,337
Adj-R^2	0.50	0.45	0.49	0.48	0.44	0.51

Continued on next page

Table 8. continued

Panel C

	CEO gender		**IRO**	
	Male CEO	*Female CEO*	*IRO*	*No IRO*
Dependent variable	**GreenTalk$_{FA}$**		**GreenTalk$_{FA}$**	
	(1)	(2)	(3)	(4)
GreenTalk$_{CEO}$	0.163***	0.068**	0.156***	0.143***
	(11.12)	(2.04)	(9.83)	(8.12)
Violation$_{POST}$	0.005	-0.027	0.004	0.005
	(1.16)	(0.89)	(0.51)	(0.79)
Violation$_{PRE}$	0.007	0.035	0.009	0.014**
	(1.40)	(1.23)	(1.19)	(2.16)
Constant	0.279***	-0.334	0.234***	0.374***
	(4.38)	(-0.45)	(3.63)	(2.92)
Controls	Yes	Yes	Yes	Yes
Year*qtr FE	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes
State FE	No	No	No	No
Obs.	5,999	410	2,946	3,448
Adj-R^2	0.48	0.50	0.51	0.47

Figure 1. Placebo Test: CEO Talk

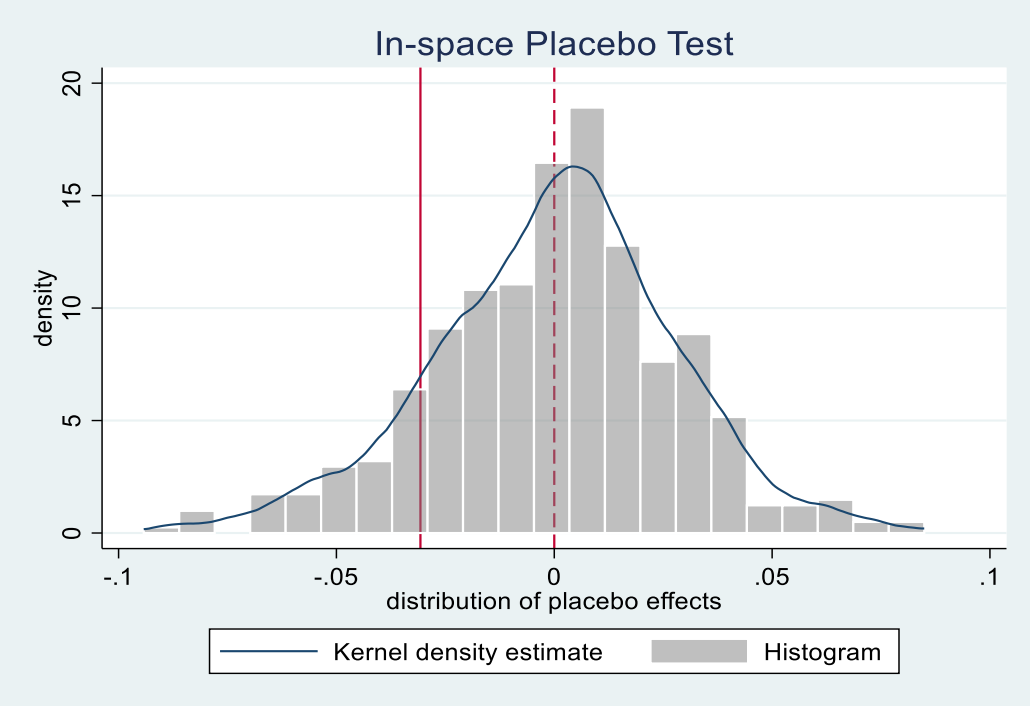
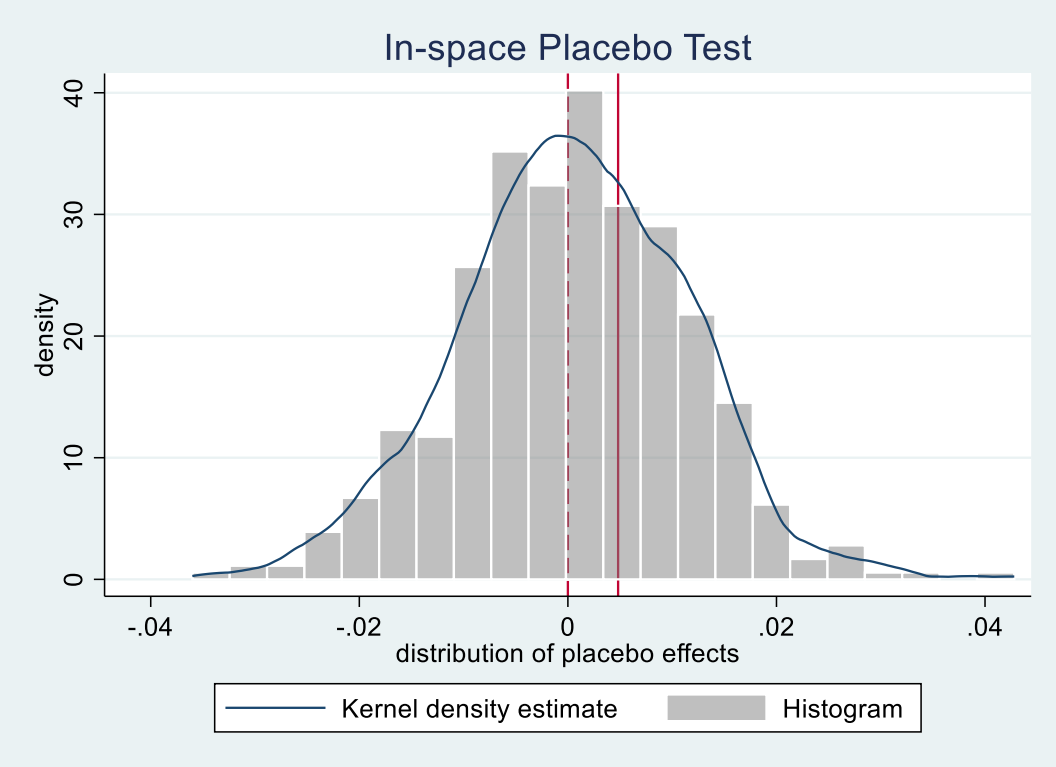


Figure 2: Placebo Test FA Talk



References

Altunbas, Yener, Gambacorta, Leonardo, Reghezza, Alessio, and Velliscig, Giulio "Does gender diversity in the workplace mitigate climate change?" Journal of Corporate Finance 77(2022): 102303.

Baier, Philipp, Marc Berninger, and Florian Kiesel. "Environmental, social and governance reporting in annual reports: A textual analysis." Financial Markets, Institutions & Instruments 29.3 (2020): 93-118.

Becchetti, L., Cucinelli, D., Ielasi, F. and Rossolini, M., 2023. Corporate social irresponsibility: The relationship between ESG misconduct and the cost of equity. *International Review of Financial Analysis*, *89*, p.102833.

Berkman, H., Jona, J., Lodge, J. and Shemesh, J., 2024. The Value Impact of Climate and Non-climate Environmental Shareholder Proposals. Forthcoming *Journal of Corporate Finance*.

Bernstein, A., Gustafson, M. T., & Lewis, R. (2019). Disaster on the horizon: The price effect of sea level rise. Journal of financial economics, 134(2), 253-272.

Billings, M.B., Cedergren, M.C. and Dube, S., 2021. Does litigation change managers' beliefs about the value of voluntarily disclosing bad news?. *Review of Accounting Studies*, *26*(4), pp.1456-1491.

Bolton, P. and Kacperczyk, M., 2021. Do investors care about carbon risk?. *Journal of financial economics*, *142*(2), pp.517-549.

Brockman, P., Li, X. and Price, S.M., 2015. Differences in conference call tones: Managers vs. analysts. *Financial Analysts Journal*, *71*(4), pp.24-42.

Brown, L. D., Call, A. C., Clement, M. B., & Sharp, N. Y., 2015. "Inside the "black box" of sell-side financial analysts." *Journal of Accounting Research* 53.1: 1-47.

Brown, L.D., Call, A.C., Clement, M.B. and Sharp, N.Y., 2019. Managing the narrative: Investor relations officers and corporate disclosure" *Journal of Accounting and Economics*, *67*(1), pp.58-79.

Chen, Jason V., Venky Nagar, and Jordan Schoenfeld. "Manager-analyst conversations in earnings conference calls." Review of Accounting Studies 23 (2018): 1315-1354.

Cucchi, Silvia; Cavazza, Nicoletta. More guilty if woman: The role of gender and causal attribution in political scandals' impact. *The Journal of Social Psychology*, 2021, 161.2: 173-181.

Derrien, François and Krueger, Philipp and Landier, Augustin and Yao, Tianhao, ESG News, Future Cash Flows, and Firm Value (October 14, 2022). *HEC Paris Research Paper No FIN-2021-1441*

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, 131(3), pp.693-714.

Dzielinski, M., Eugster, F., Sjöström, E., and Wagner, A. F. "Climate talk in corporate earnings calls". Mistra Center for Sustainable Market (2022).

Flammer, C., 2021. Corporate green bonds. *Journal of financial economics*, *142*(2), pp.499-516.

Flammer, C., 2013. Corporate social responsibility and shareholder reaction: The environmental awareness of investors. *Academy of Management journal*, *56*(3), pp.758-781.

Flammer, C., Toffel, M.W. and Viswanathan, K., 2021. Shareholder activism and firms' voluntary disclosure of climate change risks. *Strategic Management Journal*, *42*(10), pp.1850-1879.

Garel, A. and Petit-Romec, A., 2021. Investor rewards to environmental responsibility: Evidence from the COVID-19 crisis. *Journal of Corporate Finance*, *68*, p.101948.

Ginglinger, E. and Moreau, Q., 2023. Climate risk and capital structure. *Management Science*, *69*(12), pp.7492-7516.

Gow, Ian D., David F. Larcker, and Anastasia A. Zakolyukina. "Non-answers during conference calls." *Journal of Accounting Research* 59.4 (2021): 1349-1384.

Henry, Elaine. "Market reaction to verbal components of earnings press releases: Event study using a predictive algorithm." Journal of Emerging Technologies in Accounting 3.1 (2006): 1-19.

Hoepner, A.G., Oikonomou, I., Sautner, Z., Starks, L.T. and Zhou, X.Y., 2024. ESG shareholder engagement and downside risk. *Review of Finance*, *28*(2), pp.483-510.

Huang, Xuan, Siew Hong Teoh, and Yinglei Zhang. "Tone management." *The accounting review* 89.3 (2014): 1083-1113.

Ioannou, I. and Serafeim, G., 2015. The impact of corporate social responsibility on investment recommendations: Analysts' perceptions and shifting institutional logics. *Strategic management journal*, *36*(7), pp.1053-1081.

Liu, Chelsea “Are women greener? Corporate gender diversity and environmental violations.” Journal of Corporate Finance 52 (2018): 118-142.

Loughran, T., & McDonald, B. (2011). When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. The Journal of finance, 66(1), 35-65.

Mayew, William J., and Mohan Venkatachalam. "The power of voice: Managerial affective states and future firm performance." The Journal of Finance 67.1 (2012): 1-43.

Miller, D.L., 2023. An introductory guide to event study models. *Journal of Economic Perspectives*, *37*(2), pp.203-230.

Painter, M. (2020). An inconvenient cost: The effects of climate change on municipal bonds. Journal of Financial Economics, 135(2), 468-482.

Sautner, Z., Van Lent, L., Vilkov, G., & Zhang, R. (2023). Firm-level climate change exposure. The Journal of Finance, 78(3), 1449-1498.

Tetlock, Paul C., Maytal Saar-Tsechansky, and Sofus Macskassy. "More than words: Quantifying language to measure firms' fundamentals." The journal of finance 63.3 (2008): 1437-1467.

Twedt, Brady, and Lynn Rees. "Reading between the lines: An empirical examination of qualitative attributes of financial analysts' reports." Journal of Accounting and Public Policy 31.1 (2012): 1-21.

Appendix A

List of environmental related words

Agriculture; agro-biodiversity; air; algal biofuel; alternative energy(ies); aquaculture; atmosphere; biodegradable; bio-diversity; bioeconomy; bio-economy; biofiber(s); biofuel(s); bio-fuel(s); bio-mass(es); biomimetics; bio-product(s); biphenyls; bottled water; brownfield; cap and trade; carb certification(s); carbon; carbon-neutral; circular economy; clean; cleaner; cleantech; cleanup; climate; co2; co2-neutral; coal; coastal infrastructure; cogeneration; composting; conservation; contamination; cruelty-free; decarbonization; decarbonize; deforestation; desertification; dirty oil; eco citizen; eco design; eco ideas; eco markets; eco solutions; ecological; ecologically; ecology; economics of climate change; ecosystem; ecosystems; ecotourism; emission(s); emit; energy consumption; energy efficiency; energy efficient; energy management; energy policy; energy positive; energy savings; energy strategy; energy usage; environmental; environmentally; epa; esg; euro 7; footprint; forest management; forest resources; forest stewardship; forestry management; fossil; fresh water; freshwater; fuel(s); geothermal; ghgs; global warming; green bond(s);; green building; green buildings; green chemistry; green concrete; green consumer trends; green development; green economy; green electricity; green energy; green infrastructure; green innovation; green leap; green movement; green party; green product(s); green revenue; green road(s); green transformation; greenfield; greenhouse; groundwater; habitat; hazardous; householding; hybrid; hydraulic turbine(s); hydrocarbon(s); hydroelectric; hydropower; invasive species; iso 14000; iso 26000; land remediation; landfill; methane; natural capitalism; natural disaster(s); natural resource(s); natural risk(s); nextgen; nitrification; nitrogen; nitrous oxides; nuclear reprocessing; ocean(s); organic; ozone; paper usage; Paris agreement; Paris goal(s); pesticide(s); photovoltaic; planet; pollutant(s); pollute; polluted; pollutes; polluting; pollution; power management; rechargeable; reclaimed; recyclable; recycle; recycled; recycles; recycling; reduce packaging; reduced packaging; reducing packaging; regeneration; renewable(s); reusable(s); road vehicular conversion; road vehicular conversion(s); scope 3; solar; soy-based; spills; stewardship; substantially green; superfund; sustainability; sustainable business; sustainable cities; sustainable development; sustainable economic growth; sustainable economy; sustainable energy; sustainable fishing; sustainable forest management; sustainable management of water; sustainable packaging; sustainable product; sustainable products; sustainable resource(s); sustainable tourism; sustainable trade; sustainable transport; sustainable use of water; sustainably managed; toxic; toxicity; vegan; vegetarian; vegetable-based; warming; waste(s); wastewater treatment; water; weee; wetlands; wilderness; wildlife; wind; wltp; zoning.

Appendix B - Variable definitions

Green $Talk_{CEO}$	CEO environmental talk in the MD obtained as the number of environment related words spoken by the CEO scaled by the CEO talk in the MD.
Green $Talk_{FA}$	Analyst environmental talk in the QA obtained as the number of environment related words spoken by analysts scaled by financial analyst talk in the QA.
FemCEO	Indicator variable which takes a value of one if the firm's CEO is a woman, and zero otherwise.
IRO	A dummy equal to one if an Investor Relation Officer is present in the conference call and zero otherwise.
Prior pen	The total number of environmental penalties received by the firm from 2000 until the year before the conference call (Violation Tracker).
$Violation_{PRE}$	A dummy variable equal to one if the conference call takes place in the 90 days preceding the announcement of the environmental sanction, and zero otherwise.
$Violation_{POST}$	A dummy variable equal to one if the conference call takes place within 90 days from the announcement of the environmental sanction, and zero otherwise.
E_Score	Firm's environmental rating (LSEG, formerly Refinitiv)
Red_State	A dummy variable which takes value 1 if the company is headquartered in a Republican state based on the last Presidential Election (Britannica at www.britannica.com)
G-Trend	Google trend index for the web query "*environment +climate change + climate risk*" that takes value 0 to 100 (Google Trends)
MB	The logarithm of firm's quarterly market-to-book ratio (Compustat).
RetVol	The stock return volatility in the quarter (CRSP).
Leverage	The quarterly debt to asset ratio (Compustat).
ROA	The log of (1 + the) quarterly return on assets defined as the ratio of earnings before interests and taxes (EBIT) to total assets (Compustat).
Cash	Quarterly cash-to-assets ratio (Compustat).
Capex	Quarterly capital expenditures scaled by total assets (Compustat).
InstOwn%	The percentage of common stock held by institutional investors as reported on Form 13F filed with the SEC (Thomson Institutional 13f).
Size	The log of the firm total assets in the quarter (Compustat).

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Appendix C: SIC 2 Code list

SIC2	Description
1	Metal mining
12	Coal Mining
13	Oil & gas extraction
16	Heavy construction
28	Chemicals and allied products
29	Petroleum and coal products
31	Leather and leather products
33	Primary metal industries
40	Railroad transportation
44	Water transportation
45	Transportation by air
49	Electric gas & sanitary services
52	Building materials hardware
54	Food stores
55	Automotive dealers & service stations
99	Non-classified establishments

Appendix D: List of Environmental Agencies represented in our sample

Environmental Agencies	Average Sanction in our sample period	Total Number of Sanctions
Alabama Attorney General	3,025,000.00	1
Colorado Division of Reclamation	32,500.00	1
Contra Costa County (CA) Distric	3,429,383.00	1
Idaho Department of Environmenta	22,800.00	1
Los Angeles County (CA) District	4,000,000.00	1
Michigan Attorney General	69,500,000.00	1
Nevada Division of Environmental	7,175.00	1
New Hampshire Attorney General	298,100.00	1
New Mexico Department of Energy,	90,000.00	1
North Carolina Attorney General	855,000,000.00	1
San Francisco (CA) City Attorney	161,000,000.00	1
Santa Barbara County (CA) Distri	3,500,000.00	1
Santa Clara County (CA) District	85,000.00	1
Sonoma County (CA) District Atto	120,000.00	1
South Dakota Department of Envir	5,058.00	1
Texas Attorney General	-	1
U.S. Attorney-Central District o	25,000,000.00	1
U.S. Attorney-District of Massac	53,000,000.00	1
U.S. Attorney-District of Montan	30,000.00	1
U.S. Attorney-Eastern District o	1,335,374.00	1
U.S. Attorney-Northern District	3,000,000.00	1
U.S. Attorney-Western District o	1,700,000.00	1
U.S. Fish and Wildlife Service r	1,000,000.00	1
Vermont Natural Resources Board	5,639.00	1
Washington Attorney General	2,500,000.00	1
Arizona Department of Environmen	97,687.50	2
District of Columbia Attorney Ge	1,675,000.00	2
Environmental Protection Agency civil settlement	12,000,000.00	2
Franklin County (OH) Prosecuting	10,000.00	2
Hawaii Attorney General	15,400,000.00	2
Hawaii Environmental Management	15,998.00	2
Indiana Attorney General	300,000.00	2
Iowa Attorney General	1,000,000.00	2
Justice Department multiagency r	3,500,000.00	2
New Jersey Attorney General	127,000,000.00	2
Pennsylvania Attorney General	150,000.00	2
San Francisco (CA) City Attorney	40,000.00	2
U.S. Attorney-District of Kansas	1,000,000.00	2
U.S. Attorney-Middle District of	2,300,000.00	2
U.S. Coast Guard referral to the	4,900,000.00	2
Virginia Attorney General	184,500.00	2
Wisconsin Attorney General	65,000.00	2
Wisconsin Department of Natural	7,031.00	2
Delaware Attorney General	12,500,000.00	3
Justice Department Environment a	3,000,000.00	3
Maryland Attorney General	883,333.30	3
Olympic Region (WA) Clean Air Ag	18,861.33	3
San Diego (CA) City Attorney	24,700,000.00	3
U.S. Attorney-Eastern District o	27,300,000.00	3
U.S. Attorney-Southern District	17,900,000.00	3
CalRecycle	285,500.00	4
Massachusetts Attorney General	1,581,250.00	4
Missouri Attorney General	24,000,000.00	4
District of Columbia Department	35,200.00	5
Louisville (KY) Metro Air Pollut	38,550.00	5
New York Attorney General	3,236,000.00	5
U.S. Attorney-Eastern District o	3,160,000.00	5
Illinois Attorney General	144,287.50	6
Maine Department of Environmenta	48,229.17	6
Montana Department of Environmen	35,323.33	6
Spokane (WA) Regional Clean Air	16,500.00	6
Vermont Attorney General	226,111.30	6
Delaware Department of Natural R	94,933.14	7
Iowa Department of Natural Resou	41,349.14	7
Nebraska Department of Environme	34,071.43	7
New York Department of Environme	9,393.00	7
Rhode Island Department of Envir	37,464.29	7
Multistate Attorneys General Cas	3,250,000.00	8
New Hampshire Department of Envi	18,249.50	8
California State Water Resources	2,883,370.00	9
California Attorney General	11,900,000.00	10
Energy Department Office of Gene	45,148.00	10
Allegheny County (PA) Health Dep	15,800,000.00	13
Missouri Department of Natural R	30,731.46	13
Bay Area (CA) Air Quality Manage	555,553.60	14
Utah Department of Environmental	177,199.60	14
Connecticut Department of Energy	79,105.47	17
North Dakota Department of Healt	127,427.80	18
California Department of Toxic S	591,993.70	19
Michigan Department of Environme	49,378.37	19
Ohio Environmental Protection Ag	51,175.29	24
Massachusetts Executive Office o	17,877.28	25
Washington Department of Ecology	200,223.10	26
Maryland Department of the Envir	34,996.67	30
Colorado Oil & Gas Conservation	667,700.10	33
Wyoming Department of Environmen	18,005.47	34
New Mexico Environment Departmen	34,186.06	36
West Virginia Department of Envi	38,399.76	37
Georgia Environmental Protection	26,345.82	38
Arkansas Division of Environment	19,023.38	39
North Carolina Department of Env	986,957.50	40
Mississippi Department of Enviro	38,080.59	41
Railroad Commission of Texas	17,662.95	41
California Multi-Jurisdiction Ca	4,259,912.00	42
Illinois Environmental Protectio	60,962.19	42
Florida Department of Environmen	55,177.50	46
Kentucky Department for Environm	33,990.25	48
South Carolina Department of Hea	25,876.94	49
Bureau of Safety and Environment	89,359.20	50
Minnesota Pollution Control Agen	20,776.43	54
Tennessee Department of Environm	26,788.26	58
Oregon Department of Environment	26,267.73	59
Alabama Department of Environmen	23,889.68	63
Environmental Protection Agency referral to the justice department	33,400,000.00	63
California Department of Pestici	57,912.51	69
Pipeline and Hazardous Materials	125,642.60	84
Colorado Department of Public He	27,047.60	94
Louisiana Department of Environm	86,361.72	107
Virginia Department of Environme	38,369.02	113
California Air Resources Board	166,906.70	133
Indiana Department of Environmen	19,864.66	140
New Jersey Department of Environ	38,683.72	163
South Coast (CA) Air Quality Man	338,390.80	166
Pennsylvania Department of Envir	364,590.90	283
Texas Commission on Environmenta	43,306.20	389
Environmental Protection Agency	393,476.00	1,026