Do firms walk the climate talk?*

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Abstract

Managers increasingly discuss climate issues during earnings calls, but it is unclear whether such communication conveys information beyond firms' underlying climate fundamentals. Using a global sample of 4,921 firms from 2002–2024, we show that climate talk contains a sizable discretionary component—unexplained by standard firm characteristics—that predicts subsequent reductions in CO_2 emissions. The predictive power is strongest for unscripted remarks in the Q&A and for firms in sectors where near-term abatement is technologically feasible. In hard-to-abate industries such as energy and other high-materiality sectors, emission reductions materialize only over longer horizons, pointing to slower implementation rather than pure greenwashing. Stock prices react negatively to discretionary climate talk, especially when it appears in the prepared remarks of energy firms, consistent with investors interpreting such statements as announcements of costly or difficult transition steps. The reaction is also more pronounced in countries—such as the United States—characterized by high individualism and short-term orientation. Taken together, the results indicate that climate talk can signal meaningful managerial attention to the transition, but its credibility—and investors' interpretation—depend on technological feasibility and institutional context.

Keywords: Climate change, climate talk, earnings conference calls, energy, CO_2 emissions, greenwashing
JEL codes: D83, G14, G34, G41, Q54

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1 Introduction

This paper investigates climate talk – the extent to which managers refer to climate-related topics in corporate earnings calls. We ask whether firms whose managers talk more about climate change subsequently reduce their carbon emissions more. Understanding the credibility of climate talk is important because firms differ markedly in their ability to reduce emissions. In some industries, abatement can occur through relatively quick operational or procurement adjustments. In others, particularly energy-intensive or high–GHG-materiality sectors, reductions require capital-intensive process changes, infrastructure build-out, or technological substitution. Our empirical analysis therefore incorporates sectoral differences in decarbonization frictions to examine whether climate talk is more informative where rapid abatement is feasible or whether it conveys meaningful information even in hard-to-abate settings. We then study how investors respond to such climate talk. By linking managerial communication, real emissions outcomes, and market reactions, we test whether climate-related discussion in earnings calls contains credible information about firms' progress in the energy transition.

We aim to capture, in a manner comparable across industries, managerial talk that is broadly yet unambiguously related to climate change. This climate talk may not only concern a firm's exposure to transition or physical risks, or its climate-related opportunities, but may also reflect broader managerial attention to climate issues. To measure this climate talk, we compute the textual similarity between earnings call communication (by management and analysts) and a reference library of texts focused on climate change, specifically, the reports of the Intergovernmental Panel on Climate Change (IPCC). For each call transcript we create a vector of all bigrams, that is combinations of two consecutive words, and their term frequency-inverse document frequency ($tf - idf$) scores. We then calculate the cosine similarity between this vector and an analogous vector created from IPCC reports.

We analyze 118,743 transcripts of earnings calls in the period 2002 through 2022 for 4,921 firms worldwide, for which we could also obtain important control variables such as their other corporate social responsibility (CSR) activities. We study what climate talk in these transcripts predicts about subsequent CO_2 emissions extending through the end of 2024, the

last full year for which data are available.

Over the 20-year period, climate talk in earnings calls gradually increases until around 2010, declines somewhat during 2010-2018, and then increases sharply from 2019, before stabilizing towards the end of the sample period. Cross-sectionally, managers are more likely to discuss climate-related topics (1) if their firm operates in a sector where greenhouse gas (GHG) emissions are financially material, as indicated on the Materiality Map developed by the Sustainability Accounting Standards Board (SASB), or if the firm is more exposed to transition (regulatory) or physical risks or climate opportunities (as measured, for example, using textual analysis by Sautner et al. (2023)). They also do so (2) if the company has been targeted by the Climate Action 100+ initiative,[1] or (3) if the company has officially endorsed the Task Force on Climate-Related Financial Disclosures (TCFD) climate disclosure standards. Thus, as could be expected, a combination of climate exposure, shareholder pressure, and preparedness appears to motivate managers to address climate change in their earnings calls.[2]

Even after accounting for these factors, a large share of variation in managerial climate talk remains unexplained, especially in the more improvized section of the earnings call, the questions and answers section. This raises our main question: Does such discretionary climate talk translate into more climate action?

To address this, we focus on changes in CO_2 emissions, which are central to limiting global warming. We use only CO_2 emissions data disclosed by firms; that is, not data estimated

[1]Climate Action 100+ is an investor-led initiative seeking to influence the world's largest corporate greenhouse gas emitters to take appropriate action on climate change. As of 2023, it involved more than 700 institutional investors with over $68 trillion in assets under management across 30 markets. The focus list expanded from the original 100 to roughly 170 companies, making it one of the largest coordinated engagement efforts on climate transition issues. Our sample period covers corporate emissions until 2024 and conference calls until 2022 (because we examine up to three years after the call), and thus ends before the political backlash in parts of the United States that led some members to scale back or exit these alliances in 2024–2025. While the mandates of these initiatives have since been revised, they remain important reference points for institutional engagement on climate transition risks. Relatedly, Ceccarelli et al. (2025) show that shifts in the political environment can alter the weight investors place on financial versus climate considerations, with some investors increasing green allocations in response to perceived policy setbacks.

[2]These results align with evidence that the quarterly earnings call is one of the most important interfaces between firms, investors, and analysts (Brown et al., 2015). While some argue that the call's short-term focus makes it an imperfect venue for climate discussions, others stress that integrating sustainability topics into this setting is essential for credible communication (see Eccles and Serafeim (2013), Eckerle et al. (2020), Setterberg and Sjöström (2021))

by the data vendors, Asset 4 and Trucost.[3] Concerns about greenwashing would suggest little or no relation, or even a negative relation, between climate talk and future emission reductions, yet climate talk could also reflect genuine managerial focus that eventually leads to changes in corporate behavior.

We find that more climate talk in one year predicts a statistically significant decrease (or smaller increase) in total (i.e., Scope 1 and Scope 2 combined) CO_2 emissions in the following year. The effect is even stronger in the following three years, which is plausible as corporate action on emissions takes time. The estimates imply that an increase in climate talk by one standard deviation is associated with a 3.1 to 3.8 percentage points smaller change in CO_2 emissions in the following three years. Interestingly, only climate talk predicts future emission changes, whereas corporate climate exposure (Sautner et al., 2023) does not. As a placebo check, we confirm that climate talk does not predict changes in emissions estimated by vendors.

Mindful of the insight of Bolton and Kacperczyk (2025) that firm-level commitments to reducing CO_2 may not translate into meaningful reductions in aggregate emissions, we calculate the hypothetical emissions that would have occurred in the absence of any climate talk during earnings calls. We find that aggregate hypothetical emissions would be between 1.5% and 3.2% higher than those actually reported, suggesting that managers' and firms' attitudes, as signaled by climate talk, also make a difference on aggregate.

Next, we consider heterogeneity within conference calls. Specifically, within each call, we distinguish between climate talk in the prepared presentation, CT_{PRE}, and the improvised Q&A session, $CT_{Q\&A}$. Doing so reveals a striking horizon effect. While $CT_{Q\&A}$ is significant across the board, CT_{PRE} is only significant over the 3-year horizon. This suggests that CT_{PRE} covers long-term strategic adjustments, while $CT_{Q\&A}$ also signals immediate intent.

We proceed to examine whether the link between climate talk and subsequent emission reductions varies between non-energy and energy firms as well as between firms characterized by low versus high materiality of greenhouse gas emissions. These dimensions are particularly relevant for understanding firms' roles in the energy transition. We find that, while

[3]The variables the data vendors use to estimate emissions are presumably quite similar to our control variables.

the overall association between climate talk and subsequent emission reductions is negative across the board, its strength and timing differ. Among non-energy and low-materiality firms, emission reductions are visible already within one year, whereas in energy firms and high-materiality sectors, significant effects emerge mainly over longer horizons. This pattern suggests that abatement requires more time where it depends on capital-intensive process or technology changes, yet that climate talk still carries predictive content even in hard-to-abate sectors. Recent evidence reinforces this view: infrastructure tightness in electricity markets is itself priced by investors, highlighting how real capacity constraints shape transition feasibility and valuation.[4] Moreover, while both CT_{PRE} and $CT_{Q\&A}$ are significant among non-energy and low-materiality firms, only $CT_{Q\&A}$ retains predictive power among energy and high-materiality firms. This suggests that spontaneous engagement with climate issues in the Q&A section—rather than scripted statements—is a more reliable signal of genuine managerial attention and commitment, particularly among firms that matter most for aggregate CO_2 reductions.

We also examine how the credibility and informativeness of climate communication evolved as corporate disclosure practices matured, using the Paris Agreement of 2015 as a natural threshold. Before Paris, references to climate change in the prepared parts of earnings calls likely reflected firms' early and heterogeneous engagement with the issue. If, over time, such communication became more standardized, one would expect short-run predictive power to diminish. Consistent with this idea, we find that before Paris, climate talk in presentations predicted changes in CO_2 emissions within the following year, but this immediate effect weakened thereafter. However, when extending the horizon to three years, presentation talk continues to predict subsequent emission reductions, suggesting that post-Paris commitments and disclosures still convey meaningful information about long-term strategic adjustments, albeit with longer lags. In contrast, Q&A climate talk remains consistently informative both before and after Paris, reinforcing its interpretation as a signal of genuine managerial engagement rather than scripted disclosure.

Finally, cross-country differences show that the link between talk and action is strongest

[4]See Kacperczyk and Licher (2025) on the pricing of electricity-supply constraints in equity markets, and related work on production and allocation frictions in power systems (e.g. Borenstein et al., 2023; Hausman, 2025).

in long-term-oriented and low-individualism cultures, highlighting that institutional and cultural environments shape how firms translate words into action.

We next examine how markets interpret managerial climate talk at the time of earnings calls. Specifically, we analyze cumulative abnormal returns (CARs) over the two days that span each call, controlling for the earnings surprise and a wide range of firm characteristics and linguistic features of the call. On average, investors react negatively to climate talk, suggesting that such discussions raise concerns about costs, managerial priorities, or the credibility of commitments.

Sectoral differences help to clarify this pattern. The most negative reactions arise when Energy firms (Coal, Oil & Gas, and Utilities) include climate-related content in the prepared part of the call, consistent with investors interpreting such statements as announcements of costly or difficult transition steps. In the Q&A section, investors also price spontaneous climate talk negatively for Non-Energy firms, whereas for Energy firms the Q&A coefficients tend to be smaller and often imprecise. This suggests that unscripted climate discussion is penalized more when abatement is technologically feasible and thus more likely to entail near-term costs. When splitting by SASB GHG materiality, a clearer pattern emerges. Climate talk in the Q&A is associated with significantly negative announcement returns in low-materiality industries, whereas in high-materiality sectors neither prepared remarks nor Q&A talk generate statistically reliable reactions. One interpretation is that in settings where near-term abatement is operationally feasible, investors read climate discussion as a signal of potentially costly or distracting initiatives, whereas in structurally emission-intensive industries a given amount of climate talk conveys less immediate information about firms' transition paths.

Geography and culture matter as well. The most negative market reactions arise in the United States and in countries characterized by high individualism and short-term orientation—precisely the settings where our emissions results show that climate talk does not forecast subsequent CO_2 reductions. In these environments, investors appear to interpret climate discussion primarily as an agency concern rather than a credible signal of transition progress.

Our analysis contributes to two topical strands of research. First, we contribute to

the growing literature that uses earnings-call text to study climate risks and the energy transition. Prior work has largely used conference-call language to construct measures of firms' transition exposure, physical exposure, and climate-related opportunities (e.g. Sautner et al., 2023; Li et al., 2024; Deng et al., 2023b; Hu et al., 2025). These measures are designed to capture underlying climate fundamentals and have been shown to predict green investment and other risk-related outcomes (Sautner et al., 2023). In contrast, we focus on the communicative dimension of conference calls: we employ a similarity-based approach that captures managers' discretionary emphasis on climate topics—particularly in the unscripted Q&A—and show that this component contains information about firms' subsequent CO_2 emission paths. Although correlated with existing exposure measures, our climate-talk measure isolates variation not explained by fundamentals and therefore reflects differences in managerial attention and communication choices. This discretionary component, rather than exposure alone, proves central for predicting near- and medium-term emission trajectories and the announcement returns around earnings calls.

Second, we contribute to research on when climate communication reflects genuine action rather than greenwashing. Prior work, much of it in management and strategy, has documented limited links between environmental disclosure and subsequent behavior (e.g. Reid and Toffel, 2009; Delmas and Burbano, 2011; Christensen et al., 2013; Marquis et al., 2016; Wickert et al., 2016), and some financial-economics research similarly argues that disclosure may be used strategically without altering real activities (Hail et al., 2021). Other studies find more encouraging connections—for example, between environmental communication and abatement efforts or innovative activity (Chava et al., 2021). We add to this literature by showing that climate talk itself—above and beyond climate exposure—predicts subsequent reductions in actual CO_2 emissions, with the strongest associations arising from spontaneous discussions in the Q&A. Moreover, heterogeneity across sectors and cultural environments allows us to identify settings where climate talk is more likely to be credible, and we show that investors incorporate these distinctions into announcement returns.[5]

[5]A related literature studies the credibility of climate commitments by investors themselves, documenting both instances of symbolic ESG claims (e.g. Couvert, 2022; Gibson Brandon et al., 2022; Kim and Yoon, 2023; Raghunandan and Rajgopal, 2022; Giannetti et al., 2025) and evidence that some climate initiatives induce genuine engagement and capital reallocation (e.g. Cohen et al., 2023).

2 Data

We compile a global panel of publicly listed firms, combining financial, environmental, and textual data. The sample covers more than 11,000 unique firms across 65 countries. The central communication data come from quarterly earnings-call transcripts obtained from Refinitiv Street Events for the period 2002 to 2022. We start with a sample of around 400,000 earnings calls. We merge these data with CO_2 emissions and other ESG data from LSEG ESG (formerly Asset4), as well as Trucost, both spanning the period 2003 to 2024, since we want to examine subsequent changes in CO_2 emissions even for the most recent earnings calls in our sample. Finally, we merge accounting and market data from Eikon. All the accounting data are converted into US dollars. We obtain data about which companies support TCFD and which companies are targeted by Climate Action 100+ directly from these initiatives. The materiality matrix is from the SASB's website. By requiring the availability of control variables, we end up with 4,921 unique firms and 118,743 firm-quarters that could be used in the analysis of the determinants of climate talk.

To organize firms into economically meaningful groups for our later analyses, we follow the Sustainable Industry Classification System (SICS) developed by SASB. The SICS framework consists of eleven sectors, 37 subsectors and and 77 industries, see Table A2 in the Internet Appendix. Throughout the paper, we use the *subsector* level for industry fixed effects. For analyses focusing on climate and energy transition exposure, we classify firms as "Energy" if they belong to the *Coal*, *Oil & Gas*, or *Utilities* subsectors. These subsectors represent fossil-energy extraction, conversion, and distribution activities that are central to the decarbonization challenge. We retain Utilities in this grouping because they are among the largest corporate emitters and play a direct role in the energy transition through their generation mix and infrastructure investments.[6] All remaining firms are labeled Non-Energy.

Among Non-Energy firms, We further distinguish between those belonging to industries in which greenhouse gas (GHG) emissions are classified as financially material and those where they are not, using the SASB Materiality Map. High-materiality industries are those for which SASB identifies GHG emissions as a material factor for firm performance, while

[6]Results are similar when excluding Utilities from the Energy group.

all others are classified as low-materiality. This classification captures the extent to which climate and energy issues are financially relevant in a sector.

These two classifications—Energy versus Non-Energy and high versus low GHG materiality—form the core dimensions in our analysis of cross-sectional differences in both emission outcomes and market reactions to climate talk.

In the sample, there are on average 20 quarterly earnings calls per company. Our sample does not exclude any particular industry and contains the full range of listed firms. The sample consists of firms headquartered in 65 countries worldwide. Not surprisingly, the United States contributes most firms to the sample, around 63% of all firms, followed by Canada, Germany, and Japan. The sample is more populated in the most recent years of the sample period. For example, 2019 contains roughly 14% of all the firm-quarters, whereas 2002 contains just 0.6%. This is due to the growing availability of ESG and conference call transcript data over time.

Our main interest is whether there is a reduction in CO_2 emissions in the period following the earnings calls. We use data from LSEG ESG and from Trucost. In our main analysis, we only use carbon emissions data that are not marked as "estimated" by the respective data vendor. Because carbon emissions are updated annually, we average the quarterly measures of the quarterly earnings calls by calendar year. We have 29,027 firm-year observations with available CO_2 data from LSEG ESG. The Trucost sample is somewhat smaller. Our main focus is on total CO_2 emissions, defined as the sum of Scope 1 and Scope 2 emissions. For the main analysis, we do not include Scope 3 in the total because data quality is arguably quite poor. It is also important to keep in mind that Scope 3 data typically entails double or multiple counting across firms. However, we consider Scope 1, Scope 2, and Scope 3 CO_2 emissions separately in the Internet Appendix.

3 Climate Talk

3.1 Measuring climate talk in earnings calls

We capture the extent to which companies discuss climate change in their earnings calls by measuring the textual similarity between the transcripts of such calls and a reference library of documents that we can be reasonably sure are devoted to climate change.[7] Specifically, we use assessment reports published by the IPCC as our reference library.

To operationalize textual similarity, we first remove common stopwords, such as "the", "and", and "or", from the transcripts. Then, for each transcript we construct a list of all bigrams that occur in the remaining text[8] and calculate their term frequency-inverse document frequency ($tf - idf$) scores. Term frequency is the number of times a bigram occurs in a given transcript. Document frequency, by contrast, is the number of documents (transcripts) in which a bigram occurs. Thus, the $tf - idf$ score of bigram b in transcript t is given by:

$$tf - idf_{b,t,T} = f_{b,t} \cdot log \frac{T}{\#\{b \in t\}}$$

where $f_{b,t}$ is the frequency of bigram b in transcript t, T is the number of all transcripts in our dataset and $\#\{b \in t\}$ is the number of transcripts containing bigram b. Intuitively, bigrams receive a high $tf - idf$ score if they occur frequently in a given transcript but not across very many transcripts. Controlling for document frequency ensures that bigrams common to earnings calls, such as "this quarter", do not dominate the ranking.

Similarly, we construct a list of all bigrams (excluding stopwords) and their term frequencies in the IPCC reports, having merged all reports into a single document. In order to arrive at $tf - idf$ scores, we multiply term frequencies with inverse document frequencies obtained for the same bigrams from the earnings call transcripts.[9] The table below lists the top 10 most frequently occurring bigrams from the IPCC reports, together with their $tf - ids$

[7] Engle et al. (2020) use a similar approach to capture climate news in Wall Street Journal articles.

[8] Studies in computational linguistics, such as Bekkerman and Allan (2004) argue that using n-grams (usually bigrams) of words as opposed to single words (unigrams) improves the results of text classification.

[9] Applying *idf* weights from transcripts to IPCC bigram frequencies may seem arbitrary. However, if we calculated *idf* in the IPCC reports, we would down weight the most informative climate change bigrams and unduly distort our measurement of textual similarity.

scores (raw and normalized). Reasonably, topping the list is the bigram "climate change" itself, followed by "greenhouse gas" (or "gases") and "sea level." Illustrating the usefulness of adjusting for inverse document frequency, the bigram "climate system" receives almost double the $tf - idf$ weight of similarly frequent bigrams "high confidence" and "working group", which are more likely to appear across many earnings calls (and thus more likely in other contexts than climate change).

bigram	tf	idf	tf-idf	tf-idf (normalized)
climate change	3,124	5.79	18074.12	0.69
greenhouse gas	596	6.13	3651.73	0.14
greenhouse gases	576	7.53	4337.93	0.17
sea level	496	7.99	3961.89	0.15
assessment report	453	8.86	4013.30	0.15
developing countries	447	6.02	2690.74	0.10
high confidence	345	5.82	2008.48	0.08
carbon dioxide	323	6.80	2195.43	0.08
climate system	322	11.80	3800.83	0.15
working group	307	6.48	1990.89	0.08
gas emissions	264	6.51	1717.45	0.07

Finally, we calculate climate talk (CT) in a given transcript as the cosine similarity between the $tf - idf$ vector of that transcript and the $tf - idf$ vector obtained from the IPCC reports. Cosine similarity captures the degree to which two vectors "point in the same directions" in high-dimensional space and is frequently used in computational linguistics to measure textual similarity. In our case, it captures the extent to which the same bigrams appear in the same proportions in the transcripts and in the IPCC reports. In cases of perfect overlap, the similarity is equal to 1 while if there is no overlap at all, it is 0. To the extent that the IPCC reports represent the canonical way to discuss climate change, the cosine similarity allows us to gauge the extent to which firms raise this topic in their earnings calls.[10]

We calculate several variants of climate talk: CT_{CALL}, based on the entire earnings call transcript, CT_{PRE}, based only on the presentation part, $CT_{Q\&A}$, based on the question and

[10]There is no natural interpretation of the absolute level of cosine similarity. We therefore make no claims as to whether the amount of climate talk in earnings calls is high or low in general. Instead, we focus on its variation over time, across firms and between parts of the call itself.

answer (Q&A) session between managers and analysts participating in the call as well as CT_{QUE}, based only on analyst questions, and CT_{ANS}, based only on manager answers.

3.2 Summary statistics

The overall summary statistics are tabulated in Table 1. For the average firm, CO_2 emissions have increased year-on-year, but for the median firm they have actually fallen. The same pattern is observed for individual emission scopes. Regarding climate talk, CT_{PRE} is higher than $CT_{Q\&A}$ on average. The standard deviation of CT is between 60% and 80% of the mean, depending on the variant, indicating substantial variation in climate talk.

Figure 1 shows that while the level of climate-related talk in quarterly earnings calls has been fairly constant for the past 20 years, there was a marked increase in 2019, and the level has remained high (though volatile) since then.[11] While we might have expected a notable increase after 2015, the year in which both the Paris Agreement and the Sustainable Development Goals were adopted, and when initiatives such as Science-Based Targets and the TCFD were launched, there was apparently a lag in these developments being reflected in how managers speak on earnings calls. We also observe that the presentation part in the earnings call contains a greater amount of climate-related talk compared to the Q&A session.

[Insert Table 1 and Figure 1 about here]

Finally, firms in the following SICS sectors have the highest average levels of CT: (1) Renewable Resources & Alternative Energy, (2) Resource Transformation, (3) Extractives & Minerals Processing (which include the oil and gas industry), and (4) Infrastructure (which include utilities). These are all sectors in which one would intuitively expect firms to talk extensively about climate-related issues, given the nature of their operations. However, we find substantial heterogeneity within each sector, meaning that there are large cross-sectional differences even among similar firms in terms of climate talk. This is illustrated in Figure 2.

[11] This evidence is overall consistent with Henry et al. (2021), who show that environmental disclosure in quarterly earnings calls has increased over the past 15 years.

To complement the sector-level perspective, Panel B reports average climate talk by (i) Energy versus Non-Energy firms and (ii) high- versus low-GHG-materiality industries. Consistent with the patterns in Panel A, managers of Energy and high-materiality firms use more climate-related language. Separate analysis indicates that this difference is largely driven by the prepared, presentation segment of the call.

[Insert Figure 2 about here]

3.3 Determinants of climate talk

This section investigates the determinants of climate talk. We hypothesize that three types of forces drive managers to talk more about climate topics during earnings calls: (1) the firm's exposure to climate change; (2) a firm's preparedness, in the sense of having the internal tools to measure and report climate-related issues; and (3) external pressure from market participants, e.g. impact investors. We propose several proxies for each of these forces and subsequently regress climate talk on those proxies. This exercise serves three purposes. First, to the extent that managers of firms subject to these forces could be reasonably expected to talk more about climate change, it is a useful validity check for our climate talk measure. Second, it is interesting to compare the importance of different drivers of climate talk. Third, we can check the extent to which climate talk is predictable; only if a sufficiently large fraction of climate talk remains unexplained is it reasonable to expect this extra climate talk to contain substantial information regarding the firm's future emissions.

In terms of exposure to climate change, our first proxy relates to the firm's business model and the industry in which the firm operates. *Materiality* is a way to denote which of the broad set of sustainability issues is deemed key to a particular company's long-term success by corporate stakeholders and corporate management (Eccles et al., 2012). Many companies now carry out materiality assessments to identify and prioritize such issues. To aid this work, the independent Sustainability Accounting Standards Board (SASB) provides guidance on the disclosure of financially material sustainability issues for 77 industries. It ranks environmental issues on two types of evidence: (1) that investors in a particular industry are interested in the issue; and (2) that these issues can have an impact on firms in that

industry. We focus on the climate-related aspect of this measure: greenhouse gas (GHG) emissions. The variable $MATERIALITY$ is equal to one if the SASB considers GHG emissions material for firms in a given industry, which is the case for more than a quarter (27%) of our sample. Furthermore, we use firm-specific measures of corporate climate exposure based on textual analysis of conference calls. Sautner et al. (2023) use machine learning algorithms to reveal a set of bigrams relevant to climate change topics based on an initial bigram set. They then construct climate change exposure measures based on the number of occurrences of the specified bigrams on earnings conference calls. Specifically, they generate four different topic bigrams (climate change, climate change opportunity, climate change regulatory, and physical climate change) and three measures for each bigram (exposure, sentiment, and risk).[12] We use their opportunity, regulatory exposure, and physical exposure scores (*CCOPP*, *CCREG*, and *CCPHY*, respectively, where "CC" stands for conference call).[13]

To capture management's preparedness to talk about climate-related issues, the general idea is that managers of companies that are already collecting and disclosing financially relevant climate information in other contexts might be better prepared to also address the issue in the quarterly earnings call. Specifically, we define the indicator variable *TCFD* as one if the company publicly supports the Task Force on Climate-Related Financial Disclosures (TCFD) framework and zero if the firm has not publicly endorsed it. TCFD was launched by the Financial Stability Board in 2015 to encourage companies to supply the financial markets with reliable and relevant climate-related information. As of the end of 2021, 2,800 organizations in 89 jurisdictions were listed as "supporters" of the TCFD, and thus expected to use the framework. We obtain a list of supporters directly from TCFD and match it with our sample. In addition, we consider a number of proxies obtained from LSEG ESG, which capture the

[12]Examples of initial bigrams for regulatory (transition) exposure are: carbon price, carbon tax, emission trade, greenhouse gas, EPA regulation, energy regulatory, etc. Examples for physical exposure are: coastal area, natural hazard, global warm, heavy snow, sea level. Examples for opportunity are: renewable energy, solar energy, clean energy, wind power, electric vehicle.

[13]Deng et al. (2023b) employ a BERT-model to extract these climate exposure measures from conference calls. Their data, while global, are currently only available for one year, so we can only briefly use them in a correlational analysis below. Hu et al. (2025) implement a topics analysis, but their data are not publicly available at the time of writing. **?** compute climate exposure measures using a dictionary approach from earnings conference calls, but their data are currently only available for US firms.

extent to which sustainability in general and emissions, in particular, are incorporated into a company's policies and disclosure. $POLICY_EMISSIONS$, $TARGETS_EMISSIONS$, and $TARGET_YEAR$ are dummy variables that indicate whether the firm has a policy to reduce emissions, has set an emissions reduction target, and has set a year by which to achieve that target, respectively. Furthermore, the dummy variables $CSR_REPORTING$ and $CSR_COMMITTEE$ indicate whether the firm publishes a CSR report or a section in its annual report devoted to CSR, and whether it has established a board level or senior management committee responsible for decision making on CSR strategy, respectively.

Finally, to capture external pressure, we first check whether the firm is being targeted by its shareholders (typically the large institutional investors) to improve environmental performance. Institutional investors increasingly view climate risks as financially material for their portfolio firms (Krueger et al., 2020), making shareholder pressure a natural driver of managerial communication on these topics. One such important initiative is the Climate Action 100+ initiative, which is currently made up of 700 global investors collectively responsible for more than $68 trillion in assets under management across 33 markets. The initiative targets the largest corporate GHG emitters to ensure they take necessary action on climate change. We obtain the list of targeted firms directly from the initiative and merge it with our sample. The original list, published in 2017, contains 100 firms. A further 61 companies were added to the list in June 2018. The variable $CLIMATE_100$ is equal to one after the company has become a target for Climate Action 100+. In addition, we consider the dummy variables CSR_AUDIT and $CSR_INCENTIVES$ obtained from LSEG ESG, which indicate whether the firm's CSR report (if one is published) is subject to an external audit and whether senior executives' compensation is linked to CSR targets, respectively.

In addition to the above-mentioned drivers of exposure, preparedness, and pressure, we also include a range of standard control variables: (1) earnings surprise ($EARN_SURP$), (2) company size (ln_SIZE), (3) book-to-market (ln_BM), (4) profitability (ROA), (5) leverage ($LEVERAGE$), (6) intensity of property, plants and equipment $SCALED_PPE$, and (7) investments by the firms ($SCALED_CAPEX$). We also include year fixed effects. Given that $MATERIALITY$ is an industry-wide measure, this precludes the use of industry fixed effects in this part of the analysis.

We then estimate the following regression model:

$$CT_{i,t} = \beta_1 EXPOSURE_{i,t} + \beta_2 PREPAREDNESS_{i,t} + \beta_3 PRESSURE_{i,t} + \beta_j FirmChars^{j}_{i,t} + Year_t + \epsilon_{i,t} \quad (1)$$

Table 2 shows the results. Focusing on Column (1) of Table 2, it is notable that all four proxies of exposure to climate change are associated with significantly higher climate talk over the entire call, CT_{CALL}. The strongest relation exists with regulatory climate exposure, consistent with managers being most likely to discuss climate topics when regulatory or transition risks are salient. This is followed by opportunities from renewable energies, and a relatively weaker relation with physical exposure.[14]

Preparedness also matters. Firms that have adopted the TCFD framework, set emissions targets, or publish stand-alone CSR reports exhibit meaningfully more climate talk, particularly in the prepared remarks. These variables likely capture internal capability and familiarity with reporting climate-related information. By contrast, the existence of a CSR committee is not associated with additional climate talk.

In results available on request, we also note a positive association between climate talk and a firm's renewable-energy use (as provided by LSEG). Since this variable is measured in levels rather than changes, it is unlikely to explain subsequent emissions reductions directly. Instead, the relation is most naturally interpreted as another dimension of preparedness: firms that already operate with a cleaner energy mix may have greater internal familiarity with climate-related metrics and may thus be more willing or able to discuss these topics on the call. In this sense, renewable-energy use correlates with climate talk for reasons similar to the TCFD and emissions-target variables. It reflects firms that are already further along in their climate-discussion capabilities.

Finally, external pressure plays a distinct role. Both targeting by Climate Action 100+ and the presence of CSR-linked executive incentives are positively associated with climate talk.

[14]Table A3 shows that this pattern also holds when using climate exposure measures based on a BERT-analysis of earnings calls as provided by Deng et al. (2023b).

[Insert Table 2 about here]

Delving into climate talk in presentations, CT_{PRE}, and in the interactive part, $CT_{Q\&A}$, separately, reveals interesting differences - see Columns (2) and (3) of Table 2, respectively. Comparing the magnitude of the coefficients, most of the variables are more strongly associated with CT_{PRE} than $CT_{Q\&A}$. In particular, following the TCFD guidelines is associated with higher CT_{PRE}, which seems natural - increasing climate-related disclosure is the stated aim of these guidelines - but not with $CT_{Q\&A}$. The notable exceptions are $CLIMATECOMP100$, $CSR_REPORTING$ and CSR_AUDIT (the latter variable being significant only for $CT_{Q\&A}$). It seems intuitive that the existence of a CSR report or section, especially if it is audited and thus arguably of higher quality, facilitates discussion on topics like climate change, which are likely to be covered there. Pressure from impact investors, such as Climate 100+ Group, could also incentivize analysts to ask climate-related questions.

Finally, the coefficients on the control variables are plausible. They suggest, for example, that managers of larger companies and those with higher market-to-book ratios engage in more climate talk.

Taken together, these results suggest that a combination of external and internal factors drives managers' propensity to talk about climate change in earnings calls and that external factors, such as investor pressure, seem to be relatively more important for climate talk in the Q&A part. Among the factors that shareholders and other stakeholders could potentially influence, CSR incentives for management as well as setting specific emissions reduction targets appear most significant. We also note, however, that the R^2 of the regressions in Table 2 indicate that around 70% of climate talk overall, and almost 90% of climate talk in answers remains unexplained by these observables. This substantial unexplained component is consistent with the view that markets may still underappreciate the financial relevance of climate risks (Stroebel and Wurgler, 2021), leaving room for discretionary managerial communication to convey information beyond observable fundamentals. Overall, the findings suggest that climate talk may be informative about future emissions over and above these control variables, and also suggests that investors may react to climate talk. We turn to these analyses next.

4 Does climate talk predict lower CO_2 emissions?

Our main interest in this study is in whether climate talk is related to climate action, specifically subsequent CO_2 emissions. The null hypothesis is that there is no association,which is the expected outcome if climate talk is cheap. Arguably, however, the special standing of earnings calls in the communication between companies and markets could motivate managers only to discuss the topics on which they intend to deliver. If climate talk in earnings calls signals a more serious approach to the topic, we would expect that firms with more climate talk in earnings calls reduce CO_2 emissions by more (or increase them by less) than companies with less climate talk.[15] Finally, if climate talk on earnings calls is greenwashing, it may actually allow companies to get away with substandard climate actions, leading to the opposite prediction. Note that we are not postulating a causal effect of climate talk on CO_2 emissions, even though previous studies have shown that talk can trigger action. Our more modest objective is to determine whether such talk is cheap in earnings calls, or whether it is informative about future corporate emissions.

To conduct this empirical test, since data on corporate CO_2 emissions are only available annually, we average the measure of climate talk across the four earnings calls in each calendar year. As the dependent variable, we calculate the percentage change in CO_2 emissions in year $t+1$ reported by company i:

$$\Delta CO2_{i,t+1} = \frac{CO2_i, t+1 - CO2_i, t}{CO2_i, t} \cdot 100\%$$

We compute an analogous change comparing emissions in year $t+3$ with current-year emissions. In our main analysis, we combine Scope 1 and Scope 2 emissions into total CO_2 emissions. In additional analyses, we also consider Scope 3 emissions, although these tend to be much more noisy. We trim all change in CO_2 variables at the 1st and 99th percentiles.

[15] According to Christensen et al. (2013, 2021), aspirational talk about CSR can stimulate CSR improvements and social change. Drawing on 12 years of experience in the CDP (formerly known as the Carbon Disclosure Project), Topping (2012) presents anecdotal evidence that climate disclosure drives behavioral change, albeit without supplying proof of decreased CO_2 emissions.

4.1 Main findings

We begin by illustrating the empirical link between $\Delta \mathrm{CO}_2$ and overall call-level climate talk using a binned scatter plot, shown in Figure 3. To obtain a basic feeling for the relation, we plot the raw data, without controlling for any additional factors. Although firms on average increase their emissions over time—reflecting ongoing growth in economic activity—the slopes for both one-year and three-year changes of CO_2 are uniformly negative. There do not appear to be any outliers driving the relation. Firms with higher climate talk subsequently exhibit smaller increases in emissions, or reductions when these occur. Thus, even before conditioning on covariates, greater climate talk is associated with slower emissions growth (or larger declines where they exist).

[Insert Figure 3 about here]

To verify that the apparent negative link is not due to some of the determinants of CT discussed before, and to unpack the relationship further, we regress $\Delta CO2_{i,t+1}$ on (average) climate talk (CT) in year t and the same set of variables as shown in Table 2, which reflect the company's climate exposure, its sustainability profile and standard firm characteristics, all of which could affect future emissions. However, we drop $MATERIALITY$, because it is defined at the industry level and we include industry fixed effects. The resulting model is:

$$\begin{aligned}\Delta CO2_{i,t+1} = {} & \beta_1 CT_CALL/PRE/Q\&A_{i,t} \\ & + \beta_2 TCFD_{i,t} + \beta_3 CLIMATECOMP100_{i,t} \\ & + \beta_4 CCOPP_{i,t} + \beta_5 CCREG_{i,t} + \beta_6 CCPHY_{i,t} \\ & + \beta_j FirmChars^j_{i,t} + \beta_k CSR^k_{i,t} + Industry_i + Year_t + \epsilon_{i,t}\end{aligned} \tag{2}$$

The matrix $FirmChars^j$ comprises the following variables: ln_SIZE, ln_BM, ROA, $LEVERAGE$, $SCALED_PPE$, $SCALED_CAPX$, and $\Delta REVENUE$. Thus, we control for the current characteristics of the company, but importantly also for the change in revenues of the company from the current year to the next year (or the next three years, to match the time horizon of the dependent variable). In the full specification, we include the

matrix CSR^k, which contains the following indicator variables: $POLICYEMISSIONS$, $TARGETSEMISSIONS$, $TARGETYEAR$,
$CSR_REPORTING$, CSR_AUDIT, $CSR_INCENTIVE$, $CSR_COMMITTEE$. Finally, we include industry- and year-fixed effects.

Table 3 summarizes the baseline results. For ease of interpretation, we standardize all continuous variables to a mean of 0 and a standard deviation of 1. The full Table A4 showing the coefficients on all control variables is in the Internet Appendix. Panel A provides results for the one-year change in emissions, whereas Panel B contains the three-year change results.

Column (1) in both panels presents regressions with only CT_CALL and firm characteristics. Climate talk is very strongly negatively associated with emission changes over the following 1- and 3-year windows. The most influential of the firm characteristics is $\Delta SALES$, which is significantly and positively related to $\Delta CO2$. Moreover, more profitable firms (higher ROA) increase emissions more, whereas those investing more in capital expenditures reduce them more.

[Insert Table 3 about here]

Column (2) also adds the Sautner et al. (2023) measures of climate exposure. Sautner et al. (2023) document that their exposure measures help explain variation in green patenting. Our regressions indicate that they do not predict future emissions changes. Climate talk related to IPCC report texts appears to be more informative regarding firms' future emission reductions.

Next, Column (3) adds CSR features. These characteristics include, for example, an indicator of whether a firm has pledged to reduce emissions, whether it has CSR incentives, or whether it has endorsed the TCFD climate disclosure standards, all of which are strongly negatively related to changes in future emissions.

Column (4) conducts a placebo check. In this specification, we use only CO_2 emissions data *estimated* by the data vendors, which we otherwise leave out of our analysis. If, to estimate emissions, data vendors primarily use variables that we include as control variables, we expect not to find climate talk as a significant predictor of emissions changes. That is indeed what happens, both at the one-year and the three-year horizons.

Overall, even when controlling for important determinants of future emissions, climate talk remains a significant factor throughout for predicting the medium and long-run trajectory of a firm's emissions. We do not interpret our results as evidence of a causal link between climate talk and subsequent emissions. Rather, our interpretation is that climate talk in earnings calls signals a serious attitude by a company to the climate challenge. Quantitatively, the results imply that an increase in CT on the entire earnings call by one standard deviation is associated with a 3.1 to 3.8 percentage points smaller change in CO_2 emissions in the following three years.[16]

4.2 Aggregate impact

Bolton and Kacperczyk (2025) highlight that the firms willing to commit to reductions in CO_2 emissions are primarily those with low emissions to begin with, meaning that such commitments have little impact on aggregate emissions. To get a sense of the aggregate impact of firms' attitudes revealed through climate talk on CO_2 emissions, we conduct a simple counterfactual exercise following Eskander and Fankhauser (2020), who apply it in the context of climate legislation. Based on Equation 2, we can express the difference between predicted changes in emissions ($\Delta \hat{CO2}_{i,t+1}$) and hypothetical changes in emissions ($\Delta \tilde{CO2}_{i,t+1}$) when the value of CT_CALL is set to 0 for all i, t:

$$\Delta \hat{CO2}_{i,t+1} - \Delta \tilde{CO2}_{i,t+1} = \hat{\beta}_1 CT_CALL_{i,t}$$

where $\hat{\beta}_1$ is the coefficient obtained in regressions of changes in CO_2 on climate talk. In what follows, for $\hat{\beta}_1$ we use the coefficient estimated in Table 3 Panel A Column (2). Consequently,

[16]Table A5 contains results by emissions scope. We find that the results hold for Scope 1 emissions (which are direct emissions from sources owned or controlled by the firm) and Scope 2 emissions (which are indirect emissions that stem from the purchase of electricity, steam, heat or cooling) separately, although somewhat more weakly than if they are combined. For completeness, we also consider Scope 3 emissions, that is, emissions by suppliers and customers. While the relation with climate talk is also negative, all the coefficients are insignificant. These data seem to be very noisy at this point. The Scope 3 changes are also very skewed as there are instances where firms disclose only very small amounts in one year and then very large amounts in the following years. We obtain similar, though somewhat less extreme coefficients when requiring firms to have at least 5 years of data and leaving off the first year (results available upon request).

we can express the hypothetical change in emissions for company i in year $t+1$ as:

$$\begin{aligned}\Delta\tilde{CO2}_{i,t+1} &= \Delta\hat{CO2}_{i,t+1} - \hat{\beta}_1 CT_CALL_{i,t} \\ &\approx \Delta CO2_{i,t+1} - \hat{\beta}_1 CT_CALL_{i,t}\end{aligned}$$

In the second line above, we replace estimated changes with the actual changes observed in our data.[17] To convert from changes to hypothetical levels of emissions, we multiply the reported level of CO_2 emissions in year t by the hypothetical change for year $t+1$ calculated as above:

$$\tilde{CO2}_{i,t+1} = CO2_{i,t} \cdot (1 + \Delta\tilde{CO2}_{i,t+1})$$

Finally, we calculate hypothetical aggregate emissions for each year by summing across all companies for which we were able to calculate hypothetical emissions in that year. As the vertical bars in Figure 4 show, if CT_CALL was zero across all transcripts in a given year, hypothetical aggregate emissions in the following year would exceed actual reported aggregate emissions for the same sample of companies by between 1.5% and 3.2%.

[Insert Figure 4 about here]

At the same time, the fraction of global CO_2 emissions covered by our sample of reporting companies increases from 3% in 2003 to almost 20% in the early 2020s (see the solid line in Figure 4).[18] Thus, especially in the latter part of the sample, CO_2 reductions signaled by increased climate talk in earnings calls also appear to be meaningful in aggregate.

4.3 Presentations vs. answers

The Q&A part of an earnings conference call is fundamentally different from the presentation part. The presentation is fully scripted. The Q&A part, while also rehearsed by management, is somewhat more improvised and also more revealing regarding what market participants want to know about the company. Therefore, it is reasonable to ask which part of the call is more informative about future emissions. Table 4 provides the answer: Climate talk in the

[17] This is an approximation, since estimated and observed changes differ by the residual factor $\epsilon_{i,t}$. However, note that $E(\epsilon_{i,t}) = 0$.

[18] Global CO_2 emissions are from the Global Carbon Project. See Friedlingstein et al. (2021) for details.

Q&A part remains a significant predictor for one-year and three-year emissions reductions in all specifications. Within the Q&A part, climate talk in analyst questions and managers' answers are roughly equally informative about future emissions.

[Insert Table 4 about here]

As for CT_{PRE}, its pattern differs across horizons. While it is insignificant over the one-year horizon (see columns 1 through 3 in panel A), it regains significance when emissions are measured over three years (Panel B). This delayed effect suggests that statements in the prepared presentation segment convey information about longer-term strategic adjustments rather than immediate operational changes.

To explore how this credibility evolved over time, Columns 4 and 5 of both panels compare pre- and post-Paris periods. Before the 2015 Paris Agreement, CT_{PRE} was an equally strong predictor of subsequent emission reductions as $CT_{Q\&A}$. After Paris, its short-run predictive power weakens, but over a three-year horizon the coefficient remains economically and statistically significant. This pattern is consistent with a shift in the nature of prepared climate statements: as climate disclosure became more standardized, the short-term informational content of scripted remarks declined, yet their longer-horizon association with emission outcomes indicates that these communications still reflect substantive strategic orientation rather than pure "cheap talk." By contrast, $CT_{Q\&A}$ remains a near- and medium-term predictor throughout (slightly below conventional significant in the three-year regressions), underscoring that spontaneous managerial engagement is the most credible signal of intent.

4.4 Heterogeneity by sector and GHG materiality

We next examine whether the predictive content of climate talk differs across sectors with varying abatement constraints. In particular, we distinguish between (i) firms in the energy sector—that is, utilities, oil, gas, and coal producers—and all others, and (ii) firms with high versus low greenhouse-gas (GHG) materiality according to SASB classifications. These splits capture differences in technological feasibility and regulatory salience of emission reductions. Firms in high-GHG-materiality or energy-intensive sectors typically face greater transition

challenges because abatement requires changes in production technology, fuel mix, or infrastructure. At the same time, they attract stronger scrutiny from investors and regulators and therefore have stronger incentives to communicate about climate strategy.[19]

Table 5 shows that the relationship between managerial climate talk and subsequent changes in emissions varies meaningfully across these contexts. Among non-energy firms, overall call-level climate talk is significantly associated with lower emissions over both one- and three-year horizons, consistent with the baseline pattern documented above. For energy firms, by contrast, coefficients are estimated with greater imprecision (arguably due to the smaller number of observations), and most one-year effects are statistically indistinguishable from zero. Over the three-year horizon, however, climate talk in the Q&A component becomes significantly associated with subsequent emission reductions, indicating that spontaneous managerial engagement may still signal genuine intent even in hard-to-abate sectors.[20]

[Insert Table 5 about here]

A similar pattern emerges for the materiality split. For firms in low-GHG-materiality industries, climate talk predicts emission reductions already within one year, whereas in high-materiality industries, significant effects appear only over longer horizons. While formal tests do not reject equality of coefficients across the two groups, the timing difference is economically consistent with faster implementation of operational and procurement measures in low-materiality settings, and slower adjustment where emissions are more deeply embedded in production technology.

Interestingly, CT_{PRE} is significantly associated with emission reductions only among non-Energy and low-materiality firms, whereas its coefficient for Energy and high-materiality firms is close to zero. This finding is consistent with the interpretation that in easier-to-abate contexts, prepared climate statements can credibly announce actionable plans, while in hard-to-abate industries they remain largely aspirational.

[19] On the technological and policy frictions shaping the pace of decarbonization, see Borenstein et al. (2023) and Hausman (2025). Complementary evidence from Fisher-Vanden et al. (2015), Allcott et al. (2016), and Da et al. (2017) shows how electricity shortages and grid constraints distort production and productivity, particularly in energy-intensive sectors.

[20] Very similar results obtain when including Alternative Energy in the Energy group.

Taken together, these results suggest that the speed of adjustment differs across industries. In settings where abatement is technologically straightforward, such as low-materiality sectors, climate talk translates quickly into observable action. In hard-to-abate contexts—energy firms and high-materiality industries—the same credibility mechanism operates, but implementation lags are longer because emissions reductions require capital-intensive technological or process changes. This interpretation aligns with recent evidence that real capacity and infrastructure constraints are themselves priced in financial markets: Kacperczyk and Licher (2025) show that electricity capacity tightness is priced at the firm level, highlighting how physical transition bottlenecks can depress near-term valuations and slow firms' ability to abate emissions. Importantly, the fact that the predictive power of Q&A talk persists even for these firms reinforces the interpretation that unscripted managerial statements are informative about genuine commitment rather than symbolic communication.

4.5 The role of national culture

Next, we examine how the ability to predict future emission changes as climate talk varies across firms. These results are tabulated in the remainder of Table 6.

[Insert Table 6 about here]

First, we examine the difference between the USA, the biggest market in our sample by far, and other countries. Columns (3) and (4) of Table 6 show that the link between climate talk and emissions reductions is only significant for companies headquartered outside the USA.[21]

We conjecture that, more generally, differences in culture play an important role. We split the sample along two dimensions of national culture proposed by Hofstede et al. (2010): individualism and long-term orientation. Compared to other countries, the US, for example, score high on the first two dimension and low on the third. At the same time, we would expect the opposite constellation, low individualism and high long-term orientation, to be

[21]This finding parallels results for investor behavior in Gibson Brandon et al. (2022). They find that investors outside the USA that sign the Principles for Responsible Investment (PRI) exhibit better portfolio-level environmental, social, and governance (ESG) scores, whereas US signatories have at best similar ESG ratings, and worse scores if they have underperformed recently.

more conducive to a clear link of climate talk to climate action, which is a long-term endeavor requiring collective action, possibly at the short-term expense of individuals.

Columns (5) through (10) of Table 6 show that $CT_Q\&A$ indeed only significantly predicts future emission reductions for firms headquartered in countries characterized by long-term orientation and low individualism. In other words, the climate talk in the Q&A session is only credible and followed by a reduction in CO_2 emissions in firms in cultures that are likely to care about the longer term and broader-than-individual welfare.

4.6 Robustness check: Trucost data

The landscape of corporate CO_2 emissions reporting is still somewhat uneven, with different providers having different coverage or even different values for the same firms. Thus, in Table 7 we examine the robustness of our main results when we employ data from another data provider, Trucost (again focusing on the reported, not estimated, carbon emissions data). In this somewhat smaller sample, we also find that climate talk predicts reductions (or smaller increases) in emissions. The effects are particularly pronounced for climate talk in the Q&A part of the earnings call. The sample splits also yield similar results. Overall, these tests reassure us that the findings do not depend on the particular data source for emissions.

[Insert Table 7 about here]

5 Do investors appreciate climate talk?

How do investors respond to climate talk on earnings calls? On the one hand, if investors expect that firms initiating climate talk will have higher cash flows in the future (e.g., through innovative and climate-friendly innovations that augment their capacity to meet regulatory needs or take other opportunities), then a positive effect on shareholder reactions should be expected following the earnings call. Investors could also perceive these firms to become less risky. For example, investors might perceive a reduction in information asymmetry, which would also increase firm value. To the extent that investors require a carbon risk premium,

an expected reduction in emissions could reduce the perceived transition risk of the company, leading to lower cost of capital and, therefore, higher valuations.

On the other hand, a wider discourse about climate-related issues might induce expectations that the company will invest in negative net-present value (NPV) projects. First, climate-related projects can be costly in the short run, and marginal investors may weigh the costs higher than the benefits. Even if they are undertaken for regulatory reasons, they may be seen as value-destroying by investors. Investors might also fear that such projects are undertaken for agency reasons, that is, management is pursuing its own interests of doing good. Investors could thus fear that management no longer prioritizes maximizing financial performance. Relatedly, the climate-related talk could be seen as an attempt at greenwashing, with negative reputational or even legal consequences. Finally, discussion about climate-related issues could increase uncertainty about a firm's future cash flows due to the inherent uncertainty about climate change.[22] Overall, greater climate talk during earnings calls could be associated with lower expected future cash flows and/or higher cost of capital.

We examine stock market reactions during the announcement window on the day of the earnings call and on the following business day.[23] To calculate abnormal returns, we subtract from each stock's return the stock market return for developed stock markets from Kenneth French's website as a proxy for the performance of the market portfolio. We regress these returns on climate talk and the same firm and CSR characteristics as before (apart from the change in revenue in the following year(s)).

Because we will compare stock price reactions to climate talk with the extent to which climate talk predicts emission reductions, for the main analysis we run the CAR regressions on the sample where we have CO_2 emission changes. However, very similar results obtain on the much larger, unconstrained sample (see Table **??** in the Internet Appendix).

[Insert Table 8 about here]

Column (1) of Table 8 shows that the announcement returns are strikingly negatively

[22]Henry et al. (2021) document that the frequency count of environment-related topics in presentations on earnings calls predicts a higher implied cost of capital in the following year.

[23]A large literature documents the informativeness of earnings calls overall (e.g. Matsumoto et al., 2011)).

correlated with climate talk. By contrast, climate exposure as measured from earnings calls by Sautner et al. (2023) does not explain announcement returns. This suggests that on average these firm characteristics are already priced in and that only the unexpected climate talk by management is informative for investors.

We control for a wide range of other linguistic characteristics of each earnings call that could confound the findings (but the results for climate talk also obtain without these controls). First, it is possible that climate talk occurs more in earnings calls where managers use more negative language. Therefore, we control for the fraction of negative words (or, in untabulated robustness checks, for negativity computed taking into account the fraction of positive words). Second, climate talk may entail more uncertain statements. To control for this potential effect, we include the percentage of uncertainty words. Third, we control for the fraction of litigious words. For these three characteristics, we draw on the Loughran and McDonald (2011) dictionary. Fourth, climate talk is less likely to provide exact numbers, not least due to legal considerations. Campbell et al. (2025) find that the fraction of numbers in earnings conference calls correlates positively with returns after the earnings call, so this could explain our findings on climate talk. We therefore control for the ratio of the total number of numbers divided by the number of words. Fifth, if the market favors concrete financial information, then the negative reaction to climate talk could arise because climate talk occurs more often when managers provide less financial information. Therefore, we control for the percentage of terms relevant to financial analysis (Matsumoto et al., 2011) in each call. Sixth, we add the length of the conference call (log number of words). Column (2) shows that the additional textual features by and large have the expected signs, as found in the literature. Importantly, climate talk remains strongly negatively associated with returns even controlling for all these variables.[24]

Turning to sectoral heterogeneity, Table 8 shows that the most negative announcement reactions arise when Energy firms (Coal, Oil & Gas, Utilities) include climate-related content in the prepared part of the call. This is consistent with investors reading such statements as

[24]In tables available on request, we also include other textual controls, though these tend to reduce the sample size. For example, Deng et al. (2023a) provide a machine-learning-based measure of relative future focus called "Future-minus-past" (FMP). Deng et al. (2023a) show that a stronger future orientation in presentations induces negative share price reactions, whereas shareholders respond positively to a stronger future orientation in answers. We find the same in this sample, but the results for climate talk are unaffected.

announcements of costly or difficult transition steps. By contrast, investors also price Q&A climate talk negatively for Non-Energy firms, and in some specifications the coefficients are even somewhat larger in absolute value than for Energy firms.

When we split the sample by SASB GHG materiality, a clearer pattern emerges. Among low-materiality industries, climate talk in the Q&A section is associated with significantly negative announcement returns. By contrast, in high-materiality industries, neither prepared remarks nor Q&A talk generates statistically reliable reactions. One interpretation is that, in sectors where near-term abatement is operationally feasible, investors read climate discussion as a signal of potentially costly or distracting initiatives, whereas in structurally emission-intensive industries, a given amount of climate talk conveys less incremental information about firms' transition paths.

Moreover, Table 9 considers the same splits by time, geography, and culture as in Table 6. We find that investors react particularly negatively to climate talk in the United States and in countries characterized by high individualism and short-term orientation—settings in which our emissions results show that climate talk does not forecast subsequent CO_2 reductions. In other words, whereas the sector and materiality results point to concerns about the cost or distraction associated with implementable climate actions, the cross-country evidence suggests that in some cultural environments investors primarily view climate talk as an agency problem when it does not lead to measurable progress.

Finally, the pattern before and after the Paris Agreement indicates a shift in how markets interpret different types of climate talk. Before 2015, both prepared remarks and Q&A climate talk were associated with negative returns. After 2015, however, the negative reaction is concentrated in the prepared part of the call, while climate talk in the Q&A segment elicits a smaller and statistically insignificant announcement response (Table 9). Taken together with our emissions results, this suggests a nuanced picture. Post-Paris, climate-related content in presentations has become more standardized, yet still contains information about firms' longer-term decarbonization paths, as it predicts lower emissions over a multi-year horizon. At the same time, investors appear to focus more on the near-term cost and cash-flow implications of such formal statements, penalizing them at the announcement. By contrast, Q&A climate talk remains informative about future emissions but does not

trigger a strong immediate price reaction, consistent with markets treating this spontaneous discussion as softer information that is harder to map into short-term valuation effects.

[Insert Table 9 about here]

6 Conclusions

Climate change poses deep challenges for firms, investors, and policymakers. The transition to a low-carbon economy will entail significant adjustment costs but also open new opportunities. This paper contributes to the emerging climate finance literature by examining how managerial communication about climate issues relates to both real corporate outcomes and market reactions. Three main insights emerge:

First, managers talk more about climate change in earnings calls when their firms face greater climate exposure, external investor pressure, of formal disclosure expectations. Yet a large share of variation in climate talk remains unexplained, particularly in the answers in the improvized Q&A segment. This suggests a substantial potential role for managerial preferences, attention, and competence.

Second, climate talk predicts lower CO_2 emissions in subsequent years, suggesting that managers who emphasize climate issues in earnings calls are not merely engaging in cheap talk. The effect is strongest for spontaneous statements and for firms operating in countries with long-term-oriented cultures. However, the relationship weakens in hard-to-abate sectors, such as energy and other high–GHG-materiality industries, consistent with technological and regulatory constraints delaying implementation. These heterogeneities suggest that credibility, not just intention, governs the talk–walk link.[25]

Finally, investors tend to react negatively to climate talk, especially in contexts where such talk does not predict real emission reductions. This pattern indicates that markets

[25]While our focus is on the link between communication and realized emission outcomes, related research explores the technological channels through which climate-oriented managerial behavior may operate. Bolton et al. (2024) show that climate-related patents have limited direct effects on the innovators' own emissions, whereas Hege et al. (2023) find that climate innovation reduces emissions among customer firms, especially through product innovations. These studies highlight how climate talk may translate into action through supply-chain and innovation networks.

penalize uncredible talk rather than climate ambition per se. The results imply that investors are attentive to the credibility of transition commitments and that capital markets can, in principle, help discipline symbolic communication. Ultimately, investors seem to be concerned that it is climate talk *without* action that is detrimental to firm value.

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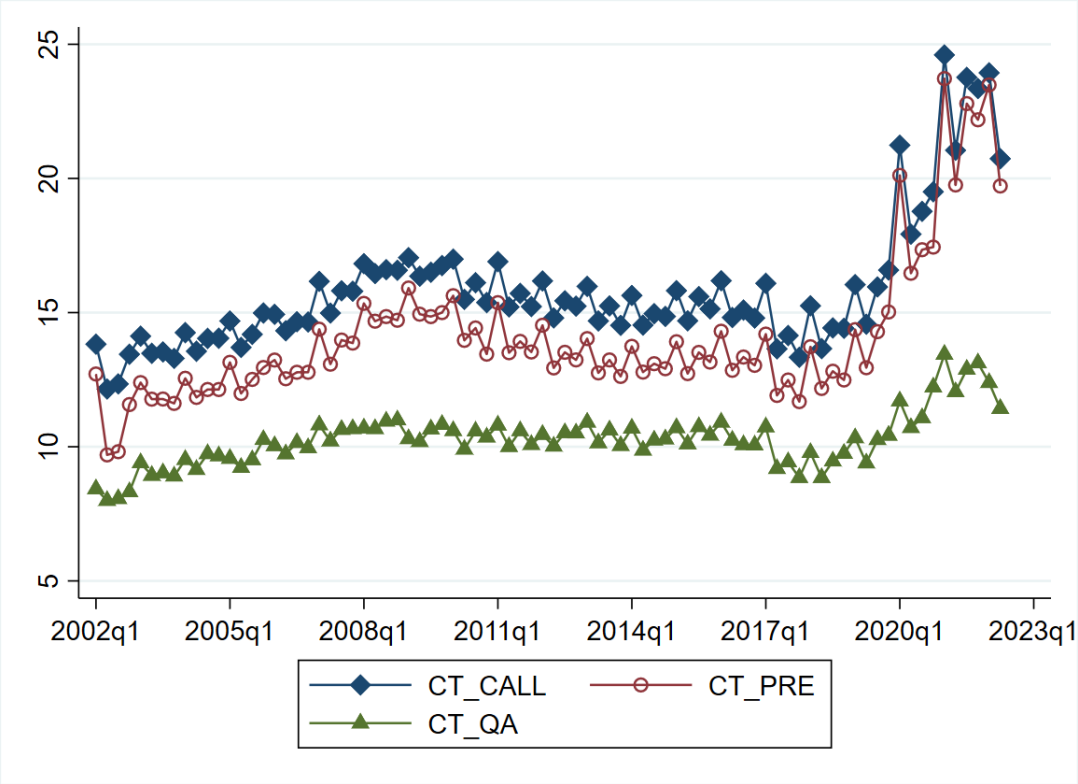
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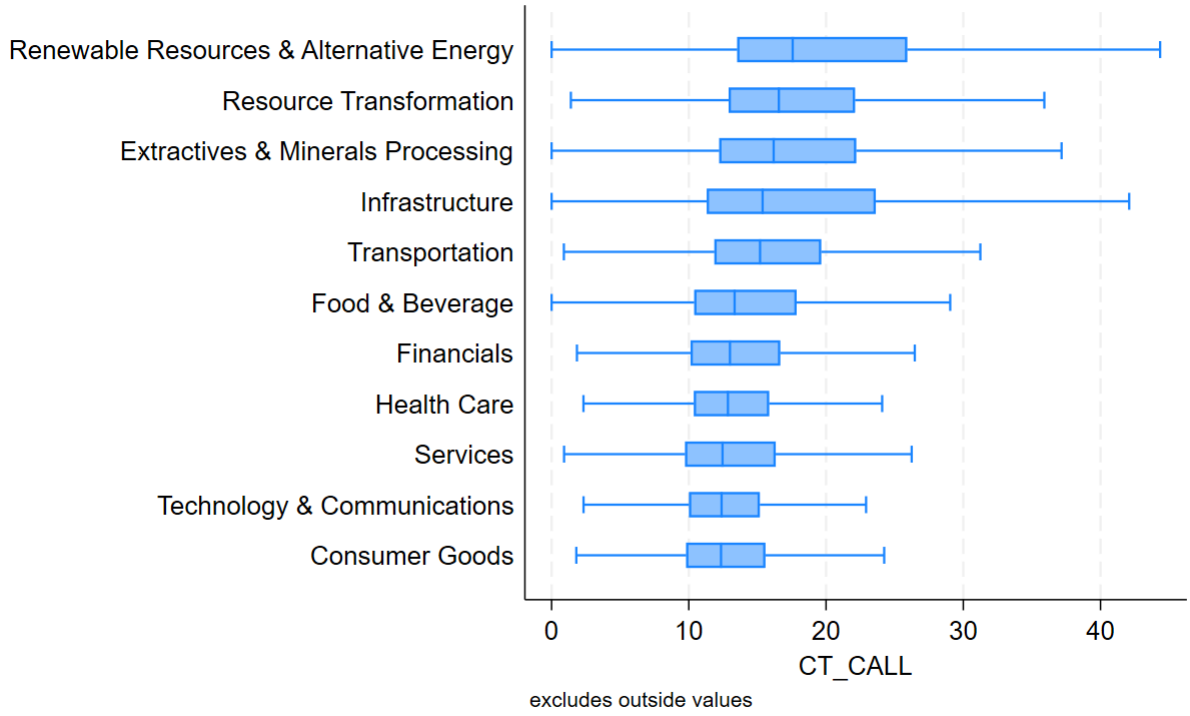
Figure 1: Climate Talk Over Time



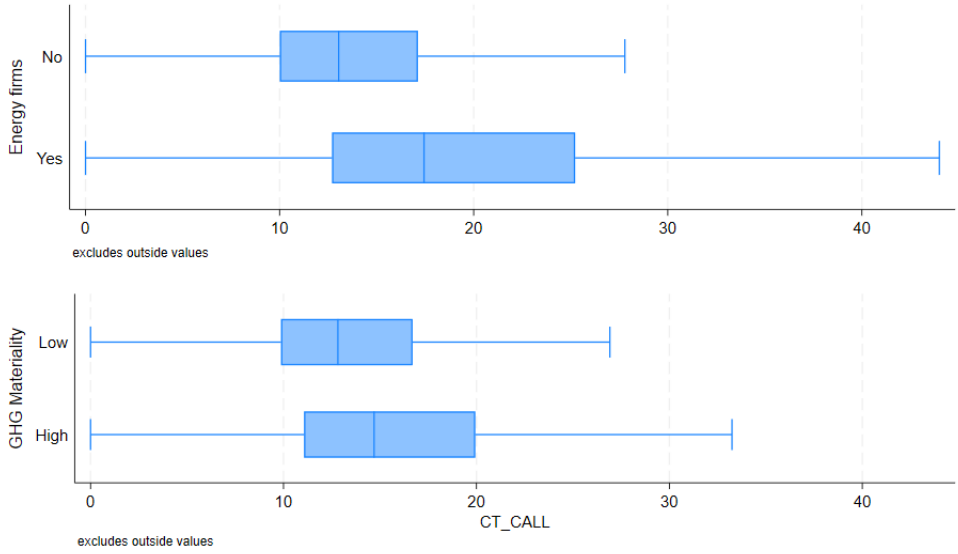
Notes: This figure shows average amounts of climate talk (CT) in earnings calls in each calendar quarter between 2002 and 2022. CT is measured as the textual similarity between call transcripts and a reference library of texts focused on climate change (IPCC reports) - see Section 3 for details. CT is calculated for the entire call (CT_CALL) as well as for the presentation and the Q&A sections separately (CT_PRE, $CT_Q\&A$).

Figure 2: Climate Talk Across Industries

(a) SICS sectors



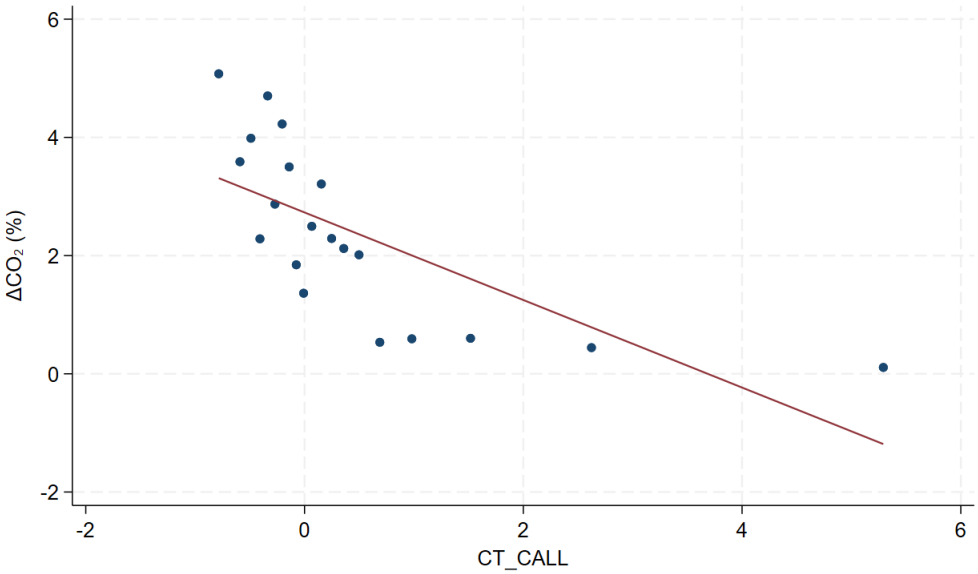
(b) Energy and GHG Materiality groupings



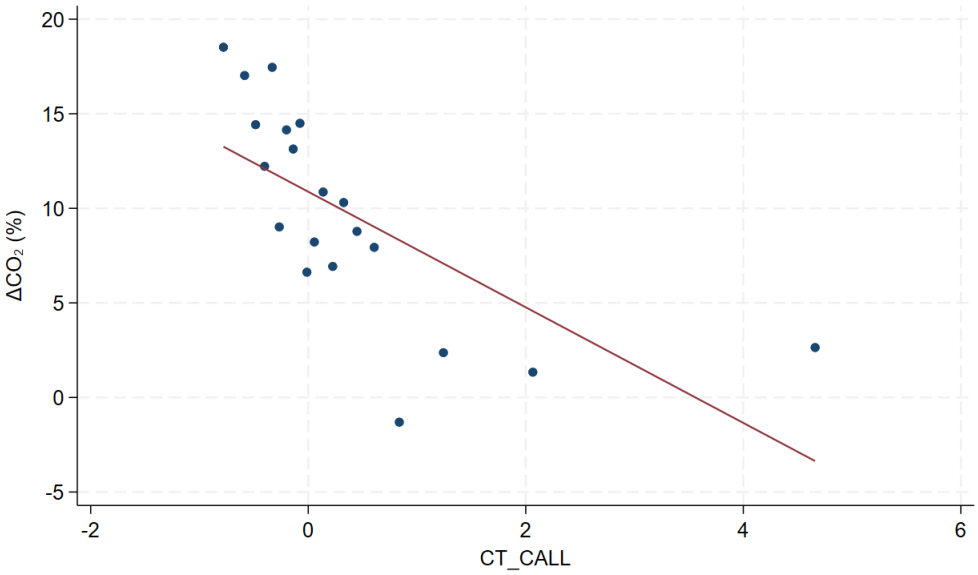
This figure shows the distribution of climate talk (CT) in earnings calls across, in Panel A, economic sectors, defined according to the Sustainable Industry Classification System provided by SASB. Panel B shows the distribution of $CT_C ALL$ across two groupings, Energy vs non-Energy firms as well as, among non-Energy firms, those with Low vs High Materiality of greenhouse gas (GHG) emissions. Energy firms are defined as those belonging to either Coal, Oil & Gas or Utilities sub-sector, according to SICS. GHG Materiality is assigned at the SICS sub-sector level, according to the materiality map developed by SASB. Each box in the graphs shows the inter-quartile range (25-75) for a given sector with the median highlighted, while the tips of the whiskers are set at 1.5 times the inter-quartile range (values outside these bounds are excluded).

Figure 3: Climate Talk and Changes in CO_2 Emissions

(a) 1-year change of CO_2 emissions

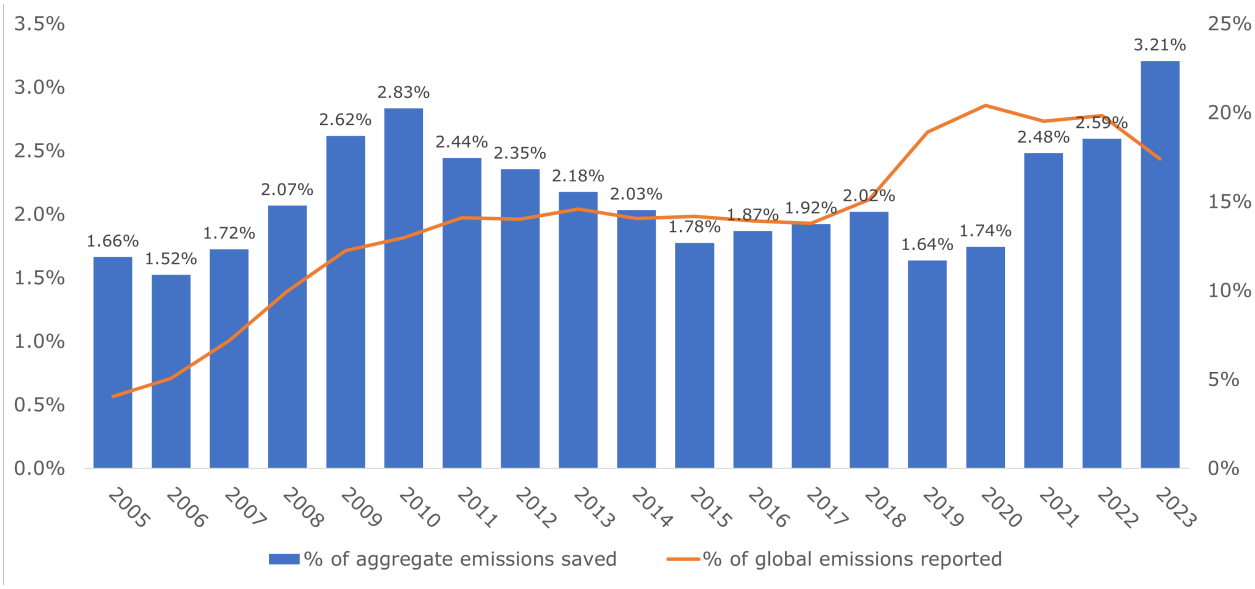


(b) 3-year change of CO_2 emissions



This figure presents binned scatter plots, which show the change in CO_2 emissions in year $t+1$ and over 3 years, respectively, depending on the average level of climate talk on the entire call (CT_CALL) in year t, without controlling for any additional factors. In both panels, most firms exhibit positive ΔCO_2 values, reflecting aggregate emissions growth. CT is standardized to mean 0 and a standard deviation of 1.

Figure 4: Aggregate Hypothetical vs. Reported CO_2 Emissions



The vertical bars in this figure show, on the left axis, the percentage difference between hypothetical CO_2 emissions in a given year t, that would have occurred in the absence of any climate talk (CT) in earnings calls in year $t-1$, and the actual emissions reported by the same companies in year t. Hypothetical emissions are calculated following Eskander and Fankhauser (2020). See Section 4.2 for details. The solid line shows, on the right axis, the proportion of global CO_2 emissions covered by companies in our sample. Data on global CO_2 emissions are from the Global Carbon Budget.

Table 1: Summary Statistics

This table displays descriptive statistics. The sample period for conference call data is 2002-2022, for emissions and firm-level data through 2024. The variables are defined in Table A1. We report the number of observations (firm-quarters or firm-years, depending on how often a given variable is updated), mean and standard deviation (SD), as well as the minimum, maximum, and the median. For ease of presentation, climate talk (CT) values are multiplied by 10,000. The ΔCO_2 variables are trimmed at the 1st and 99th percentiles. All other continuous variables except climate talk and other linguistic measures have been winsorized at the 1st and 99th percentiles.

	N	Mean	SD	Minimum	Median	Maximum
Quarterly variables						
CAR	107,161	0.25	7.41	-63.84	0.10	249.20
$CCOP$	118,743	0.05	1.08	-0.38	-0.29	6.29
$CCPHY$	118,743	0.04	1.05	-0.29	-0.29	6.49
$CCREG$	118,743	0.01	0.98	-0.22	-0.22	6.87
CT_{CALL}	118,743	16.68	11.80	4.39	14.01	90.91
CT_{PRE}	118,743	14.49	12.42	1.05	11.79	99.29
$CT_{Q\&A}$	118,743	10.97	6.51	0.00	9.89	40.06
CT_{QUE}	118,743	6.05	4.08	0.00	5.36	21.79
CT_{ANS}	118,743	10.37	6.49	0.00	9.29	39.08
EARN_SURP	118,743	0.00	0.02	-0.26	0.00	0.11
FINFRAC	104,057	0.02	0.01	0.00	0.02	0.09
FMP_P_ML	91,031	-0.18	0.17	-0.96	-0.18	1.00
FMP_Q_ML	89,995	0.02	0.11	-1.00	0.02	1.00
FMP_A_ML	88,433	-0.08	0.11	-1.00	-0.08	1.00
LITFRAC	104,057	0.00	0.00	0.00	0.00	0.03
LOGWORD	104,057	8.82	0.53	1.39	8.93	10.70
NEGFRAC	104,057	0.06	0.31	0.00	0.02	38.33
NUMFRAC	104,057	0.02	0.01	0.00	0.02	0.13
UNFRAC	104,057	0.01	0.00	0.00	0.01	0.06
Yearly variables						
CLIMATE_100	47,361	0.01	0.11	0.00	0.00	1.00
ΔCO_2_(1Y)	23,168	2.47	28.92	-66.78	-1.21	256.71
ΔCO_2_(3Y)	19,721	9.82	69.94	-85.45	-3.98	703.69
CSR_AUDIT	47,361	0.26	0.44	0.00	0.00	1.00
CSR_COMMITTEE	47,361	0.50	0.50	0.00	1.00	1.00
CSR_INCENTIVES	47,361	0.23	0.42	0.00	0.00	1.00
CSR_REPORTING	47,361	0.55	0.50	0.00	1.00	1.00
GHG_MATERIALITY	46,379	0.27	0.45	0.00	0.00	1.00
IO	47,361	58.99	30.80	1.11	62.51	100.00
LEVERAGE	47,361	0.79	1.71	-6.47	0.46	10.93
ln_BM	47,361	0.42	0.29	-0.17	0.37	1.53
ln_SIZE	47,361	22.29	1.85	16.67	22.22	26.99
POLICY_EMISSIONS	47,361	0.56	0.50	0.00	1.00	1.00
ΔREVENUE_(1Y)	39,802	8.83	27.96	-64.43	5.38	181.31
ΔREVENUE_(3Y)	27,858	23.03	57.98	-75.70	12.86	437.41
ROA	47,361	1.57	12.12	-75.10	2.75	29.87
SCALED_CAPX	47,361	-0.04	0.05	-0.27	-0.03	0.00
TARGET_EMISSIONS	47,361	0.35	0.48	0.00	0.00	1.00
TARGET_YEAR	47,361	0.18	0.38	0.00	0.00	1.00
TCFD	47,361	0.03	0.17	0.00	0.00	1.00

Table 2: Determinants of Climate Talk

This table presents regression results for Equation 1. The dependent variables are the different climate-talk measures (CT), quantified from transcripts of earnings conference calls. CT_{CALL} shown in column (1), is the measure for the entire call. The results for the different parts of the earnings call are available in column (2) for the prepared presentation, CT_{PRE}, in column (3) for the questions & answers session between analysts and managers, $CT_{Q\&A}$, and in columns (4) and (5) for the analysts' questions, CT_{QUE}, and managers' answers, CT_{ANS}, separately. All our variables are defined in Table A1. Results are from panel regressions estimated with fixed effects, as indicated in the table. t-statistics, calculated based on standard errors clustered at the firm level, are in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	CT_{CALL} (1)	CT_{PRE} (2)	$CT_{Q\&A}$ (3)	CT_{QUE} (4)	CT_{ANS} (5)
GHG_MATERIALITY	0.093***	0.058***	0.155***	0.152***	0.143***
	(5.15)	(3.22)	(6.17)	(6.16)	(5.86)
CCOP	0.116***	0.108***	0.077***	0.043***	0.073***
	(11.12)	(10.09)	(7.32)	(4.68)	(6.89)
CCREG	0.340***	0.326***	0.154***	0.072***	0.140***
	(27.92)	(25.27)	(13.63)	(7.91)	(12.86)
CCPHY	0.068***	0.066***	0.027***	0.007	0.024***
	(9.12)	(8.26)	(3.53)	(1.08)	(3.26)
TCFD	0.251***	0.265***	-0.057	-0.108**	-0.035
	(4.87)	(4.97)	(-1.09)	(-2.18)	(-0.68)
POLICY_EMISSIONS	0.045***	0.045***	0.051***	0.058***	0.044**
	(3.28)	(3.24)	(2.64)	(3.00)	(2.30)
TARGETS_EMISSIONS	0.067***	0.065***	0.052**	0.050**	0.051**
	(3.43)	(3.28)	(2.01)	(2.01)	(1.99)
TARGET_YEAR	0.044**	0.064***	0.020	0.001	0.028
	(2.04)	(2.90)	(0.74)	(0.04)	(1.05)
CSR_REPORTING	0.056***	0.044***	0.076***	0.059***	0.076***
	(3.70)	(3.04)	(3.89)	(3.12)	(3.93)
CSR_COMMITTEE	0.020	0.020	0.010	0.014	0.006
	(1.38)	(1.43)	(0.53)	(0.76)	(0.32)
CLIMATE_100	0.246***	0.069	0.493***	0.321***	0.455***
	(2.93)	(0.79)	(5.79)	(4.00)	(5.29)
CSR_AUDIT	0.053**	0.017	0.073***	0.066**	0.051*
	(2.54)	(0.79)	(2.71)	(2.57)	(1.93)
CSR_INCENTIVES	0.088***	0.077***	0.117***	0.082***	0.119***
	(6.18)	(5.22)	(6.60)	(4.77)	(6.80)
EARN_SURP	-0.216	-0.334**	0.190	0.213	0.211
	(-1.50)	(-2.41)	(1.25)	(1.30)	(1.44)
IO	0.057***	0.063***	0.089***	0.088***	0.091***
	(7.91)	(8.50)	(9.06)	(9.04)	(9.44)
ln_SIZE	0.083***	0.048***	0.156***	0.143***	0.147***
	(8.49)	(4.94)	(12.18)	(11.16)	(11.70)
ln_BM	-0.041***	-0.015**	-0.109***	-0.095***	-0.108***
	(-6.12)	(-2.13)	(-12.86)	(-11.19)	(-12.70)
ROA	-0.011*	-0.025***	0.009	0.026***	0.005
	(-1.94)	(-4.20)	(1.25)	(3.35)	(0.72)
LEVERAGE	0.001	0.006	-0.007	-0.002	-0.007
	(0.19)	(1.19)	(-1.36)	(-0.42)	(-1.46)
SCALED_CAPX	0.025***	0.015***	0.042***	0.005	0.048***
	(4.40)	(2.60)	(5.78)	(0.75)	(6.52)
Constant	-0.148***	-0.140***	-0.110***	-0.081***	-0.103***
	(-17.09)	(-15.88)	(-9.89)	(-7.39)	(-9.41)
Observations	118,743	118,743	118,743	118,743	118,743
R-squared	0.291	0.249	0.155	0.092	0.134
Fixed Effects	Year	Year	Year	Year	Year

Table 3: Climate Talk and Changes in Future CO_2 Emissions

This table examines the relationship between climate talk on earnings calls (CT_{CALL}) and subsequent changes in CO_2 emissions. The unit of observation is a firm-year combination. CT_{CALL} is averaged over the four quarterly calls during each calendar year and is standardized to a mean of 0 and a standard deviation of 1. Changes in emissions are calculated over a 1-year or 3-year horizon, see Panel A and Panel B, respectively. Column (1) controls for industry and year fixed effects. In column (2) we add various firm characteristics, namely, ln_SIZE, ln_BM, ROA, $\Delta REVENUE$, $LEVERAGE$, $SCALED_PPE$, $SCALED_CAPX$ and IO, as well as controls for climate change exposure following Sautner et al. (2023), using their conference call (CC)-based measures of opportunities (OPP), regulatory (REG), and physical (PHY) exposure. In Column (3), additional CSR controls are included, namely, $POLICYEMISSIONS$, $TARGETSEMISSIONS$, $TARGETYEAR$, $CSR_REPORTING$, CSR_AUDIT, $CSR_INCENTIVE$, $CSR_COMMITTEE$, and $TCFD$. While columns (1) through (3) use only disclosed, not estimated CO_2 emissions, column (4) conducts a placebo check, using only estimated emissions. All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	ΔCO_2 (1)	ΔCO_2 (2)	ΔCO_2 (3)	ΔCO_2^{EST} (4)
Panel A. ΔCO_2 over 1-year horizon				
CT_{CALL}	-0.893***	-0.808***	-0.575**	0.375
	(-4.08)	(-3.37)	(-2.41)	(0.47)
$CCOP$		0.144	0.147	-0.809*
		(0.48)	(0.47)	(-1.94)
$CCREG$		-0.291	-0.205	1.683**
		(-1.24)	(-0.89)	(2.40)
$CCPHY$		0.303	0.281	0.348
		(1.39)	(1.22)	(1.16)
Observations	19,275	19,054	19,043	14,369
R-squared	0.050	0.051	0.055	0.244
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Firm Characteristics	Yes	Yes	Yes	Yes
CSR Controls	No	No	Yes	Yes
Panel B. ΔCO_2 over 3-year horizon				
CT_{CALL}	-3.340***	-3.430***	-2.739***	0.246
	(-8.11)	(-5.98)	(-5.18)	(0.13)
$CCOP$		0.707	0.626	3.400*
		(0.68)	(0.59)	(1.86)
$CCREG$		-0.086	0.314	2.033
		(-0.16)	(0.56)	(0.92)
$CCPHY$		-0.086	-0.180	1.197
		(-0.21)	(-0.39)	(1.12)
Observations	18,095	17,891	17,880	10,008
R-squared	0.046	0.047	0.055	0.177
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Firm Characteristics	Yes	Yes	Yes	Yes
CSR Controls	No	No	Yes	Yes

Table 4: Climate Talk and Changes in Future CO_2 Emissions: Different Call Parts

This table examines the relationship between climate talk in different parts of earnings calls and subsequent changes in CO_2 emissions over a 1-year horizon, in Panel A, and a 3-year horizon, in Panel B. The unit of observation is a firm-year combination. Climate talk is averaged over the four quarterly calls during each calendar year. Parts of the call under consideration are the prepared presentation (CT_{PRE}), the Q&A session ($CT_{Q\&A}$) as well as analyst questions (CT_{QUE}), and manager answers (CT_{ANS}) separately. Additionally, columns (4) and (5) compare the results for CT_{PRE} and $CT_{Q\&A}$ before and after the Paris Agreement of 2015. We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Control variables are indicated at the bottom of each panel. All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	Full sample			Paris Agreement	
				Before	After
	(1)	(2)	(3)	(4)	(5)
Panel A: ΔCO_2 over 1-year horizon					
CT_{PRE}	-0.323	-0.276	-0.273	-0.717**	-0.129
	(-1.39)	(-1.36)	(-1.34)	(-2.55)	(-0.44)
$CT_{Q\&A}$	-0.621***	-0.617***		-0.512**	-0.636**
	(-4.39)	(-3.78)		(-2.16)	(-2.96)
CT_{QUE}			-0.486*		
			(-2.03)		
CT_{ANS}			-0.372**		
			(-2.17)		
Observations	19,264	19,043	19,043	8,000	11,043
R-squared	0.055	0.055	0.055	0.038	0.071
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Climate risk	No	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes
Panel B: ΔCO_2 over 3-year horizon					
CT_{PRE}	-1.696***	-1.846***	-1.849***	-2.320*	-1.557**
	(-3.65)	(-3.45)	(-3.36)	(-1.98)	(-2.81)
$CT_{Q\&A}$	-1.436**	-1.522**		-1.410*	-1.463
	(-2.63)	(-2.75)		(-2.10)	(-1.90)
CT_{QUE}			-0.999*		
			(-1.77)		
CT_{ANS}			-0.984*		
			(-1.98)		
Observations	18,084	17,880	17,880	7,729	10,151
R-squared	0.054	0.055	0.055	0.061	0.058
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Climate risk	No	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes

Table 5: Climate Talk and Changes in Future CO_2 Emissions: Energy and High-Materiality Firms

This table examines the relationship between climate talk and subsequent changes in CO_2 emissions over a 1-year and 3-year horizon, respectively. The unit of observation is a firm-year combination. Climate talk is averaged over the four quarterly calls during each calendar year. Panel A compares effects for Energy and non-Energy firms. Energy firms are defined as those belonging to either Coal, Oil & Gas or Utilities sub-sector, according to the Sustainable Industry Classification System (SICS) provided by SASB. All remaining firms are considered non-Energy firms. Panel B compares, among non-Energy firms, those with low and high greenhouse gas (GHG) materiality, according to SASB. We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Results are from panel regressions estimated with industry and year fixed effects (except for Energy firms, where due to very low number of industry clusters, we only include year fixed effects). Control variables are indicated at the bottom of the table. Firm characteristics include climate exposure variables (Sautner et al., 2023). All variables are defined in Table A1.t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

Panel A: Energy vs non-Energy firms

	non-Energy				Energy			
	1-year horizon		3-year horizon		1-year horizon		3-year horizon	
	ΔCO_2 (1)	ΔCO_2 (2)	ΔCO_2 (3)	ΔCO_2 (4)	ΔCO_2 (5)	ΔCO_2 (6)	ΔCO_2 (7)	ΔCO_2 (8)
CT_{CALL}	-0.707**		-3.088***		-0.283		-1.374	
	(-2.74)		(-4.51)		(-0.53)		(-1.39)	
CT_{PRE}		-0.364*		-2.228***		-0.119		-0.751
		(-1.73)		(-3.76)		(-0.30)		(-0.72)
$CT_{Q\&A}$		-0.585**		-1.304		-0.608		-1.281**
		(-2.54)		(-1.70)		(-1.29)		(-2.29)
Observations	16,592	16,592	15,598	15,598	2,451	2,451	2,282	2,282
R-squared	0.056	0.056	0.053	0.053	0.068	0.069	0.098	0.099
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Year	Year	Year	Year
Climate risk	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Panel B: Low vs High GHG Materiality firms (non-Energy sample)

	Low				High			
	1-year horizon		3-year horizon		1-year horizon		3-year horizon	
	ΔCO_2 (1)	ΔCO_2 (2)	ΔCO_2 (3)	ΔCO_2 (4)	ΔCO_2 (5)	ΔCO_2 (6)	ΔCO_2 (7)	ΔCO_2 (8)
CT_{CALL}	-0.988***		-3.378***		-0.171		-2.750**	
	(-3.29)		(-4.22)		(-0.38)		(-2.21)	
CT_{PRE}		-0.514**		-2.796***		-0.097		-1.220
		(-2.28)		(-3.72)		(-0.19)		(-1.12)
$CT_{Q\&A}$		-0.708**		-0.746		-0.263		-2.616**
		(-2.75)		(-0.76)		(-0.63)		(-2.65)
Observations	12,041	12,041	11,352	11,352	4,397	4,397	4,107	4,107
R-squared	0.049	0.049	0.052	0.052	0.094	0.094	0.076	0.077
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6: Climate Talk and Changes in Future CO_2 Emissions: Role of National Culture

This table examines the relationship between climate talk in presentations and Q&A sections of earnings calls (CT_{PRE}, $CT_{Q\&A}$) and subsequent changes in CO_2 emissions over a 1-year horizon, in Panel A, and a 3-year horizon, in Panel B. The unit of observation is a firm-year combination. Climate talk is averaged over the four quarterly calls during each calendar year. We investigate the following splits: Whether the company is headquartered in USA or not in columns (1) and (2), as well as two splits according to the median value of one of two dimensions of national culture as defined by Hofstede et al. (2010): individualism in columns (3) and (4) and long-term orientation in columns (5) and (6). We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Results are from panel regressions estimated with industry and year fixed effects. Control variables are indicated at the bottom of the table. Firm characteristics include climate exposure variables (Sautner et al., 2023). All variables are defined in Table A1. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	Geography		Individualism		Long-termism	
	USA	non-USA	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: ΔCO_2 over 1-year horizon						
CT_{PRE}	0.210	-0.449	-0.434	0.015	0.235	-0.628**
	(0.48)	(-1.70)	(-1.14)	(0.04)	(1.19)	(-2.10)
$CT_{Q\&A}$	-0.481	-0.647***	-1.051***	-0.256	-0.455*	-0.685***
	(-1.19)	(-3.36)	(-3.92)	(-1.11)	(-1.91)	(-3.52)
R-squared	0.097	0.051	0.050	0.080	0.076	0.052
Observations	5,746	13,297	8,540	9,907	9,679	9,190
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Climate risk	Yes	Yes	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: ΔCO_2 over 3-year horizon						
CT_{PRE}	2.451**	-2.887***	-2.117***	-0.745	-1.056	-2.565***
	(2.68)	(-5.46)	(-3.08)	(-1.05)	(-1.66)	(-4.51)
$CT_{Q\&A}$	-1.338	-1.514**	-1.789**	-1.446*	-1.735**	-0.922
	(-1.01)	(-2.67)	(-2.84)	(-1.99)	(-2.19)	(-1.41)
Observations	5,291	12,589	8,186	9,132	8,970	8,756
R-squared	0.089	0.054	0.062	0.073	0.069	0.063
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Climate risk	Yes	Yes	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 7: Climate Talk and Changes in Future CO_2 Emissions: Summary of Results Using Trucost Data

This table summarizes results using Trucost data for carbon emissions, using only emissions disclosed by companies (and no vendor-estimated emissions). We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Control variables are indicated at the bottom of each panel. Firm characteristics in Panel B include climate exposure variables (Sautner et al., 2023). All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. *t*-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	ΔCO_2 (1)	ΔCO_2 (2)	ΔCO_2 (3)	ΔCO_2 (4)	ΔCO_2 (5)	ΔCO_2 (6)
Panel A: Call Parts, Energy and GHG Materiality						
	All firms		Energy firms		GHG Materiality	
			No	Yes	Low	High
CT_{CALL}	-0.577*					
	(-1.84)					
CT_{PRE}		-0.376	-0.485*	-0.165	-0.742***	0.149
		(-1.54)	(-2.02)	(-0.41)	(-3.46)	(0.29)
$CT_{Q\&A}$		-0.430**	-0.462**	-0.289	-0.572**	-0.264
		(-2.21)	(-2.41)	(-1.27)	(-2.20)	(-0.84)
CCOP	0.274	0.280	0.545	-0.041	0.856*	-0.301
	(1.24)	(1.29)	(1.38)	(-0.15)	(1.77)	(-0.53)
CCREG	-0.002	0.003	0.180	-0.012	0.212	-0.155
	(-0.01)	(0.02)	(0.72)	(-0.04)	(0.55)	(-0.61)
CCPHY	0.029	0.023	0.099	-0.211	-0.100	0.326
	(0.21)	(0.16)	(0.64)	(-0.79)	(-0.40)	(1.15)
Observations	14,051	14,051	12,020	2,031	8,620	3,318
R-squared	0.067	0.067	0.069	0.083	0.059	0.117
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	No	No	Yes	Yes	Yes	Yes
Panel B: Paris Agreement and National Culture						
	Paris Agreement		Geography		Long-termism	
	Before	After	USA	non-USA	Low	High
CT_{PRE}	-1.000**	-0.117	-0.739*	-0.354	-0.308	-0.349
	(-2.49)	(-0.45)	(-1.80)	(-1.53)	(-0.87)	(-1.54)
$CT_{Q\&A}$	-0.301	-0.480*	0.100	-0.541**	-0.369	-0.512**
	(-1.71)	(-2.11)	(0.35)	(-2.81)	(-1.23)	(-2.72)
Observations	6,511	8,101	4,317	10,295	7,282	7,231
R-squared	0.044	0.091	0.112	0.062	0.097	0.059
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 8: Climate Talk and Cumulative Abnormal Returns

This table examines the relationship between climate talk on earnings calls and cumulative abnormal returns (CAR) over the day of the call and the next trading day. The unit of observation is a firm-quarter combination. Only firms with CO_2 emissions reported and not marked as "estimated" by LSEG ESG are included. Climate talk is measured for the entire call (CT_{CALL}) as well as the prepared presentation (CT_{PRE}) and the Q&A session ($CT_{Q\&A}$) separately. Columns (1) and (2) consider the full sample. Columns (3) and (4) compare effects for Energy and non-Energy firms. Energy firms are defined as those belonging to either Coal, Oil & Gas or Utilities sub-sector, according to the Sustainable Industry Classification System (SICS) provided by SASB. All remaining firms are considered non-Energy firms. Columns (5) and (6) compare, among non-Energy firms, those with low and high greenhouse gas (GHG) materiality, according to SASB. We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Additional control variables are indicated at the bottom of the table. All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

Split	All firms		Energy firms		GHG Materiality	
			No	Yes	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
CT_{CALL}	-0.106***					
	(-5.39)					
CT_{PRE}		-0.086***	-0.055**	-0.140***	-0.056*	-0.038
		(-7.99)	(-2.23)	(-6.03)	(-1.85)	(-0.60)
$CT_{Q\&A}$		-0.067*	-0.083*	-0.038	-0.098**	-0.085
		(-2.00)	(-1.98)	(-0.93)	(-2.20)	(-1.34)
EARN_SURP	0.990***	0.991***	1.187***	0.342	1.446***	0.871***
	(7.08)	(7.08)	(7.74)	(1.41)	(7.14)	(6.29)
CCOP	0.024	0.025	0.036	-0.021	-0.020	0.077
	(0.56)	(0.60)	(0.49)	(-0.85)	(-0.27)	(0.95)
CCREG	0.032	0.034	-0.042	0.098***	-0.026	-0.053
	(0.89)	(0.92)	(-0.72)	(2.94)	(-0.33)	(-1.08)
CCPHY	0.040	0.040	0.064*	-0.009	0.073**	0.048
	(1.41)	(1.41)	(1.83)	(-0.48)	(2.14)	(0.71)
NEGFRAC	-0.063*	-0.063*	-0.085**	0.022***	-0.070*	-0.117
	(-2.08)	(-2.07)	(-2.48)	(3.49)	(-1.81)	(-1.21)
UNFRAC	-0.031	-0.026	-0.046	0.082	-0.069	-0.008
	(-0.83)	(-0.73)	(-1.18)	(1.59)	(-1.69)	(-0.12)
LITFRAC	-0.033	-0.033	-0.056	-0.008	-0.062	-0.059
	(-1.04)	(-1.04)	(-1.07)	(-0.30)	(-1.34)	(-0.48)
NUMFRAC	-0.004	-0.009	0.001	-0.037	0.062	-0.159**
	(-0.06)	(-0.14)	(0.01)	(-0.49)	(0.65)	(-2.97)
FINFRAC	0.039	0.036	0.037	-0.019	-0.009	0.203**
	(1.14)	(1.05)	(0.66)	(-0.23)	(-0.16)	(2.20)
LOGWORD	-0.065*	-0.050	-0.061	0.062	-0.090*	-0.001
	(-1.79)	(-1.24)	(-1.32)	(0.70)	(-1.90)	(-0.02)
Observations	46,415	46,415	39,765	6,650	28,346	10,926
R-squared	0.018	0.018	0.021	0.015	0.022	0.028
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Year	Industry & Year	Industry & Year
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes

Table 9: Climate Talk and Cumulative Abnormal Returns: Sample Splits

This table examines the relationship between climate talk in presentations and Q&A sections of earnings calls (CT_{PRE}, $CT_{Q\&A}$) and cumulative abnormal returns (CAR) over the day of the call and the next trading day. The unit of observation is a firm-quarter combination. We investigate the following splits: Before and after the Paris Agreement of 2015 in columns (1) and (2). Whether the company is headquartered in USA or not in columns (3) and (4). In columns (5) to (10) the sample is split according to the median value of one of two dimensions of national culture as defined by Hofstede et al. (2010): individualism in columns (5) and (6) and long-term orientation in columns (7) and (8). We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Control variables are indicated at the bottom of the table. Firm characteristics include climate exposure controls (Sautner et al., 2023). All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	Paris Agreement		Geography		Individualism		Long-termism	
	Before	After	USA	non-USA	Low	High	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CT_{PRE}	-0.091	-0.091***	-0.142***	-0.049***	-0.047**	-0.117***	-0.130***	-0.022
	(-1.53)	(-4.27)	(-5.51)	(-3.47)	(-2.23)	(-7.38)	(-10.20)	(-1.14)
$CT_{Q\&A}$	-0.110**	-0.052	-0.076	-0.065*	-0.038	-0.098**	-0.074*	-0.066
	(-2.39)	(-0.98)	(-1.48)	(-2.04)	(-0.99)	(-2.39)	(-1.89)	(-1.38)
EARN_SURP	0.844***	1.057***	1.999***	0.745***	0.801***	1.294***	1.175***	0.801***
	(5.93)	(4.03)	(4.57)	(6.88)	(8.95)	(4.42)	(4.83)	(8.20)
CCOP	-0.005	0.037	0.009	0.034	0.052	0.004	-0.001	0.056
	(-0.11)	(0.55)	(0.13)	(0.84)	(1.15)	(0.09)	(-0.02)	(0.98)
CCREG	0.031	0.035	0.110	-0.024	-0.038	0.086*	0.078*	-0.039
	(0.81)	(0.60)	(1.64)	(-0.76)	(-0.98)	(1.74)	(2.07)	(-0.95)
CCPHY	0.014	0.069	0.063	0.005	0.010	0.055	0.053	-0.011
	(0.73)	(1.63)	(1.52)	(0.26)	(0.26)	(1.35)	(1.69)	(-0.26)
Observations	18,051	28,364	20,697	25,718	19,950	26,464	28,704	17,710
R-squared	0.019	0.021	0.031	0.019	0.021	0.023	0.022	0.021
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ling. controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

A Internet Appendix

Table A1: Variable Definitions

Variable	Description	Source
CLIMATE_100	A binary indicator equal to one for firms that are part of the Climate Action 100+ program, which nudges firms to increase their climate-related disclosure; otherwise zero.	From the organization.
CAR	Cumulative Abnormal Return over [0:1] days relative to the call, in %.	Own Calculation
CCOP	Climate Opportunity Exposure Measure	Sautner et al. (2023)
CCPHY	Climate Physical Exposure Measure	Sautner et al. (2023)
CCREG	Climate Regulatory Exposure Measure	Sautner et al. (2023)
CSR_AUDIT	A binary indicator equal to one if the firm has an audit of its CSR report.	LSEG ESG
CSR_COMMITTEE	A binary indicator equal to one if the board of directors has a CSR committee.	LSEG ESG
CSR_INCENTIVE	A binary indicator equal to one if the firms' management has a variable incentive that is linked to CSR.	LSEG ESG
CSR_REPORTING	A binary indicator equal to one if the firm has a corporate sustainability report.	LSEG ESG
$CT_{CALL/PRE/Q\&A/QUE/ANS}$	Climate Talk on the earnings call measured as the textual similarity between the call transcript and the text of Assessment Reports from the Intergovernmental Panel on Climate Change (IPCC). Technically, it is the cosine similarity between the $tf-idf$ vector of bigrams appearing in the transcript and the analogous $tf-idf$ vector obtained from the IPCC reports. Calculated for the entire earnings call as well as for the prepared presentation (PRE), Q&A session (QA), analyst questions (QUE), and manager answers (ANS) separately.	Own Calculation
ΔCO_2 (Total, Scope 1/2/3)	Changes in CO_2 equivalent emissions. Calculated for Total emissions (defined as the sum of Scope 1 and 2 emissions) as well as separately for Scope 1, 2 and 3, over a 1-year and 3-year horizon. We only use emissions data not flagged as "estimated" by the vendors.	Asset 4, Trucost, Own Calculation

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Table A1 – continued from previous page

Variable	Description	Source
$\Delta REVENUE$	Change in Revenues (over one year or three years, to match the time horizon of changes in CO_2 emissions)	Eikon
EARN_SURP	Quarterly earnings surprise, calculated as the difference in actual quarterly earnings minus the most recent mean forecasted quarter earnings and scaled by the stock price.	IBES
FINFRAC	The total number of terms in the Matsumoto et al. (2011) financial-orientation word-list divided by the total number of words in the earnings conference call transcript.	Deng et al. (2023a)
FMP_P,Q,A	Future minus past, the relative temporal focus between the future and the past. The number of future-oriented sentences minus the number of past-oriented sentences, divided by the total number of sentences in the earnings conference call transcripts. The temporal orientation is analyzed with a machine-learning algorithm. Computed separately for presentations (P), questions (Q), and answers(A)	Deng et al. (2023a)
GHG MATERIALITY	A binary indicator equal to one if the Sustainability Standards Accounting Board considers greenhouse-gas emissions material for companies in a given industry	SASB
IO	Institutional Ownership.	Eikon
LEVERAGE	Book leverage	Eikon
LITFRAC	The number of terms in the Loughran and McDonald (2011) litigiuous word-list divided by the total number of words in the earnings conference call transcript.	Deng et al. (2023a)
ln_BM	Logarithm of the book-to-market-ratio.	Eikon
ln_SIZE	Logarithm of the market value of equity.	Eikon
LOGWORD	The natural logarithm of the total number of words in the earnings conference call transcript.	Deng et al. (2023a)
NEGFRAC	The number of terms in the Loughran and McDonald (2011) negative word-list divided by the total number of words in the earnings conference call transcript.	Deng et al. (2023a)
NUMFRAC	The total number of numerical terms divided by the total number of words in the earnings conference call transcript.	Deng et al. (2023a)
POLICYEMISSIONS	A binary indicator equal to 1 if the company had a policy for reducing future greenhouse-gas emissions (according to LSEG ESG analysts), and 0 otherwise	LSEG ESG
ROA	Return on Assets	Eikon
SCALED_CAPEX	Capital expenditures scaled by total assets.	Eikon

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Table A1 – continued from previous page

Variable	Description	Source
SCALED_PPE	Property, Plants and Equipment scaled by total assets.	Eikon
TARGETEMISSIONS	A binary indicator equal to 1 if the company has set a target for reduction in greenhouse-gas emissions, and 0 otherwise	LSEG ESG
TARGETYEAR	A binary indicator equal to 1 if the company has set a year for reaching its target for reduction in greenhouse-gas emissions, and 0 otherwise	LSEG ESG
TCFD	A binary indicator equal to one if the company applies the Task Force on Climate-related Financial Disclosures (TCFD) framework and zero if the firm does not.	From the organization
UNFRAC	The number of terms in the Loughran and McDonald (2011) uncertainty word-list divided by the total number of words in the earnings conference call transcript.	Deng et al. (2023a)

Table A2: Sustainable Industry Classification System

SICS sector	SICS subsector	SICS industry	Group	N obs	% obs
Consumer Goods	Apparel & Textiles	Apparel, Accessories & Footwear		495	1.86
	Consumer Discretionary Products	Appliance Manufacturing		42	0.16
		Building Products & Furnishings		236	0.89
		Household & Personal Products		343	1.29
		Toys & Sporting Goods		72	0.27
	Consumer Goods Retail	E-commerce		122	0.46
		Multiline and Specialty Retailers & Distributors		609	2.29
Extractives & Minerals Processing	Coal	Coal Operations	Energy	54	0.2
	Construction Materials	Construction Materials	High GHG Mat.	373	1.41
	Metals & Mining	Iron & Steel Producers	High GHG Mat.	315	1.19
		Metals & Mining	High GHG Mat.	1,066	4.02
	Oil & Gas	Oil & Gas – Exploration & Production	Energy	922	3.47
		Oil & Gas – Midstream	Energy	199	0.75
		Oil & Gas – Refining & Marketing	Energy	263	0.99
		Oil & Gas – Services	Energy	264	0.99
Financials	Capital Markets	Asset Management & Custody Activities		426	1.61
		Investment Banking & Brokerage		206	0.78
		Security & Commodity Exchanges		112	0.42
	Corporate & Retail Banking	Commercial Banks		1,562	5.89
		Consumer Finance		142	0.54
		Mortgage Finance		54	0.2
	Insurance	Insurance		939	3.54
Food & Beverage	Beverages	Alcoholic Beverages		213	0.8
		Non-Alcoholic Beverages	High GHG Mat.	141	0.53
	Food	Agricultural Products	High GHG Mat.	111	0.42
		Meat, Poultry & Dairy	High GHG Mat.	228	0.86
		Processed Foods		394	1.48
	Food & Beverage Retail	Food Retailers & Distributors	High GHG Mat.	424	1.6
	Restaurants	Restaurants		185	0.7
	Tobacco	Tobacco		113	0.43
Health Care	Biotechnology & Pharmaceuticals	Biotechnology & Pharmaceuticals		866	3.26
	Health Care Providers	Health Care Delivery		160	0.6
		Health Care Distributors	High GHG Mat.	57	0.21
		Managed Care		68	0.26
	Health Care Retail	Drug Retailers		49	0.18
	Medical Technology	Medical Equipment & Supplies		537	2.02
Infrastructure	Infrastructure	Engineering & Construction Services		585	2.2
	Real Estate	Home Builders		157	0.59
		Real Estate		1,277	4.81
		Real Estate Services		103	0.39
	Utilities	Electric Utilities & Power Generators	Energy	1,185	4.46
		Gas Utilities & Distributors	Energy	186	0.7
		Water Utilities & Services	Energy	114	0.43
	Waste Management	Waste Management	High GHG Mat.	98	0.37
Renewable Resources & Alternative Energy	Alternative Energy	Biofuels		12	0.05
		Fuel Cells & Industrial Batteries		16	0.06
		Solar Technology & Project Developers		74	0.28
		Wind Technology & Project Developers		35	0.13
	Forestry & Paper	Forestry Management		27	0.1
		Pulp & Paper Products	High GHG Mat.	167	0.63
Resource Transformation	Chemicals	Chemicals	High GHG Mat.	1,104	4.16
	Industrials	Aerospace & Defense		350	1.32
		Containers & Packaging		294	1.11
		Electrical & Electronic Equipment		607	2.29
		Industrial Machinery & Goods		1,128	4.25
Services	Consumer Services	Education		25	0.09
		Professional & Commercial Services		672	2.53
	Hospitality & Recreation	Casinos & Gaming		173	0.65
		Hotels & Lodging		137	0.52
		Leisure Facilities		44	0.17
	Media	Advertising & Marketing		100	0.38
		Media & Entertainment		306	1.15
Technology & Communications	Internet Media & Services	Internet Media & Services		161	0.61
	Semiconductors	Semiconductors	High GHG Mat.	542	2.04
	Technology	Electronic Manufacturing Services & Original Design Manufacturing		100	0.38
		Hardware		698	2.63
		Software & IT Services		1,026	3.87
	Telecommunications	Telecommunication Services		1,045	3.94
Transportation	Air Transportation	Air Freight & Logistics	High GHG Mat.	176	0.66
		Airlines	High GHG Mat.	283	1.07
	Automobiles	Auto Parts		343	1.29
		Automobiles		307	1.16
		Car Rental & Leasing		25	0.09
	Land Transportation	Rail Transportation	High GHG Mat.	177	0.67
		Road Transportation	High GHG Mat.	55	0.21
	Marine Transportation	Cruise Lines	High GHG Mat.	36	0.14
		Marine Transportation	High GHG Mat.	230	0.87

Table A3: Correlations of climate talk with earnings-call based measures of corporate climate exposure

Panel A: Correlation with the Sautner et al. (2023) bigrams-based measure				
	CT_{Call}	$CCOP$	$CCREG$	$CCPHY$
CT_{Call}	1.00			
$CCOP$	0.2419*	1.00		
$CCREG$	0.4080*	0.2979*	1.00	
$CCPHY$	0.0841*	0.0426*	0.0475*	1.00
Panel B: Correlation with the Deng et al. (2023b) BERT-based measure				
	CT_{Call}	$Call_{Tran}$	$Call_{Phy}$	$Call_{Renew}$
CT_{Call}	1.00			
$Call_{Tran}$	0.3930*	1.00		
$Call_{Phy}$	0.1463*	0.3000*	1.00	
$Call_{Renew}$	0.2324*	0.5103*	0.1945*	1.00

Table A4: Climate Talk and Changes in Future CO_2 Emissions

This table shows the main specifications from Table 3 and Table 4, displaying also the coefficients on the control variables. All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. *t*-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	1-year horizon			3-year horizon		
	ΔCO_2 (1)	ΔCO_2 (2)	ΔCO_2 (3)	ΔCO_2 (4)	ΔCO_2 (5)	ΔCO_2 (6)
CT_{CALL}	-0.893***	-0.575**		-3.340***	-2.739***	
	(-4.08)	(-2.41)		(-8.11)	(-5.18)	
CT_{PRE}			-0.276			-1.846***
			(-1.36)			(-3.45)
$CT_{Q\&A}$			-0.617***			-1.522**
			(-3.78)			(-2.75)
CCOP		0.147	0.151		0.626	0.625
		(0.47)	(0.49)		(0.59)	(0.59)
CCREG		-0.205	-0.191		0.314	0.269
		(-0.89)	(-0.94)		(0.56)	(0.48)
CCPHY		0.281	0.273		-0.180	-0.211
		(1.22)	(1.15)		(-0.39)	(-0.45)
CSR_REPORTING		1.015	1.010		4.395*	4.381*
		(1.18)	(1.17)		(2.05)	(2.03)
CSR_AUDIT		-1.280*	-1.261*		-4.285**	-4.290**
		(-1.80)	(-1.78)		(-2.21)	(-2.21)
CSR_INCENTIVES		-1.701***	-1.638***		-5.141**	-5.013**
		(-3.24)	(-3.19)		(-2.49)	(-2.44)
CSR_COMMITTEE		0.247	0.224		-0.121	-0.153
		(0.35)	(0.31)		(-0.06)	(-0.07)
POLICY_EMISSIONS		0.636	0.646		-1.545	-1.520
		(0.89)	(0.90)		(-0.83)	(-0.82)
TARGET_EMISSIONS		-3.045***	-3.030***		-10.995***	-10.979***
		(-5.62)	(-5.58)		(-6.20)	(-6.21)
TARGET_YEAR		0.242	0.235		0.781	0.790
		(0.44)	(0.43)		(0.31)	(0.31)
CLIMATE_100		-1.259	-1.067		-3.568	-3.363
		(-1.02)	(-0.80)		(-1.32)	(-1.30)
TCFD		-2.930***	-3.067***		-5.194**	-5.522**
		(-3.02)	(-3.27)		(-2.17)	(-2.17)
ΔREVENUE_(1Y)	6.528***	6.481***	6.482***			
	(6.87)	(6.73)	(6.74)			
ΔREVENUE_(3Y)				12.866***	12.626***	12.628***
				(7.04)	(6.88)	(6.87)
IO	-1.858***	-1.980***	-1.929***	-5.574***	-5.851***	-5.733***
	(-5.53)	(-5.72)	(-5.58)	(-6.11)	(-7.69)	(-7.58)
ln_SIZE	-0.521	0.680	0.778	-4.190**	0.083	0.257
	(-1.29)	(1.31)	(1.50)	(-2.65)	(0.05)	(0.14)
ln_BM	-0.950***	-0.941***	-0.989***	-4.130***	-4.140***	-4.237***
	(-3.19)	(-3.02)	(-3.25)	(-2.88)	(-2.92)	(-2.98)
ROA	-0.590	-0.489	-0.473	-1.098	-0.921	-0.891
	(-1.16)	(-0.89)	(-0.86)	(-0.58)	(-0.46)	(-0.44)
LEVERAGE	-0.338	-0.387	-0.386	-0.453	-0.428	-0.418
	(-1.16)	(-1.26)	(-1.25)	(-0.45)	(-0.42)	(-0.41)
SCALED_CAPX	-1.235***	-1.149***	-1.136***	-2.296*	-2.037*	-2.013*
	(-4.03)	(-3.71)	(-3.69)	(-1.99)	(-1.77)	(-1.76)
Constant	3.200***	3.605***	3.630***	13.929***	18.282***	18.325***
	(9.86)	(3.16)	(3.16)	(13.46)	(5.49)	(5.51)
Observations	19,275	19,043	19,043	18,095	17,880	17,880
R-squared	0.050	0.055	0.055	0.046	0.055	0.055
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year

Table A5: Climate Talk and Changes in Future CO_2 Emissions by Scope

This table examines the relationship between climate talk on earnings calls (CT_{CALL}) and subsequent changes in the different scopes of the CO_2 emissions. Changes in emissions are calculated over a 1-year or 3-year horizon, see Panel A and B, respectively. Columns (1)-(2) consider changes in Scope 1, Columns (3)-(4) focus on Scopes 2 and Columns (5)-(6) on Scope 3. All specifications include climate exposure, firm characteristics and additional CSR controls. All variables are defined in Table A1.R esults are from panel regressions estimated with industry and year fixed effects. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	Scope 1		Scope 2		Scope 3	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: ΔCO_2 over 1-year horizon						
CT_{CALL}	-0.779*		-0.369		-66.880	
	(-1.81)		(-0.90)		(-1.18)	
CT_{PRE}		-0.458		-0.340		-29.818
		(-0.99)		(-0.72)		(-0.58)
$CT_{Q\&A}$		-0.543*		-0.260		-55.609
		(-1.88)		(-1.07)		(-1.57)
Observations	16,427	16,427	16,088	16,088	10,033	10,033
R-squared	0.040	0.040	0.039	0.039	0.019	0.019
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Climate risk	Yes	Yes	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: ΔCO_2 over 3-year horizon						
CT_{CALL}	-1.426		-3.125***		-782.753*	
	(-1.39)		(-4.41)		(-1.83)	
CT_{PRE}		-0.737		-2.537**		-489.115
		(-0.73)		(-2.59)		(-1.49)
$CT_{Q\&A}$		-1.278		-1.093		-690.928**
		(-1.52)		(-1.37)		(-2.61)
Observations	15,339	15,339	15,004	15,004	9,101	9,101
R-squared	0.040	0.040	0.030	0.030	0.035	0.035
Fixed Effects	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year	Industry & Year
Climate risk	Yes	Yes	Yes	Yes	Yes	Yes
Firm char.	Yes	Yes	Yes	Yes	Yes	Yes
CSR controls	Yes	Yes	Yes	Yes	Yes	Yes

Table A6: Climate Talk and Cumulative Abnormal Returns - Full Sample

This table examines the relationship between climate talk on earnings calls and cumulative abnormal returns (CAR) over the day of the call and the next trading day. The unit of observation is a firm-quarter combination. Climate talk is measured for the entire call (CT_{CALL}) as well as the prepared presentation (CT_{PRE}) and the Q&A session ($CT_{Q\&A}$) separately. Columns (1) and (2) consider the full sample. Columns (3) and (4) compare effects for Energy and non-Energy firms. Energy firms are defined as those belonging to either Coal, Oil & Gas or Utilities sub-sector, according to the Sustainable Industry Classification System (SICS) provided by SASB. All remaining firms are considered non-Energy firms. Columns (5) and (6) compare, among non-Energy firms, those with low and high greenhouse gas (GHG) materiality, according to SASB. We standardize all continuous explanatory variables to a mean of 0 and a standard deviation of 1. Control variables are indicated at the bottom of the table. All variables are defined in Table A1. Results are from panel regressions estimated with industry and year fixed effects. t-statistics are calculated based on standard errors double-clustered at the industry and year levels and shown in parentheses below the coefficients. ***, **, and * denote significance at the 1%, 5%, and 10% (two-sided) levels.

	All firms		Energy firms		GHG Materiality	
			No	Yes	Low	High
	(1)	(2)	(3)	(4)	(5)	(6)
CT_{CALL}	-0.098***					
	(-5.14)					
CT_{PRE}		-0.075***	-0.053	-0.118***	-0.068*	0.008
		(-4.85)	(-1.52)	(-4.86)	(-2.07)	(0.12)
$CT_{Q\&A}$		-0.068**	-0.090**	0.010	-0.109**	-0.064
		(-2.10)	(-2.21)	(0.26)	(-2.22)	(-1.10)
EARN_SURP	1.235***	1.235***	1.415***	0.545***	1.583***	1.002***
	(9.84)	(9.85)	(9.22)	(3.15)	(11.17)	(5.96)
CCOP	0.024	0.026	0.034	-0.029	0.020	0.011
	(0.74)	(0.80)	(0.61)	(-1.61)	(0.30)	(0.16)
CCREG	0.025	0.026	-0.031	0.075**	-0.009	-0.060
	(0.72)	(0.73)	(-0.50)	(2.65)	(-0.10)	(-1.28)
CCPHY	0.011	0.011	0.017	0.005	0.010	0.016
	(0.57)	(0.56)	(0.69)	(0.24)	(0.33)	(0.28)
NEGFRAC	-0.077***	-0.077***	-0.100***	0.033	-0.099**	-0.104
	(-3.35)	(-3.35)	(-3.70)	(0.85)	(-2.74)	(-1.39)
UNFRAC	-0.074***	-0.069***	-0.080**	0.015	-0.091**	-0.050
	(-3.80)	(-3.94)	(-2.69)	(0.37)	(-2.40)	(-0.71)
LITFRAC	-0.102***	-0.102***	-0.128***	-0.033	-0.130***	-0.134
	(-3.86)	(-3.90)	(-3.68)	(-1.02)	(-4.45)	(-1.48)
NUMFRAC	0.031	0.027	0.041	-0.030	0.087	-0.150**
	(0.75)	(0.65)	(0.82)	(-0.76)	(1.72)	(-2.20)
FINFRAC	0.041	0.038	0.033	0.037	-0.015	0.258***
	(1.58)	(1.51)	(1.19)	(0.83)	(-0.43)	(3.02)
LOGWORD	-0.076**	-0.062	-0.070	0.020	-0.087	-0.020
	(-2.11)	(-1.62)	(-1.27)	(0.32)	(-1.38)	(-0.29)
Observations	95,343	95,343	84,687	10,656	66,303	17,519
R-squared	0.022	0.022	0.024	0.016	0.025	0.027