ABSTRACT

Climate change creates corporate challenges in the form of physical risks (e.g., acute weather events) and transition risks (e.g., an evolving market towards decarbonization). These risks can directly influence the long-term viability of the firm's current operations. Conference call discussions about climate change may offer investors insight into future financial outcomes, yet the predictive content of such narratives for asset impairments is not well established. Consequently, we present evidence of a positive relation between climate change exposure measured using conference call narrative and future write-downs. Firms exposed to climate change risks are more likely to record asset write-downs in its future income statement. Further, we find that the sentiment of this narrative is negatively associated with future write-downs, suggesting that managers use the tone of climate change narrative to offer context on the firm's ability to respond to climate risks. Our research suggests that stakeholders seeking to project future financial performance should not overlook climate change discussion.

I. INTRODUCTION

Climate change represents one of the most pressing global challenges of the 21st century. As extreme weather events become more frequent and regulatory pressures to decarbonize intensify, firms increasingly face physical and transition risks that may materially impact their existing assets (TCFD 2017; Krueger, Sautner, and Starks 2020). These risks may lead to reductions in the future utility of assets or the obsolescence of products and technologies. As such, understanding corporate exposure to climate change has become a critical area for investors, regulators, and other stakeholders concerned with the long-term prospects of the company. In this study, we investigate whether corporate disclosures in conference calls related to climate change exposure provide useful information for predicting future asset write-downs.

Asset impairments are a particularly salient channel through which climate change exposure manifests in corporate financial statements. Asset impairments occur when the carrying value of an asset exceeds its recoverable amount, requiring the firm to record an income statement loss to write-down the asset. Reported impairments of long-lived assets carry meaningful news to investors about future cash flows (Riedl 2004). Related to climate change, impairments may arise from physical damage to assets from acute weather events (e.g., hurricanes, floods, wildfires) or a shift in market conditions due to regulatory pressure to decarbonize or changes in consumer preferences for low carbon alternatives. These physical and transition risks can pose a threat to the viability of the firm's current projected future cash flows, which in turn may necessitate the impairment of assets. However, the probability and magnitude of these climate risks are uncertain and forecasting the impact to the firm requires significant judgment.

Firms routinely face pressure from stakeholders to present transparent disclosures of climate related risks, both to assess the likelihood that the firm may be impacted by climate change and how the firm may respond. One channel through which climate disclosures are often made is earnings conference calls (Sautner, Van Lent, Vilkov, and Zhang 2023). The prominence of climate change narrative in conference calls has grown steadily and significantly over the past two decades as documented in figure 1. This is likely attributable in part to the importance of climate risks to the firm's long-term prospects, but also to the needs for a more nuanced discussion of the risks. Alternate channels, such as the formal ESG reports, which have become commonplace for most large companies, are often questioned about whether they faithfully represent true ESG risks (Michelon, Pilonato, and Ricceri 2015) and criticized for a lack of usefulness (e.g., Christensen, Hail, and Leuz 2021). However, conference calls are a forum in which analysts can ask probing questions to gain incremental information about the firm's risks and preparedness for those risks that may not be decipherable from written reports (Bushee, Matsumoto, and Miller 2003).

We use data on the conference call narrative related to climate change from Sautner et al. (2023) to test whether discussion of climate change exposure in conference calls provides useful information to predict future asset write-downs. We find that both the extent and sentiment of climate change narrative are associated with future asset write-downs. Specifically, our results show a significant positive association between the firm's climate change exposure and future asset write-downs. Firms that devote more attention to climate change in their conference calls are more susceptible to future asset write-downs. Further, we find that the sentiment of climate change narrative provides incremental information on the firm's preparedness for the climate risks. Controlling for the extent of climate change narrative, a positive sentiment around climate change discussion is negatively associated with future asset write-downs.

We conduct additional analyses to provide more context to our primary findings. First, we partition the sample at the median level of climate change exposure and find that the ability of climate change narrative to predict future write-downs is isolated in firms with high climate change exposure. Second, we partition both the exposure and sentiment measures into their opportunity, regulatory, and physical risk components. Our primary results are primarily driven by the opportunity component, which may reflect that firms emphasizing climate-related opportunities are signaling strategic shifts or transformation efforts.

Our findings have meaningful implications to investors, regulators, and other stakeholders. This research is the first to investigate climate change exposure as a predictor of future asset write-downs. Naïve stakeholders may overly focus on financial and economic indicators when forecasting future financial performance. However, stakeholders should not overlook the firm's exposure to climate change. Managers appear to use conference calls as a channel to signal future write-downs that may arise from climate-related risks. Thus, by analyzing the narrative related to climate change in earnings conference calls, users may be able to better forecast asset write-downs. As regulations over ESG reporting are increasingly considered by jurisdictions around the globe, regulators should consider earnings calls as a meaningful channel through which ESG risks, such as those attributable to climate change, may be communicated.

II. BACKGROUND AND HYPOTHESIS DEVELOPMENT

2.1 Climate Change

Climate change, defined as the long-term alteration of temperature and typical weather patterns, is one of the most pressing global challenges of the 21st century. Climate change is largely driven by human-driven greenhouse gas emissions (IPCC 2021). Average global temperatures have increased at an unprecedented rate over recent decades, contributing to more frequent and severe weather events, rising sea levels, and disruptions to ecological systems (IPCC 2021). Scientific projections indicate that without significant mitigation efforts, these trends will continue to intensify, leading to far-reaching environmental, social, and economic consequences (IPCC 2021).

The economic implications of climate change are profound. Beyond environmental degradation, climate change threatens global economic stability through reductions in agricultural productivity, increased infrastructure damage, disruptions to global supply chains, and heightened volatility in commodity markets (Stern 2007; IMF 2020). Additionally, climate change is expected to exacerbate societal challenges such as forced migration, food and water scarcity, and increased health risks, thereby imposing further indirect costs on economies and communities worldwide (UNEP 2021).

Climate change has increasingly been recognized as a material business risk with direct implications for corporate value and viability. Investors, regulators, and other stakeholders are increasingly demanding that corporations disclose and address their climate-related risks and opportunities (Krueger, Sautner, and Starks 2020). Frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD) have emphasized the need for companies to integrate climate considerations into their governance, strategy, risk management, and metrics (TCFD 2017). The shift toward greater transparency reflects the growing expectation that firms not only acknowledge climate change as a risk but also actively adapt and build resilience.

Corporations face both physical risks and transition risks related to climate change. Physical risks stem from acute events such as hurricanes, floods, and wildfires, as well as chronic shifts such as rising average temperatures and sea levels (TCFD 2017). These risks can damage assets, disrupt supply chains, impair workforce safety, and increase operating costs. Transition risks arise from societal efforts to mitigate climate change. These include evolving regulatory requirements and opportunities driven by market shifts toward low-carbon products or services and the related technological innovations (Battiston, Mandel, Monasterolo, Schütze, and Visentin 2017). Together, these risks can influence firms' competitive positions and long-term strategic planning.

The implications of climate change for corporations are multifaceted. Companies must increasingly consider climate risks in capital allocation, asset valuation, supply chain design, and innovation strategies (Löw, Büttner, and Braun 2022). Climate-related considerations can affect cost structures, access to capital, insurance premiums, and overall financial performance (Grewal, Hauptmann, and Serafeim 2020). Moreover, firms are under growing pressure to commit to decarbonization targets, develop climate adaptation measures, and align their operations with broader societal expectations regarding environmental stewardship (Eccles and Klimenko 2019).

While the academic literature on corporate responses to climate change has developed in recent years, there remain significant gaps in the financial accounting domain. Little empirical evidence exists on how the corporate response to climate change may influence accounting transactions or how climate change disclosures may inform financial statement users. We contribute to this literature by exploring the predictive ability of climate change disclosures towards future asset write-downs.

2.2 Climate Disclosures and Conference Calls

Corporations have faced increasing pressure from investors, regulators, and other stakeholders to enhance transparency regarding their exposure to climate-related risks. This growing demand stems from the recognition that climate change poses both material financial risks and strategic opportunities that may significantly affect firms' future cash flows and valuations. Climate-related disclosures allow firms to communicate how they identify, assess, and manage these risks, and they serve as a signal to markets regarding a firm's preparedness and resilience in the face of climate change (TCFD, 2017; Krueger et al. 2020).

Corporate climate disclosures can be categorized along several dimensions. A fundamental distinction exists between voluntary and mandatory disclosures**.** Voluntary disclosures are typically guided by international frameworks such as the Task Force on Climate-related Financial Disclosures (TCFD), the Global Reporting Initiative (GRI), or the CDP (formerly Carbon Disclosure Project). These frameworks encourage firms to disclose consistent, comparable, and decision-useful climate-related information even in the absence of legal requirements (CDP 2022; GRI 2021). In contrast, mandatory disclosure regimes have been adopted or are emerging in several jurisdictions, such as the European Union's Corporate Sustainability Reporting Directive (European Commission 2019).[1]

Another key dimension is the distinction between quantitative and qualitative disclosures**.** Quantitative disclosures include specific metrics such as greenhouse gas (GHG) emissions (including the identification of scopes 1, 2, and 3), energy consumption figures, and carbon intensity measures. By contrast, qualitative disclosures typically describe governance arrangements for climate oversight, strategic approaches to climate risks and opportunities, and narrative explanations regarding climate adaptation and mitigation strategies (Kotsantonis and Serafeim 2019). While quantitative disclosures are typically based on historical performance, qualitative disclosures are more likely to be forward looking.

Firms have many options for channels to make climate change disclosures, including formal ESG or sustainability reports, which have become commonplace for nearly all large firms

[1] In the US, steps towards mandatory climate disclosure rules were taken in 2022 with the adoption of a U.S. Securities and Exchange Commission (SEC) proposal on climate disclosures. However, due to climate reporting being highly politicized in the US, the SEC proposal was abandoned in 2025.

(KPMG 2024). The prominence of ESG reports is largely driven by investor pressure for comprehensive disclosures on environmental and social risks (Grewal, Riedl, and Serafeim 2019). However, ESG reporting practices vary significantly across firms and jurisdictions, making it difficult to compare ESG performance effectively (Christensen, Hail, and Leuz 2021). Further, a lack of assurance raises concerns about accuracy and reliability (Hummel and Schlick 2016) and greenwashing is a significant concern (Kurpierz and Smith 2020). Some view ESG reports as a symbolic exercise to enhance legitimacy of the firm rather than faithfully representing the true ESG performance and the risk to which the firm is exposed (Michelon, Pilonato, and Ricceri 2015).

ESG disclosures extend beyond formal, written reporting and are commonplace in conference calls (Sautner et al. 2023). Corporate disclosures made during conference calls are an essential component of firms' voluntary disclosure practices. Conference calls offer managers an opportunity to communicate directly with analysts and investors in a more flexible and timely manner than written publications. These calls typically occur after earnings announcements and serve to clarify financial results, elaborate on strategic priorities, and address potential concerns from the investment community.

The content of conference call disclosures typically extends beyond the quantitative figures presented in earnings announcements. Managers often provide forward-looking guidance on expected revenue, earnings, and capital expenditures, as well as commentary on industry trends, competitive positioning, and macroeconomic risks (Frankel, Johnson, and Skinner 1999). Conference calls are widely used by institutional investors and analysts as a primary source of timely, detailed, and forward-looking information that helps refine earnings forecasts and update valuation models (Bowen, Davis, and Matsumoto 2002; Brown, Hillegeist, and Lo 2004). Analysts in particular rely on these calls to extract both explicit numerical guidance and qualitative insights, which they often incorporate into their subsequent research reports and stock recommendations (Matsumoto, Pronk, and Roelofsen 2011).

Prior research suggests that such verbal disclosures can reduce information asymmetry and improve market participants' understanding of firm performance (Brown, Hillegeist, and Lo 2004; Frankel, Johnson, and Skinner 1999). By allowing real-time interaction, conference calls provide a forum for analysts to ask probing questions, which often elicit incremental information not available in written reports (Bushee, Matsumoto, and Miller 2003). The question-and-answer portion of these calls is particularly valuable, as it enables analysts to probe deeper into issues that are not explicitly addressed in prepared remarks, often eliciting incremental and potentially market-moving information (Hollander, Pronk, and Roelofsen 2010).

This interactive and dynamic nature of conference call disclosures underscores their importance as a medium for reducing information asymmetry. Related to climate change, managers may outline their strategies for reducing carbon emissions, transitioning to renewable energy sources, or managing supply chain vulnerabilities related to climate events (Hassan, Qiang, and Zhang 2021). Such disclosures are particularly valuable to users seeking to assess commitment of firms' sustainability initiatives to form predictions on how the company may be affected by climate change in future periods (Krueger et al. 2020).

2.3 Asset Impairment Accounting

Asset impairment accounting, governed by ASC 360 *Property, Plant and Equipment*, is designed to ensure that assets are not carried at amounts exceeding their recoverable value.[2] When

[2] Impairment accounting is governed by IAS 36 Impairment of Assets under International Financial Reporting Standards (IFRS). While the conceptual principles are the same as under U.S. Generally Accepted Accounting Principle (GAAP), there are some technical differences in the application. For example, under IFRS, the asset's recoverable amount is defined as the higher of its fair value less costs of disposal and its value in use. Also, IFRS permits the reversal of impairment losses for certain assets if recovery occurs which is generally not allowed under U.S. GAAP.

an asset's carrying amount exceeds the amount expected to be recovered through use or sale, an impairment loss must be recognized, thereby providing more accurate and relevant financial information to investors and stakeholders.

Impairment testing is a multi-step process that relies heavily on management judgment and estimates. First, management must identify potential indicators of impairment, often referred to as "triggering events," which suggest that an asset's carrying amount may not be recoverable. These may include changes in market conditions, legal or regulatory developments, physical damage to the asset, or internal decisions such as restructuring (FASB 2001). Second, if such indicators are present, management must estimate the recoverable amount. This typically involves the projection of future cash flows attributable to the asset and the application of an appropriate discount rate (FASB 2001). Third, if the carrying amount exceeds the recoverable amount, an impairment loss equal to the excess must be recognized.

Many inputs are needed in the determination of the existence and amount of impairments including assumptions about future cash flows, discount rates, useful lives, and residual values (Beatty and Weber 2006). These inputs are inherently forward looking and uncertain. Accordingly, impairment accounting reflects a firm's future expectations and risk assessments. Climate change represents a potentially significant source of impairment indicators. Physical risks such as extreme weather events and rising sea levels can directly damage assets or reduce their productivity. For example, floods may not only cause physical damage to assets but also disrupt the supply chain, affecting future cash flows (Haraguchi and Lall 2015). From the perspective of transition risks, regulatory changes and climate driven opportunities can impact how the firm operates, leading to changes in expected cash flows or asset obsolescence. For example, the transition to low-carbon energy, carbon taxes, and lower long term oil demand attributable to changing consumer preferences can create a need for a write-down of oil and gas assets (Blackmon 2020).

While some companies have publicly stated that some assets may be at risk for impairments due to climate change (Valle 2021), the extent to which firms incorporate these considerations into their impairment assessment remains unclear. U.S. GAAP requires entities to consider external and internal information when identifying impairment triggers, but does not explicitly mandate the incorporation of uncertain climate scenarios or sustainability metrics. While there is anecdotal evidence of firms recording asset write-downs due to climate change related factors, empirical evidence of a robust relation is absent. To the contrary, some studies suggest that firms delay or avoid impairment recognition when faced with uncertainty (Dechow and Sloan 1991). Given the immense uncertainty in climate change effects, there is a potential disconnect as to whether climate change impacts are reflected in the financial statements through the reported asset values.

We directly test whether climate change exposure, measured through conference call narrative, is related to the likelihood and magnitude of future asset write-downs. Factors may be related to asset write-downs if they reduce estimate of future cash flows, useful lives, or residual values of assets. Climate change can contribute to these conditions by disrupting firm operations (e.g., due to regulation or climate related business opportunities) or creating discrete events that may physically damage assets. If such factors are plausible and foreseeable to managers, they are likely to provide cues during earnings calls to signal potential future write-downs. Based on this expectation, we predict climate change exposure is positively associated with future asset write-downs. Accordingly, we state our first hypothesis as follows:

H1: Climate change exposure is positively associated with future asset write-downs.

2.4 Tone and Sentiment

The tone and sentiment conveyed by managers during earnings conference calls have been shown to carry significant informational content beyond the quantitative financial results disclosed in earnings announcements. Managers often use optimistic or pessimistic language strategically to shape investor perceptions and manage market reactions (Davis, Piger, and Sedor 2012). For example, more positive tone has been associated with higher contemporaneous stock returns, suggesting that investors interpret upbeat language as a signal of favorable future performance (Price, Doran, Peterson, and Bliss 2012). However, this positivity is not always fully justified by firm fundamentals. Research also shows that overly positive tone can predict lower future operating performance, implying that managers may use optimistic language to obfuscate negative news or mask deteriorating fundamentals (Huang, Teoh, and Zhang 2014).

Linguistic analyses of conference call transcripts have provided insights into managerial credibility and future firm outcomes. For instance, Matsumoto, Pronk, and Roelofsen (2011) find that conference calls provide incremental information to investors partly through the linguistic cues and affective content managers express. Similarly, Frankel, Mayew, and Sun (2010) document that vocal cues such as pitch and voice modulation also contain predictive information about future earnings, reinforcing the notion that nonverbal sentiment can influence investor decision-making.

Likewise, the tone and sentiment used to communicate climate strategies can provide incremental information beyond the spoken words themselves. Managers may use tone strategically to frame the firm's climate-related position, especially when anticipating future challenges. For instance, more negative or pessimistic language may serve as a subtle signal of impending asset write-downs while a more optimistic tone may reflect confidence in the firm’s ability to adapt. Firms that proactively discuss climate risks and set ambitious targets may signal long-term resilience to stakeholders (Amel-Zadeh and Serafeim 2018). Climate change exposure does not have the same implications for all firms. In some instances, climate change exposure may pose significant risks to the viability of the firm's current operations. On the other hand, for some firms, climate change exposure may represent opportunities for the firm to respond and thrive. Accordingly, we predict that the sentiment of climate change narrative in conference calls has incremental informational value beyond the level of climate change exposure. Accordingly, we state our second hypothesis as follows:

H2: Climate change sentiment is negatively associated with future asset write-downs.

III. RESEARCH DESIGN

3.1 Measuring Climate Change Exposure and Sentiment

Our research questions require measures of climate change exposure and sentiment. We employ firm-year level measures of climate change exposure and sentiment developed and provided by Sautner et al. (2023). These measures are calculated using textual analysis of earnings call transcripts and capture the extent to which firms discuss climate-related issues in a given period and the sentiment of the climate discussion. Given the nature of conference calls, the Sautner et al. (2023) climate change exposure and sentiment measures reflect the joint attention of managers and analysts towards the potential impacts of climate change on the firm.

To construct the exposure measure (*CC_Expo*), Sautner et al. (2023) start with a small number of phrases, called bigrams, that clearly relate to climate change. They then use a machine learning algorithm to identify additional phrases that appear in similar contexts and likely also refer to climate-related topics. The final set of climate-related bigrams includes phrases that cover a wide range of climate topics, including discussions of regulation, technology, environmental risks, and specific facilities. The top five bigrams captured by climate change exposure are 'renewable energy', 'electric vehicle', 'clean energy', 'new energy', and 'climate change'. The overall exposure measure (*CC_Expo*) is calculated as the frequency of climate-related phrases in a firm's earnings call transcript, scaled by the length of the transcript to account for differences in call duration. Annual exposure is then computed as the average of the four quarterly exposure values.

Sautner et al. (2023) also develop a measure of climate change sentiment (*CC_Sent*) to measure the tone of climate related discussion. The authors use the Loughran and McDonald (2011) dictionaries to classify whether climate-related content in a transcript is framed positively or negatively. This results in measures of positive sentiment (*CC_Pos*) and negative sentiment (*CC_Neg*) related to climate change exposure. These measures are combined into an overall sentiment measure (*CC_Sent*) by counting climate change bigrams conditional on the presence of positive or negative tone words. The resulting measure reflects the extent to which climate change is discussed in an optimistic or pessimistic tone.

3.2 Empirical Design

We test the effect of climate change disclosure on future asset write-down with the following model.

$$Future\_WD = \beta_0 + \beta_1\, CC\_Expo + \beta_2\, CC\_Sent + \beta_3\, Current\_WD + \beta_n\, Controls + \varepsilon \qquad (1)$$

The dependent variable *(Future_WD)* represents measures of asset write-downs in year *t+1*. We operationalize asset write-downs using two alternative specifications. First, *i_WD* is an indicator variable equal to one for firm-years that report material asset write-downs in year t+1, and zero otherwise. Specifically, we measure material asset write-downs as those that exceed the threshold of 0.5% of total assets to identify the existence of write-downs that are economically meaningful.[3] Second, we use a continuous measure (*WD)* defined as asset write-downs in year *t+1* scaled by total assets. This measure allows for the consideration of the magnitude of write-down.

The primary independent variables of interest are measures of climate change exposure *(CC_Expo)* and climate change sentiment *(CC_Sent).* These variables are obtained from Sautner et al. (2023) and are measured as described in section 3.1. Hypothesis 1 predicts a positive coefficient on *CC_Expo,* and hypothesis 2 predicts a negative coefficient on *CC_Sent*.

To control for the persistence of write-down, we include *Current_WD* as a control variable. We include *i_WD* (*WD*) in year *t* as a control when *i_WD* (*WD*) in year *t+1* is the dependent variable. We also include a set of control variables commonly associated with asset write-down and with firms' climate-related disclosures. These controls include firm size (*Size*), profitability (*ROA*), growth opportunities (*MTB*), financial leverage (*Lev*), bankruptcy risk (*ZScore*), operating cycle (*OpCycle*), asset structure (*NOA*), and international operations (*Foreign*). *Size* is measured as the natural logarithm of total assets. *ROA* is return on assets. *MTB* is the market-to-book ratio. *Lev* is total liabilities scaled by total assets. *ZScore* is the Altman Z-score, which proxies for bankruptcy risk. *OpCycle* is the length of the firm's operating cycle. *NOA* is net operating assets, and *Foreign* is an indicator variable equal to one for firms with foreign operations. All control variables are measured at the beginning of year *t* to mitigate potential endogeneity concerns. All continuous variables are winsorized at the 1st and 99th percentiles. Appendix A details variable definitions and sources of all variables used in the analyses.

IV. EMPIRICAL RESULTS

4.1 Sample Selection

[3] Results are not sensitive to the threshold used to identify material write-downs. Inferences remain unchanged when we either lower (0.25% of assets) or raise (1% of assets) the threshold.

We begin by collecting firm-year observations on climate change exposure and sentiment from Sautner et al. (2023) for the period 2001 to 2023, which yields 119,649 firm-year observations. We then merge this dataset with financial data from Compustat and exclude observations with missing Compustat data, resulting in 82,827 observations. Next, we remove firms in the financial and utility sectors due to differences in their financial reporting practices, reducing the sample to 60,753 firm-years. We further exclude firms with total assets below $1 million and firms with income-increasing write-down amounts, yielding a sample of 60,517 observations. Finally, we drop firm-year observations with missing values for any of the variables in our empirical model. The final sample consists of 57,311 firm-year observations. Table 1 summarizes the sample selection process.

4.2 Descriptive Statistics

Table 2 presents the descriptive statistics. The mean value of the write-down indicator variable (*i_WD*) indicates that 9 percent of firm-year observations report write-downs in the following year exceeding 0.5 percent of total assets.[4] The average magnitude of write-downs (*WD*) for all firm-years is 0.25 percent of beginning total assets. Excluding observations that do not report a write-down in year *t+1*, the average magnitude of write-downs is $69 million or 1.47% of beginning total assets. The summary statistics for *CC_Expo* and *CC_Sent* are comparable to those reported in Sautner et al. (2023). Firm size (*Size*) has a mean value of 6.78, which corresponds to approximately $884 million in total assets. The average return on assets (*ROA*) is −0.03. The mean market-to-book ratio (*MTB*) is 3.34, and the average leverage ratio is 0.52. The Altman Z-score (*ZScore*) and operating cycle (*OpCycle*) have mean values of 3.58 and 138 days, respectively. Net

[4] In untabulated analysis, the mean of *i_WD* is 0.06 when the threshold is lowered to 0.25 percent, and 0.12 when it is raised to 1 percent of beginning total assets. Inferences are unchanged using these alternate thresholds.

operating assets (*NOA*) average 0.96. Finally, 86 percent of the sample consists of firms with foreign operations.

Table 3 presents Pearson (below the diagonal) and Spearman (above the diagonal) correlations among the main variables. The two measures used to operationalize future asset write-downs *i_WD* and *WD* are significantly positively correlated as expected. *CC_Expo* is positively correlated with both *i_WD* and *WD*, presenting some initial evidence suggesting that firms with greater climate change exposure may be more likely to recognize asset write-downs and in larger amounts, consistent with hypothesis 1. *CC_Sent* is not significantly correlated with either *i_WD* or *WD,* which appears inconsistent with the predictions of hypothesis 2. However, *CC_Sent* is significantly correlated with *CC_Expo*. A multivariate OLS regression analysis as specified in model 1 is needed to disentangle the effects of these two variables while accounting for the firm-level control variables.

4.3 Empirical Results

Table 4 presents the results of estimating model 1 as the primary test of our hypotheses. The dependent variable in column 1 is an indicator variable representing the presence of future write-downs (*i_WD*) while column 2 uses a continuous measure of the dollar value of future write-downs (*WD*) as the dependent variable. The key variables of interest are climate change exposure (*CC_Expo*) and climate change sentiment (*CC_Sent*).

The results show a positive association between *CC_Expo* and both the existence of future write-downs (3.136, $p < 0.01$) and extent of future write-downs (0.118, $p < 0.01$). Greater exposure to climate change is associated with both a higher likelihood and a larger magnitude of future asset write-downs. This finding is consistent with H1, which predicts a positive relation between climate change exposure and future asset write-downs. In contrast, *CC_Sent* is negatively associated with both the existence of future write-downs (–4.064, $p < 0.05$) and extent of future write-downs (–0.200, $p < 0.05$). This suggests that more negative (positive) sentiment in climate change discourse during conference calls corresponds with an increased (decreased) probability and recorded value of write-downs in the subsequent year. This result supports H2, which posits a negative relation between climate change sentiment and future asset write-downs.

Next, we perform a cross-sectional analysis based on the magnitude of climate change exposure. Dhaliwal, Radhakrishnan, Tsang, and Yang (2012) show that voluntary CSR reporting improves analyst forecast accuracy primarily when CSR issues are material, and that the effect weakens or disappears when such disclosures are immaterial. Accordingly, we suspect that the observed associations between climate change discourse and future asset write-downs are most likely when the firm has a material level of climate change exposure. We partition the sample into high and low *CC_Expo* groups based on the annual median value of *CC_Expo* and estimate model 1 separately for each subsample. These results are reported in Table 5. Columns 1 and 2 present results for firms in the high-exposure group, while columns 3 and 4 report results for those in the low-exposure group.

The results of this cross-sectional analysis are consistent with the expectation that the associations between climate change exposure and sentiment and future asset write-downs are more pronounced among firms with greater climate change exposure. In the high *CC_Expo* sample (columns 3 and 4), both *CC_Expo* and *CC_Sent* remain statistically significant and in the expected directions. Specifically, *CC_Expo* is positively associated with both *i_WD* (2.886, $p < 0.01$) and *WD* (0.112, $p < 0.01$), and *CC_Sent* is negatively associated with *i_WD* (–3.705, $p < 0.05$) and *WD* (–0.201, $p < 0.05$). These findings reinforce the primary results and indicate that firms facing material levels of climate change exposure, on average, provide useful information in their climate change discourse to predict future asset write-downs. In contrast, the coefficients on both *CC_Expo* and *CC_Sent* in the low-exposure sample (columns 3 and 4) are statistically insignificant, suggesting that among firms with low exposure to climate change, climate-related disclosures are less relevant for anticipating future asset write-downs. Overall, this cross-sectional analysis supports the notion that the influence of climate change exposure and sentiment on future write-downs is concentrated among firms that face material levels of climate change exposure.

4.4 Disaggregation of Climate Change Exposure Types

In addition to the overall climate change exposure measure (*CC_Expo*), Sautner et al. (2023) provide three topic-specific exposure metrics that capture distinct dimensions of climate-related disclosure: opportunities (e.g., green technology), regulatory risks (e.g., carbon pricing and emissions policy), and physical risks (e.g., acute weather events). These topic-specific measures are derived using the same methodology as *CC_Expo* but rely on bigram dictionaries tailored to each thematic area. Parallel measures are also constructed for climate change sentiment (*CC_Sent*), resulting in three sentiment-based variables aligned with the same topics.

To explore the underlying drivers of our primary results, we disaggregate *CC_Expo* and *CC_Sent* into their respective components using the data provided by Sautner et al (2023). Specifically, we replace *CC_Expo* with *Opp_Expo*, *Reg_Expo*, and *Phy_Expo*, and *CC_Sent* with *Opp_Sent*, *Reg_Sent*, and *Phy_Sent*. We then re-estimate model (1) using these disaggregated measures to provide insight into which aspects of climate change narrative are most strongly associated with future asset write-downs.

Table 6 reports results using the disaggregated measures of climate change exposure and sentiment to explore which dimensions of climate-related disclosure are most closely linked to future asset write-downs. Among the topic-specific exposure variables, *Opp_Expo* shows a positive and significant relationship with both the existence of future write-downs (5.930, $p < 0.01$) and the extent of future write-downs (0.242, $p < 0.01$), suggesting that firms with greater disclosure related to climate-related opportunities are more likely to recognize write-downs. This positive association is consistent with firms discussing climate-related opportunities to signal strategic shifts or transformation efforts in response to changing market preferences for climate responsibility. Such shifts can lead to asset write-downs as older or less relevant assets become impaired or replaced during the transition. The sentiment of the opportunity related discussion, *Opp_Sent,* is negatively and significantly related to both the existence of future write-downs (–7.954, $p < 0.05$) and the extent of future write-downs (–0.434, $p < 0.05$). The tone of climate change opportunity discussion provides context about potential costs and challenges related to the firm's response to climate opportunities.

Exposure to physical climate risks (*Phy_Expo*) is negatively associated with both the existence of future write-downs (–22.133, $p < 0.05$) and extent of future write-downs (–0.913, $p < 0.01$), which contrasts with the direction of our primary results. We note two logical explanations for this finding. One explanation is that firms emphasizing physical risks may be proactively managing or mitigating such exposures, reducing the need for subsequent write-downs. A second possible explanation is that firms discuss physical climate risks in the period that the discrete weather event (e.g., flood, fire, hurricane) occurs. Mechanically, the related asset write-down would be expected to be recorded in the same period that the weather event causes damage instead of a future period. *Phy_Sent* is statistically insignificant, indicating that the sentiment of physical climate risk discussion is not significantly associated with future asset write-downs. Interestingly, both regulatory exposure (*Reg_Expo*) and regulatory sentiment (*Reg_Sent*) are statistically insignificant. Overall, our analysis of disaggregated climate change exposure types indicates that climate opportunity narratives, both in terms of exposure and tone, are the most predictive of future write-downs. This highlights the complex interplay between forward-looking climate disclosures and financial reporting outcomes. Opportunity discussions are the most forward-looking component of climate change narrative, while regulatory and physical risk discussions are often more reactive.

V. ADDITIONAL ANALYSES

5.1 Climate Change Risk as an Alternate Measure

Our primary analysis studies climate change exposure and sentiment separately. As a robustness analysis, we re-perform our analysis using climate change risk (*CC_Risk*) as an alternate dependent variable. *CC_Risk* is measured by integrating the extent to which firms discuss climate change exposure alongside a negative tone. This measure provides a comprehensive indicator of climate change related risk perception. Table 7 presents results using *CC_Risk* as the primary dependent variable.

The coefficient on *CC_Risk* is positive and significant for both the likelihood of future write-downs (38.435, $p < 0.01$) and the extent of future write-downs (1.167, $p < 0.01$). These findings indicate that firms expressing greater climate-related risk in their earnings calls are substantially more likely to report asset impairments in the following year, and the magnitude of those impairments tends to be larger.

Compared to the separate inclusion of exposure and sentiment, *CC_Risk* consolidates the predictive power of both dimensions. This reinforces the importance of how firms frame climate exposure when anticipating future financial reporting outcomes. The results highlight the value of jointly considering exposure and sentiment when developing expectations from climate change narrative in earnings conference calls.

5.2 Positive and Negative Climate Change Sentiment

In addition to the overall climate change sentiment variable, Sautner et al. (2023) provide separate measures of positive sentiment (*CC_Pos*) and negative sentiment (*CC_Neg*). Table 8 presents the results of estimating model 1 after replacing *CC_Sent* with *CC_Pos* and *CC_Neg*. The coefficient on *CC_Expo* remains positive and significant for both measures of future write-downs (2.152, $p < 0.10$ for *i_WD*; 0.111, $p < 0.10$ for *WD*), consistent with the primary findings that greater climate exposure is associated with a higher likelihood and value of future write-downs.

The coefficients on the disaggregated sentiment variables are in the directions expected, though significant levels are inconsistent across model specifications. In column 1, *CC_Neg* exhibits a positive and significant association with the likelihood of future write-downs (7.767, $p < 0.10$), suggesting that a more negative tone in climate discussions is linked to higher chances of impairments. In column 2 where the independent variable is the continuous measure of write-downs (*WD*), the coefficient on *CC_Neg* is positive as expected though not statistically significant. Conversely, in column 2, *CC_Pos* shows a significant negative association (–0.193, $p < 0.05$) with the continuous measure of write-downs (*WD*). This indicates that more positive tone of climate-related discourse is associated with smaller future asset impairments. While the effect on the likelihood of write-downs is negative, it is not statistically significant. In column 1 where the independent variable is the indicator variable for the existence of write-downs (*i_WD*), the coefficient on *CC_Pos* is negative as expected though not statistically significant.

These results highlight the importance of differentiating climate change sentiment. Evidence does not suggest that the primary results are driven by only positive or negative sentiment. Instead, both positive and negative sentiment may be used to provide context to the climate exposure, with positive (negative) sentiment being negatively (positively) associated with future write-downs.

5.3 Goodwill Impairments

Our predictions are based on climate change impacting the viability of tangible assets. Table 9 presents a falsification test using future goodwill impairment as the dependent variable, instead of asset write-downs. Goodwill is an intangible asset that represents the excess of the purchase price of acquired companies over the fair value of their identifiable net assets. Given this intangible nature of goodwill, we would not expect climate change to physically damage goodwill or modify the companies' use of goodwill similar to how it can impact tangible assets. This test examines whether the observed relationships between climate change variables and write-downs extend to a different type of impairment not directly tied to physical assets.

We measure goodwill impairment in the same two-fold manner as asset write-downs. First, goodwill impairment in year $t+1$ is multiplied by negative one so that our continuous measure (*GWIMP*) increases as the reported magnitude of goodwill impairments increases. Second, we create an indicator variable (*i_GWIMP*) that equals one if the future goodwill impairment is greater than 0.05% of beginning total assets, consistent with the asset write-down indicator measure. We then repeat our primary analysis replacing future asset write-downs with future goodwill impairments.

The results show that *CC_Expo* is negatively associated with both the existence (*i_GWIMP*, –2.449, $p < 0.01$) and extent (*GWIMP*, –0.230, $p < 0.01$) of future goodwill impairments. *CC_Sent* is not statistically significant in either specification. The results of our primary analysis do not extend to goodwill impairments. To the contrary, firms with higher climate change exposure are actually less likely to report future goodwill impairments. There are several possible explanations for this seemingly divergent finding, but most notably this result could be driven by the nature in which climate change opportunities impact assets. As shown in table 6, our primary findings related to tangible asset write-downs are primarily attributable to climate opportunities. Tangible assets may need to be replaced or modified, which would necessitate a write-down, to capitalize on climate opportunities. However, capitalizing on these climate opportunities can positively influence future cash flow projections, which would reduce the need for goodwill impairments. Overall, the findings presented in table 9 strengthen the validity of our main results.

VI. CONCLUSION

Climate change is increasingly recognized as a significant business risk that may threaten the long-term viability of a firm's current operations. This "non-financial" risk can have clear financial implications related to asset write-downs. Asset write-downs occur when the carrying value of an asset exceeds its recoverable amount. Physical and transition risks associated with climate change may threaten the viability of future forecasted cash flows, which would necessitate a write-down. We present empirical evidence that the extent of firm level climate change exposure is positively associated with future asset write-downs. At the same time, the sentiment of the climate change narrative is negatively associated with future asset write-downs.

Discussion of climate change in corporate earnings conference calls has grown steadily and significantly over the past two decades as evidenced by figure 1. Conference calls differ from other ESG disclosure channels (i.e., written reports) in that they allow for analysts to ask probing questions, which encourages a more nuanced discussion of the risks. Our study demonstrates that this discussion should not be ignored. By carefully and effectively analyzing the climate change discussion in conference calls, users may be able to more accurately predict future asset write-downs.

While this study focuses on the ability of climate change exposure to predict future asset write-downs, we do not suggest that this is the only implication of climate change exposure towards financial accounting. Climate change is a wide-reaching phenomenon that poses broad business risks. Future research should explore other areas where the "non-financial" topic of climate change directly impacts financial reporting.

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Appendix B. Variable Definitions

Variable	Definition
Dependent Variables	
Future_WD	Asset write-down in year $t+1$ measured in two ways: *i_WD* and *WD*.
i_WD	Indicator variable equal to one if asset write-down in year $t+1$ exceeds 0.5 percent of beginning total assets in magnitude and zero otherwise.
WD	Continuous variable for asset write-down in year $t+1$, scaled by beginning total assets. For write-down amount, *wdp* from Compustat is used. We multiply *wdp* by −1 such that the amount of write-down increases with its value. We drop income-increasing write-downs.
Independent Variables	
CC_Expo	Measure of climate change exposure from Sautner et al. (2023)
CC_Sent	Measure of climate change sentiment from Sautner et al. (2023)
Control Variables	
Current_WD	Asset write-down in year t measured in two ways: *i_WD* and *WD*.
Size	Natural logarithm of total assets at the beginning of year t.
ROA	Return on assets, measured at the beginning of year t.
MTB	Market-to-book, measured at the beginning of year t.
Lev	Leverage, defined as total liabilities divided by total assets, measured at the beginning of year t.
ZScore	Altman Z-score, measured at the beginning of year t.
OpCycle	Operating cycle, measured at the beginning of year t.
NOA	Net operating assets scaled by sales, measured at the beginning of year t.
Foreign	Indicator variable equal to one for firms with foreign operations and zero otherwise.

Figure 1. Time Trend of Climate Change Exposure and Sentiment

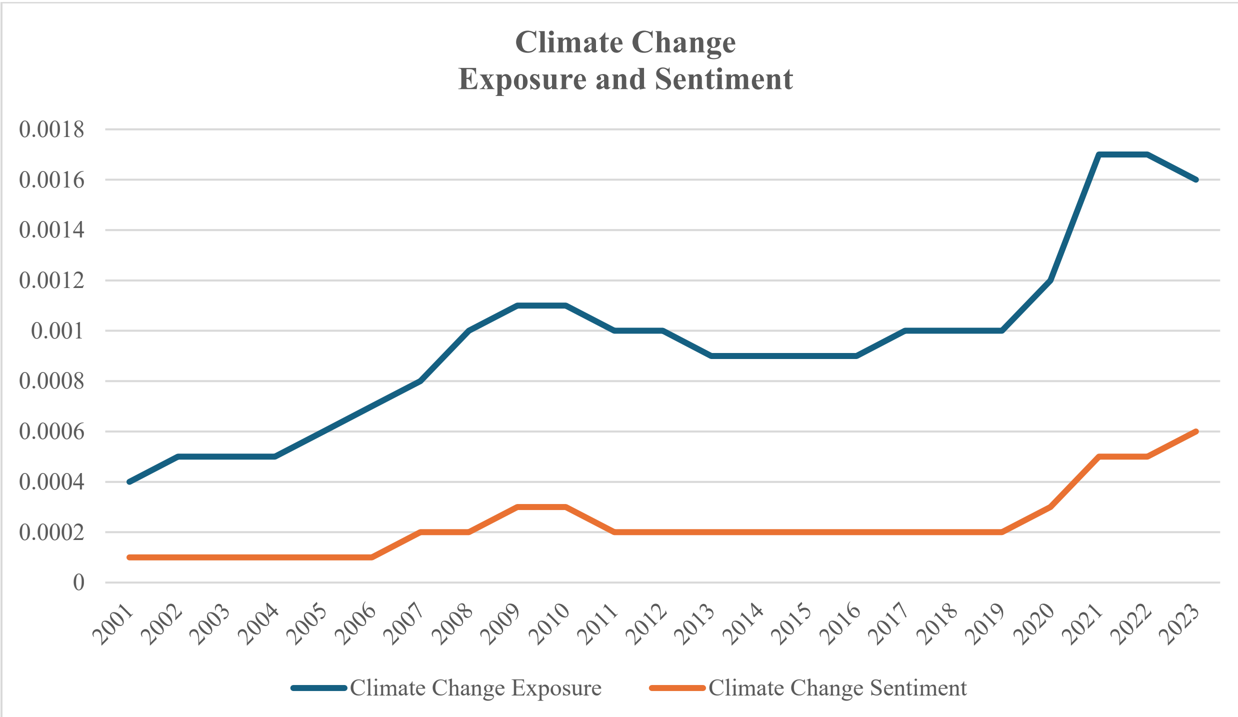

Table 1. Sample Selection

	Firm-year observations
Observations available from Sautner et al. (2023)	119,649
Less Observations:	
Missing Compustat data	(36,822)
	82,827
Financial institutions and utilities	(22,074)
	60,753
Total assets less than $1 million and negative write-downs	(236)
	60,517
Observations with missing control variables	(3,260)
Final Sample	57,311

Table 1 details the construction of our sample. The unit of observation is firm-year.

Table 2. Descriptive Statistics

Variable	N	Mean	Median	Std. Dev.	Q1	Q3
i_WD	57,311	0.0902	0	0.2865	0	0
WD	57,311	0.0025	0	0.0106	0	0
CC_Expo	57,311	0.0010	0.0003	0.0024	0.0001	0.0008
CC_Sent	57,311	0.0003	0	0.0009	0	0.0002
Size	57,311	6.7803	6.7249	2.0248	5.3603	8.1317
ROA	57,311	−0.0324	0.0311	0.2294	−0.0428	0.0741
MTB	57,311	3.3442	2.2120	6.7795	1.2660	3.9657
Lev	57,311	0.5157	0.5014	0.2674	0.3226	0.6631
ZScore	57,311	3.5798	2.5347	5.9839	1.3147	4.4901
OpCycle	57,311	138.287	107.4513	146.3930	65.8464	166.4491
NOA	57,311	0.9620	0.5875	1.7167	0.3068	1.0420
Foreign	57,311	0.8597	1	0.3473	1	1

Table 2 presents descriptive statistics for the main variables used in the analysis. The table reports the mean, median, standard deviation, 25th percentile (Q1), and 75th percentile (Q3) for each variable. Variable definitions are provided in Appendix A.

Table 3. Correlations

	i_WD	*WD*	*CC_Expo*	*CC_Sent*	*Size*	*ROA*	*MTB*	*Lev*	*Zscore*	*OpCycle*	*NOA*	*Foreign*
i_WD		0.1477	−0.0117	−0.0083	−0.0508	−0.1053	−0.065	−0.0132	−0.0618	0.0354	0.0381	−0.0807
		(0.00)	(0.01)	(0.05)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
WD	0.1192		0.0161	0.008	0.0518	−0.0251	−0.033	0.0059	−0.0244	0.0288	0.0585	−0.0265
	(0.00)		(0.00)	(0.06)	(0.00)	(0.00)	(0.00)	(0.16)	(0.00)	(0.00)	(0.00)	(0.00)
CC_Expo	0.0091	0.0213		0.4153	0.1774	0.0452	−0.075	0.0436	−0.0617	0.0924	0.1276	0.0325
	(0.03)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
CC_Sent	0.0023	0.0033	0.665		0.1122	0.0144	−0.0019	0.0295	−0.0206	0.0475	0.032	0.0081
	(0.58)	(0.43)	(0.00)		(0.00)	(0.00)	(0.64)	(0.00)	(0.00)	(0.00)	(0.00)	(0.05)
Size	−0.0495	−0.0692	0.0302	0.0308		0.3298	0.0118	0.337	−0.0329	−0.0173	0.2827	0.0943
	(0.00)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
ROA	−0.0913	−0.0742	−0.0302	−0.0229	0.4036		0.237	−0.1021	0.4769	−0.0534	−0.041	0.1851
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
MTB	−0.0256	−0.0102	−0.0297	−0.0139	−0.0075	0.0068		−0.0046	0.405	−0.0585	−0.1642	0.0207
	(0.00)	(0.01)	(0.00)	(0.00)	(0.07)	(0.10)		(0.27)	(0.00)	(0.00)	(0.00)	(0.00)
Lev	−0.006	−0.0254	0.0083	0.0031	0.2223	−0.1377	−0.0282		−0.5734	−0.1038	−0.0966	0.0193
	(0.15)	(0.00)	(0.05)	(0.46)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)	(0.00)
Zscore	−0.0409	−0.02	−0.0445	−0.0224	−0.0084	0.2982	0.1948	−0.5019		−0.0267	−0.1747	0.0608
	(0.00)	(0.00)	(0.00)	(0.00)	(0.04)	(0.00)	(0.00)	(0.00)		(0.00)	(0.00)	(0.00)
OpCycle	0.0285	0.0208	0.0253	0.0154	−0.0373	−0.1296	−0.0105	−0.0368	−0.0202		0.2067	−0.0118
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.00)	(0.00)		(0.00)	(0.00)
NOA	0.0356	0.0408	0.0821	0.0353	0.1025	−0.0285	−0.0561	−0.1069	0.0089	0.1778		0.0182
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)		(0.00)
Foreign	−0.0807	−0.0301	−0.0093	−0.0051	0.0914	0.1274	−0.0118	0.0089	0.0178	−0.0221	0.0035	
	(0.00)	(0.00)	(0.03)	(0.22)	(0.00)	(0.00)	(0.00)	(0.03)	(0.00)	(0.00)	(0.40)	

Table 3 presents a correlation matrix of the main variables. Pearson correlation coefficients are shown below the diagonal, and Spearman rank correlations are shown above the diagonal. Significance levels (two-tailed) are reported in parentheses below each coefficient. Variable definitions are provided in Appendix A.

Table 4. Future Asset Write-down and Climate Change Exposure and Sentiment

Dependent Variable	*Future_WD*	
	(1)	(2)
	i_WD	*WD*
CC_Expo	3.136***	0.118***
	(3.63)	(2.95)
CC_Sent	−4.064**	−0.200**
	(−2.23)	(−2.52)
Current_WD	0.121***	0.116***
	(19.71)	(14.16)
Size	−0.003***	−0.000***
	(−4.03)	(−8.68)
ROA	−0.026***	−0.002***
	(−3.58)	(−4.86)
MTB	−0.000	−0.000
	(−1.55)	(−0.99)
Lev	−0.024***	−0.001***
	(−4.22)	(−4.70)
ZScore	−0.001***	−0.000***
	(−2.72)	(−3.04)
OpCycle	0.000	0.000
	(1.13)	(0.78)
NOA	0.004***	0.000***
	(4.25)	(4.12)
Foreign	−0.019***	−0.000***
	(−4.96)	(−2.89)
Intercept	0.118***	0.005***
	(17.42)	(16.19)
N	57,311	57,311
Adjusted R^2	0.0302	0.0341

Table 4 presents OLS regression results where the dependent variable is future asset write-downs. The key independent variables are *CC_Expo* and *CC_Sent*, which capture climate change exposure and sentiment, respectively. Variable definitions are provided in Appendix A. All models include industry and year fixed effects, and standard errors are clustered at the firm level.
***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 5. Cross Sectional Analysis based on Extent of Climate Change Exposure

Dependent Variable	*Future_WD*			
	High *CC_Expo*		Low *CC_Expo*	
	(1)	(2)	(3)	(4)
	i_WD	*WD*	*i_WD*	*WD*
CC_Expo	2.886***	0.112***	−3.696	0.041
	(3.15)	(2.66)	(−0.24)	(0.07)
CC_Sent	−3.705**	−0.201**	4.657	0.286
	(−1.99)	(−2.50)	(0.33)	(0.48)
Current_WD	0.136***	0.121***	0.143***	0.111***
	(13.19)	(10.38)	(14.17)	(9.51)
Size	−0.002*	−0.000***	−0.004***	−0.000***
	(−1.71)	(−5.50)	(−3.36)	(−6.62)
ROA	−0.042***	−0.002***	−0.011	−0.002***
	(−3.72)	(−3.16)	(−1.19)	(−3.36)
MTB	−0.000	0.000	−0.000	−0.000*
	(−0.50)	(0.61)	(−1.52)	(−1.88)
Lev	−0.038***	−0.001***	−0.015*	−0.001***
	(−4.33)	(−4.05)	(−1.89)	(−2.73)
ZScore	−0.001	−0.000***	−0.001**	−0.000*
	(−1.39)	(−2.76)	(−2.38)	(−1.78)
OpCycle	−0.000	−0.000	0.000*	0.000
	(−0.38)	(−0.19)	(1.95)	(1.14)
NOA	0.004***	0.000***	0.003***	0.000**
	(3.00)	(3.45)	(2.70)	(2.34)
Foreign	−0.027***	−0.001***	−0.013**	−0.000
	(−4.67)	(−3.00)	(−2.55)	(−0.99)
Intercept	0.126***	0.005***	0.116***	0.005***
	(12.53)	(11.30)	(12.58)	(11.68)
N	28,609	28,609	28,702	28,702
Adjusted R^2	0.0309	0.0368	0.0285	0.0321

Table 5 presents OLS regression results from cross-sectional tests based on annual median splits of *CC_Expo* into high and low exposure groups. The dependent variable is future asset write-downs. The key independent variables are *CC_Expo* and *CC_Sent*, which capture climate change exposure and sentiment, respectively. Variable definitions are provided in Appendix A. All models include industry and year fixed effects, and standard errors are clustered at the firm level.

***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 6. Disaggregation of Climate Change Exposure Types

Dependent Variable	*Future_WD*	
	(1)	(2)
	i_WD	*WD*
Opp_Expo	5.930***	0.242***
	(3.35)	(2.74)
Reg_Expo	12.818	0.373
	(1.58)	(1.49)
Phy_Expo	-22.133**	-0.913***
	(-2.35)	(-2.94)
Opp_Sent	-7.954**	-0.434**
	(-2.07)	(-2.44)
Reg_Sent	-10.568	-0.281
	(-0.63)	(-0.45)
Phy_Sent	10.036	0.965
	(0.51)	(1.35)
Current_WD	0.121***	0.116***
	(19.69)	(14.15)
Intercept	0.119***	0.005***
	(17.61)	(16.32)
Controls	Included	Included
N	57,311	57,311
Adjusted R^2	0.0303	0.0341

Table 6 presents OLS regression results in which *CC_Expo* and *CC_Sent* are disaggregated into three topic-specific components: opportunity, regulation, and physical climate disclosure. The dependent variable is future asset write-downs. Control variables are included in each model. Variable definitions are provided in Appendix A. All models include industry and year fixed effects, and standard errors are clustered at the firm level.
***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 7. Climate Change Risk as an Alternate Measure

Dependent Variable	*Future_WD*	
	(1)	(2)
	i_WD	*WD*
CC_Risk	38.435***	1.167***
	(3.40)	(2.78)
Current_WD	0.121***	0.116***
	(19.70)	(14.16)
Size	−0.003***	−0.000***
	(−4.12)	(−8.77)
ROA	−0.026***	−0.002***
	(−3.62)	(−4.88)
MTB	−0.000	−0.000
	(−1.56)	(−1.00)
Lev	−0.024***	−0.001***
	(−4.20)	(−4.68)
ZScore	−0.001***	−0.000***
	(−2.70)	(−3.03)
OpCycle	0.000	0.000
	(1.13)	(0.78)
NOA	0.004***	0.000***
	(4.39)	(4.22)
Foreign	−0.019***	−0.000***
	(−5.01)	(−2.95)
Intercept	0.120***	0.005***
	(17.73)	(16.47)
N	57,311	57,311
Adjusted R^2	0.0302	0.0340

Table 8 presents OLS regression results where the variable of interest is *CC_Risk*, an alternative measure of climate change disclosure. The dependent variable is future asset write-downs. Variable definitions are provided in Appendix A. All models include industry and year fixed effects, and standard errors are clustered at the firm level.

***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 8. Positive and Negative Climate Change Sentiment

Dependent Variable	*Future_WD*	
	(1)	(2)
	i_WD	*WD*
CC_Expo	2.152*	0.111*
	(1.80)	(1.90)
CC_Pos	−3.057	−0.193**
	(−1.60)	(−2.42)
CC_Neg	7.767*	0.226
	(1.71)	(1.16)
Current_WD	0.121***	0.116***
	(19.70)	(14.16)
Size	−0.003***	−0.000***
	(−4.03)	(−8.68)
ROA	−0.026***	−0.002***
	(−3.59)	(−4.86)
MTB	−0.000	−0.000
	(−1.53)	(−0.98)
Lev	−0.024***	−0.001***
	(−4.23)	(−4.70)
ZScore	−0.001***	−0.000***
	(−2.72)	(−3.04)
OpCycle	0.000	0.000
	(1.14)	(0.78)
NOA	0.004***	0.000***
	(4.26)	(4.11)
Foreign	−0.019***	−0.000***
	(−4.95)	(−2.89)
Intercept	0.118***	0.005***
	(17.41)	(16.19)
N	57,311	57,311
Adjusted R^2	0.0302	0.0341

Table 7 presents OLS regression results where *CC_Sent* is split into its two components: *CC_Pos* (positive sentiment) and *CC_Neg* (negative sentiment). The dependent variable is future asset write-downs. Variable definitions are provided in Appendix A. All models include industry and year fixed effects, and standard errors are clustered at the firm level.

***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 9. Goodwill Impairments

Dependent Variable	*Future_GWIMP*	
	(1)	(2)
	i_GWIMP	*GWIMP*
CC_Expo	−2.449***	−0.230***
	(−4.07)	(−4.60)
CC_Sent	1.317	0.069
	(0.87)	(0.56)
Current_GWIMP	0.156***	0.081***
	(22.54)	(7.97)
Size	0.005***	0.000
	(6.47)	(0.21)
ROA	−0.003	−0.001**
	(−0.56)	(−2.45)
MTB	−0.001***	−0.000***
	(−6.34)	(−4.91)
Lev	−0.031***	−0.004***
	(−6.11)	(−7.11)
ZScore	−0.001***	−0.000***
	(−6.91)	(−4.64)
OpCycle	−0.000*	−0.000***
	(−1.96)	(−4.38)
NOA	0.003***	0.001***
	(4.44)	(6.25)
Foreign	−0.019***	−0.002***
	(−5.04)	(−4.67)
Intercept	0.072***	0.009***
	(10.75)	(13.70)
N	57,311	57,311
Adjusted R^2	0.0530	0.0483

Table 9 presents OLS regression results where the dependent variable is future goodwill impairment. The key independent variables are *CC_Expo* and *CC_Sent*, which capture climate change exposure and sentiment, respectively. Variable definitions are provided in Appendix A. All models include industry and year fixed effects, and standard errors are clustered at the firm level.
***, **, * denote statistical significance at the 1%, 5%, and 10% level, respectively.