Climate News and Accounting Comparability

ABSTRACT

We examine the effect of climate news on accounting comparability. We argue that climate news informs market participants about firms' climate exposure, inducing a reassessment of the firms' future cash flows. This reassessment increases the variance in accounting estimates, hence reducing accounting comparability among industry peers. Consistently, we find a negative relationship between market-level measures of climate news and one-year-ahead firm-level accounting comparability. This finding is robust to several sensitivity checks. This relationship is mediated by the intensity with which firms apply accounting standards to transform economic events into accounting numbers and moderated by the extent to which firms are exposed to climate risks and by the firms' environmental performance. Our study contributes to the growing literature examining the negative effect of climate change on firm values and to the literature examining the determinants of accounting comparability. The practical implication of our study is that market participants should be cautious when comparing peer firms after periods of increased climate news.

Keywords: climate news; climate risks; physical climate risks; transitional climate risks; accounting comparability; accruals

JEL: Q51, Q54, M41

1. INTRODUCTION

We examine the effect of climate news on accounting comparability among industry peers. Climate change refers to the deterioration of the Earth's weather patterns caused by industrial activities over the last century (Hansen et al., 2012; Schnellnhuber & Cramer, 2006; Stern, 2007; TCFD, 2017; USGCPR, 2018). Climate change can have detrimental effects on firms' assets and operations, presenting significant risks to businesses (SEC, 2022). Climate risks are distinct from other economic risks because they materialize over a much longer horizon (decades or even centuries). Given the myopic nature of the corporate world (Geng et al., 2023; Kraft et al., 2018; Mizik, 2010), market participants may overlook climate risks because of their long-term nature. However, climate risks become more salient to market participants when they learn about them through the news (Chinn et al., 2020; Engle et al., 2020; Huynh & Xia, 2021, 2023; NSB, 2016). Given the lack of regulated climate disclosures by U.S. firms, reputable media organizations such as the Wall Street Journal provide the most reliable information about climate risks for market participants.

By documenting the impact of climate news on accounting comparability (hereafter, comparability), we seek to demonstrate the effects of climate change on the information environment in which firms operate. Comparability is one of the most important enhancing characteristics of financial reporting (FASB, 2018). It refers to the similarity with which firms map economic news into accounting earnings. Two firms are comparable when they produce similar earnings for the same economic news and different earnings for different economic news. Accounting comparability is a key determinant of the firms' information environment and has various benefits to the capital market (Chen et al., 2018; Chircop et al., 2020; De Franco et al.,

2011; Kim et al., 2016; Kim et al., 2013). Despite this, prior research generally overlooks the determinants of accounting comparability.

We rely on several economic theories to develop our hypothesis relating climate news to accounting comparability. Institutional and legitimacy theories posit that firms are motivated to conform to external pressures such as regulatory, social, and cultural expectations to maintain legitimacy and to ensure their long-term survival (DiMaggio & Powell, 1983; Gulluscio, 2020). Stakeholder theory extends this idea by suggesting that firms must consider the well-being of their stakeholders when making decisions (Freeman, 2010). Because stakeholders increasingly consider climate change as a major societal concern, firms are under pressure to respond accordingly to climate news. These theories suggest that when managers become aware of climate news, they must examine its impact on their firms and take appropriate actions to conform with external expectations.

In the accounting setting, some of the appropriate actions managers can take in response to climate news include accounting decisions related to asset impairment and write-down. Specifically, given new knowledge about climate risks, managers revise the expected future cash flows generated from their assets. Because this process requires making estimates, it involves significant managerial discretion. As such, different managers can come up with different estimates, leading to different accounting outcomes given the same economic news.

Agency and prospect theories support this prediction. Agency theory posits that the information asymmetry between managers (agents) and shareholders (principals) allow managers to exercise significant discretion based on their preferences rather than on their shareholders' best interests (Jensen & Meckling, 1976). In this respect, prospect theory posits that managers who are loss-averse tend to be conservative and make greater downward adjustments compared to those

who are not (Kahneman & Tversky, 1979). Therefore, managerial characteristics determine the adjustments to future cash flows. Meanwhile, corporate myopia further incentivizes managers to prioritize short-term performance over long-term well-being. Thus, managers can manipulate earnings to meet earnings expectations, especially when climate risks have detrimental effects on their firms. Different managers can choose different earnings management strategies, leading to different accounting outcomes given the same economic news. Therefore, climate news can have different effects on the accounting systems of different firms, leading to reduced accounting comparability among industry peers.

However, it is possible that comparability may remain unchanged or even increase following climate news. To the extent that firms in the same industry have the same economic fundamentals and are subject to the same market forces, institutional theory, which posits that firms tend to conform to external norms, suggests that firms may have the same accounting responses, which are standardized across their industry, to climate news. Similarly, they may use the same earnings management techniques typical of their industry, thus producing similar earnings numbers in response to the same news. Moreover, to the extent that firms in the same industry share the same auditors that enforce consistent audit styles (Francis et al., 2014), it is likely that these firms also arrive at the same accounting earnings in response to the same news. If so, climate news may have a minimal effect on accounting comparability among industry peers. To the extent that firms seek to maintain or even improve their perceived legitimacy in the publics' eyes (legitimacy theory), they may conform to a greater extent with industry norms, in which case climate news may even increase accounting comparability among industry peers.

Overall, the magnitude and direction of the effect of climate news on accounting comparability is unclear. To examine the relationship between climate news and accounting

comparability, we use a measure of *change* in the market-level climate news proposed by Engle et al. (2020) and a modified measure of accounting comparability proposed by De Franco et al. (2011) on a sample of U.S. firms from 1987 to 2016.[1] We find that an increase in climate news coverage in the Wall Street Journal (WSJ) is associated with a decrease in one-year-ahead accounting comparability. This finding holds after we control for several factors that prior literature has found to be associated with accounting comparability. Replacing the change in climate news with the level of climate news yields robust results.

To the extent that firms cannot influence the WSJ's coverage decisions and that climate news in the WSJ fluctuates with climate events that are exogenous to the firm-level accounting choices, our result is unlikely to be prone to endogeneity concerns. Regardless, we perform several robustness checks to better ascertain the causal relationship between climate news and comparability. First, we show that our baseline results remain qualitatively unchanged when using alternative empirical specifications. Specifically, 1) we add corporate governance variables as additional controls (Bushman & Smith, 2003; Ertimur & Ferri, 2019)[2]; 2) we add cash flow co-movement and return co-movement with industry peers as additional controls to isolate accounting comparability from economic similarities with industry peers (Zhang, 2018); 3) we replace the change in and the level of climate news with measures that capture climate news with negative tone; 4) we use the top ten industry peers in computing the average firm-level measure of comparability instead of the top four as in the baseline analysis; 5) we re-compute the De Franco et al. (2011) comparability measure using earnings before special items to ensure that one-time losses are not the sole drivers of our baseline finding; and 6) we use accrual similarity as an

[1] We stop the sample in 2016 because of the data limitation resulting from the intersection of the Engle et al. (2020) data for climate news with other data sources needed for our analyses.

[2] We do not include these corporate governance controls in the baseline analysis because doing so reduces the sample size significantly.

alternative measure of accounting comparability (Francis et al., 2014). The negative relationship between climate news and comparability remains robust to all these specifications.

We then perform a two-stage instrumental variable (IV) analysis. For this test, we choose population density as our IV for climate news because it is correlated with climate news(Albouy et al., 2016; Cao, Chen, Dong, et al., 2024) (relevance restriction) but is unlikely to be related to accounting comparability (exclusion restriction). The two-stage regression analysis shows that the negative relationship between climate news and comparability remains robust to this IV analysis. Overall, while we cannot completely rule out endogeneity issues, these robustness checks buttress the validity of our baseline findings.

After establishing the negative relation between climate news and comparability, we conduct additional analyses to triangulate this finding. Using a recursive structural equation model, we perform a mediation analysis and show that accounting measurement intensity, i.e., the intensity with which firms apply accounting standards to transform economic events into accounting numbers (Andreicovici et al., 2020), is a significant mediator of the relationship between climate news and accounting comparability. Thus, in line with our conjecture, the reduction in comparability in response to climate news is at least partially driven by the application of accounting standards.

In cross-sectional tests, we show that the relation between climate news and comparability is stronger for firms more exposed to climate risks, as proxied by their susceptibility to sea level rise. These findings are consistent with prior research on the impact of climate change on firm values. We also show that for firms with better environmental scores, the negative impact of climate news on comparability is attenuated, highlighting the benefits of environmental

performance. Finally, we find that the effect of climate news on comparability is widespread rather than restricted to certain industry classification.

This study is both important and timely because market participants are increasingly concerned about the detrimental effects of climate change on both corporations and the larger society. Climate change has become a pressing socio-economic issue and market participants are paying increasing attention to it in their portfolio allocation, leading to increased costs of capital for firms that are more exposed to climate change (Barnett et al., 2020; Berkman et al., 2019; Bolton & Kacperczyk, 2021; Choi et al., 2020; Hong et al., 2020; Hsu et al., 2022; Ilhan et al., 2021; Pedersen et al., 2020). We extend research on the negative impacts of climate change on firm values by arguing that climate news increases awareness of climate risks, leading to lower accounting comparability among industry peers. Because accounting comparability is a major determinant of the firm information environment, the negative relation between climate news and accounting comparability suggests that climate change is detrimental to firms' information environment. Therefore, climate change is not only detrimental to the natural ecosystems but also to the financial ecosystems.

Realizing the negative impacts of climate change on firm values and the need to take corrective actions, the SEC has been considering climate disclosure policies for U.S. firms. Since August 2021, the SEC has been welcoming input from the business community to help establish the standards for climate disclosures in the U.S.[3] The main finding in our study that climate news can affect the firms' information environment via accounting comparability can be useful to the SEC in its decision-making process.

[3] https://www.sec.gov/comments/climate-disclosure/cll12.htm. Last accessed June 02, 2024.

The study most closely related to ours is Dhole, Liu, Lobo, and Mishra (2021), which examines the impact of economic policy uncertainty at the market level on accounting comparability. First, both Dhole et al. (2021) and our study focus on a macro-level construct – economic policy uncertainty (EPU) in their study and climate news in our study. Second, both studies rely on the increased difficulty in measuring future cash flows to motivate the negative association between the macro-level construct and accounting comparability among industry peers. However, our study differs from Dhole et al. (2021) because climate news is distinct from EPU. While EPU evolves around discreet events related to the passing of economic policies that have direct implications on firm operations in the short term, climate news signals climate risks that have a long-acting window that spans decades or hundreds of years, albeit devastating over time. Therefore, while it is rather straight-forward for managers to identify and respond to EPU, it is more challenging to identify and respond to climate risks. This explains why news media are powerful in capturing and changing market participants' attention to and perception of climate risks. Therefore, EPU and climate risks are conceptually distinct. To capture the incremental effect of climate news on accounting comparability, we control for EPU throughout our empirical analyses.

2. LITERATURE REVIEW

2.1. Climate Change and its Risks

Climate change refers to the long-term deterioration of the Earth's weather patterns resulting from global warming (Hansen et al., 2012; Schnellnhuber & Cramer, 2006; Stern, 2007; TCFD, 2017; USGCPR, 2018). While weather cycles can fluctuate naturally, humans have been accelerating global warming by emitting four tons of greenhouse gas (carbon dioxide and methane)

per person per year since the mid-20th century.[4] Climate change exposes firms to physical and transitional risks (SEC, 2022).

Physical risks stem from the increasing frequency and magnitude of natural disasters (e.g., wildfires, floods, hurricanes) and adverse changes in the long-term geographical features of the Earth (e.g., sea level rise, glacial melting, ocean temperatures). These risks reduce firm values. For example, natural disasters disrupt firms' operations (Mills, 2009) and supply chains (Winn et al., 2011), and subject firms' employees and customers to safety hazards (Bergmann et al., 2016; Linnenluecke et al., 2012; Linnenluecke & Griffiths, 2010; Solomon et al., 2011). As such, natural disasters induce lower and more volatile earnings and cash flows (Huang et al., 2018) and increase the chance of stock price crash (Dong & Liu, 2023).

Transitional risks stem from the pressures from society for firms to transition to low-carbon operational models. They can reduce firm values via stranded assets (Bos & Gupta, 2019; Ploeg & Rezai, 2020), increased regulatory costs (Berkman et al., 2019), and shifting market demand towards low-carbon products (Giglio, Kelly, et al., 2021). Stranded assets refer to productive assets relying on high-carbon energy that become obsolete due to greater awareness of their environmental impact. Regulatory costs include expenditures to restrict carbon emissions such as fines, required participation in emissions trading markets, and mandated installation of pollution control equipment. Shifting market demand toward low-carbon products can also negatively affect the fundamental business models of the firms.

2.2. Climate News

Climate risks are distinct from other economic risks because they materialize over an extremely long horizon (decades or even centuries) relative to economic risks, which tend to

[4] https://www.nature.org/en-us/get-involved/how-to-help/carbon-footprint-calculator/. Last accessed November 28, 2022.

materialize within a short horizon (a year or two). Meanwhile, the corporate world is inherently myopic (Geng et al., 2023; Kraft et al., 2018; Mizik, 2010). Investors and creditors have a shorter interest in a company compared to the life of that company.[5] As such, they demand frequent updates of the firm's performance via quarterly and annual financial reports and adjust their investments based on short-term performance goals. These myopic forces incentivize both external stakeholders and managers to prioritize short-term performance over long-term well-being of the firm. Therefore, while market participants pay attention to short-term economic risks, they tend to overlook the implications of long-term climate risks on their firms due to the slow-moving nature of climate change.

However, when climate risks become salient, market participants appear to incorporate these risks in their decision making. Using international data, Choi et al. (2020) shed light on peoples' collective beliefs and actions about global warming. They show that when the local temperature is abnormally high, people pay more attention to climate change, proxied by Google search volume. In such abnormally warm weather, stocks of firms with high-carbon emissions underperform those of firms with low-carbon emissions, and patterns in stock returns are unlikely to be driven by changes in fundamentals. Thus, Choi et al. document that people tend to revise their beliefs about climate change upward when experiencing abnormally warm temperatures in their area.

Giglio, Maggiori et al. (2021) find that when investors' attention to climate risks doubles, the prices of properties in flood zones reduce by 2 to 3 percent.[6] Importantly, the annual rents of exposed and non-exposed properties do not differ with changes in investors' climate attention,

[5] A company, as a legal entity, is expected to live forever. Meanwhile, investors and creditors only invest in a company for a limited amount of time.

[6] (Giglio, Maggiori et al. (2021) measure investors' attention to climate risks by the frequency of climate-related texts in the listings of real estate properties.

indicating that the price effect of climate attention is not driven by changes in the short-term fundamentals of the properties, but by investors' perceived changes in future cash flows and/or risk factors. Huynh & Xia (2021) compute climate news beta to measure the bond's ability to hedge against climate risks. They find that while beta is associated with lower future returns, it is not significantly related to either the issuer's expected default risk or future cash flows. This suggests that the observed effect of climate news beta on bond returns is driven by investors' perception about the bond issuers' exposure to climate risks, rather than by their immediate economic fundamentals.

Climate risks become salient to market participants through various channels such as natural disasters (Garnache & Guilfoos, 2019; Hino & Burke, 2021; Hong et al., 2019; McCoy & Walsh, 2018), air pollution (Hsu et al., 2023; Wu et al., 2022), the passing of climate policies (Delis et al., 2019; Giglio, Kelly, et al., 2021), carbon emissions (Berkman et al., 2019; Bolton & Kacperczyk, 2021), or climate risk indices (Ding et al., 2021a; Huang et al., 2018). Hong et al. (2019) find that firms in countries with adverse drought trends suffer from poor subsequent profit growth. Bolton & Kacperczyk (2021) and Hsu et al. (2023) focus on carbon emission and industrial pollution, respectively, and show that there is a negative association between these factors and stock prices. Huang et al. (2018) and Ding et al. (2021) use the Germanwatch Climate Risk Index to examine the effects of climate news on firm performance and earnings management activities, respectively.

Recently, Engle et al. (2020) propose climate news as a holistic measure of the attention of market participants to climate risks. They measure climate news using media coverage in the Wall Street Journal (WSJ) over various climate-related issues such as natural disasters, climate policies, scientific findings, political debates, and even human stories. Because the media usually pay

attention to climate change only when there are reasons for concern, this WSJ coverage collectively shapes public perception and urgency around climate issues. Therefore, Engle et al. (2020) use this measure of climate news coverage as a proxy for changes in the market's assessment of climate risks. Figure 1 illustrates the relationship among climate change, climate risks, and climate news.

[Insert Figure 1 here]

Cao, Chen, Dong et al. (2024) use this measure of climate news to proxy for climate change uncertainty and find that during periods of heightened climate news, suppliers tend to reduce their trade credit provision because they anticipate the potential physical risks of climate change. Cao, Chen, Lee et al. (2024) use this measure of climate news to proxy for climate risks and find that firms enhance their investment efficiency in human capital during periods of heightened climate news in response to climate risks.

2.3. Accounting Comparability

Accounting comparability is one of the enhancing qualitative characteristics of financial reporting. FASB (2018) states that "comparability is the qualitative characteristic that enables users to identify and understand similarities in, and differences among, items…For information to be comparable, like things must look alike and different things must look different." While important, accounting comparability is challenging to capture and is rather ambiguous from an operational standpoint.

De Franco et al. (2011) measure comparability based on the mapping of economic events into financial statements. In essence, two firms are comparable if their mapping functions are similar. In that case, they produce the same (different) accounting numbers given the same (different) set of economic events. Using stock returns as a proxy for similar sets of economic

events and accounting earnings as a proxy for the ultimate outputs of the financial statements, De Franco et al. (2011) show that firms with similar economic fundamentals such as industry classification, book-to-market, and size have higher accounting comparability. Further, they show that firms that are more comparable to their peers have a better information environment as captured by more analysts following, better forecast accuracy, and lower forecast dispersion.

Later studies use the De Franco et al. (2011) comparability measure to test the effects of accounting comparability in various settings. Kim et al. (2016) find that accounting comparability can reduce expected crash risk, especially when managers are more likely to withhold bad news. Chen et al. (2018) find that acquirers make more profitable merger-and-acquisition decisions when the financial statements of the targets are more comparable to those of the targets' peers, especially when the acquirers operate in volatile operating environments and know relatively less about the targets. Chen and Gong (2019) show that accounting comparability helps managers increase the quality of their financial reporting and helps investors more efficiently assess the quality of accruals. Chircop et al. (2020) find that firms with greater accounting comparability with their industry peers can better learn from their peers' R&D investments and have greater innovative efficiency. Extending this finding, Chircop (2021) documents that accounting comparability can facilitate learning from peer firms, leading to increased firm productivity via improved inventory management. Moreover, Chircop et al. (2024) show that accounting comparability allows customers to better evaluate suppliers' performance against their peers. As such, suppliers with better accounting comparability can more easily attract customers, leading to lower customer concentration.

Extant research has documented some determinants of accounting comparability, most of which are related to (1) the similarity between U.S. GAAP and IFRS, (2) the adoption of IFRS,

and (3) audit-related matters. Regarding IFRS-related topics, Yip and Young (2012) find that the mandatory adoption of IFRS in the European Union improves cross-country accounting comparability among 17 European countries, an effect driven by both the convergence of accounting standards and the higher quality information of IFRS compared to local GAAP. Barth et al. (2012) show that accounting quality resulting from the application of IFRS by non-U.S. firms are comparable to those resulting from the application of U.S. GAAP by U.S. firms. Brochet et al. (2013) find that the adoption of IFRS leads to improved financial statement comparability, which improves public information available to market participants, as measured by reduced returns to insider trades. Wang (2014) finds that a firm's price reaction to foreign firms' earnings announcement is significantly higher for firms reporting under the same rather than different accounting standards, suggesting that the harmonization of accounting standards results in increased cross-country comparability.

Furthermore, Francis et al. (2014) show that two companies audited by the same Big Four audit firm have more comparable earnings than two companies audited by two different Big Four audit firms. Chen et al. (2020) extend these findings to the individual auditor level and show that firms report more comparable earnings when audited by the same individual auditor. Endrawes et al. (2020) further show that firms with audit committees whose members have more financial, and accounting expertise tend to have more comparable financial statements.

Finally, Imhof et al. (2022) find that proprietary costs of financial reporting can reduce accounting comparability among industry peers because these peers seek to increase their competitors' processing costs to protect their proprietary information. Biswas et al. (2022) find that accounting comparability is higher among mature firms than for firms in other life cycle stages because mature firms have better organizational structures, internal controls, and employees

compared to those in other life cycle stages. Afzali (2023) show that firms with strong corporate culture tend to have better accounting comparability because the managers of these firms are less opportunistic and make more homogeneous decisions when facing similar economic events. Dhole et al. (2021) find that an increase in economic policy uncertainty leads to a subsequent decrease in accounting comparability due to the increased difficulty in estimating future cash flows and the increased opportunity for earnings management. To the best of our knowledge, no study has examined climate news as a determinant of accounting comparability.

3. HYPOTHESIS DEVELOPMENT

Assume that firm A is exposed to climate risks, either because it operates in a region prone to natural disasters (physical risks) or in an industry prone to changing climate policies (transitional risks). Then, assume that there is climate news relevant to this company that informs managers of firm A about the imminent climate risks that their firm is facing.[7] The news also informs external stakeholders of firm A, such as investors and creditors, about the potential risks that firm A is exposed to.

Institutional theory and legitimacy theory suggest that firms tend to conform to external pressures (e.g., regulatory, social, and cultural expectations) to maintain legitimacy and to ensure their long-term survival (DiMaggio & Powell, 1983; Gulluscio, 2020). Stakeholder theory extends this idea by suggesting that firms consider the well-being of their stakeholders when making decisions (Freeman, 2010). Because stakeholders have increasingly considered climate change as a major environmental, social, and governance (ESG) concern, firms are under pressure to properly respond to the climate news. Therefore, these theories suggest that when managers of firm A

[7] If this company operates in a disaster-prone region such as a coastal area, the relevant climate news is about an ongoing or potential natural disaster such as flood or sea level rise. If this company operates in a policy-prone industry, then the relevant climate news may pertain to a new policy that curtails carbon emissions.

become aware of climate news, they must examine the impact of this news on their firm and take appropriate actions to conform with external expectations.

To the extent that climate news signals climate risks pertinent to firm A, it indicates a change in the usefulness of firm A's assets. Thus, managers of firm A must revise the expected cash flows arising from their productive assets.[8] At the end of the reporting period, managers of firm A must compare the expected total cash flows against the net book value of its productive assets (FASB, 2001) and determine if the asset is impaired. Now, assume firm B is an industry peer of firm A and is similar to firm A in all fundamental aspects, including its operational location and the use of productive assets. The managers of firm B also learn through the news about the potential climate risks that similarly affect both firms A and B. Thus, similar to the managers of firm A, the managers of firm B must also revise their expected cash flows related to their productive assets, increasing the chance of recognizing an impairment charge for the same reporting period.

Because it is challenging to estimate future cash flows, this process involves significant managerial discretion and subjectivity. Prospect theory, developed by Kahneman and Tversky (1979), suggests that individuals evaluate potential gains and losses relative to a reference point, often exhibiting loss aversion. Agency theory, which describes the conflict between managers (agents) and shareholders (principals) due to information asymmetry and misaligned incentives (Jensen & Meckling, 1976), further allows managers to revise their cash flow estimates based on their preferences rather than on the best interest of the shareholders. Therefore, while both firms A and B receive the same climate news, they can revise their estimated cash flows differently,

[8] Here, not revising the expected cash flows is not an option for managers of firm A because external stakeholders such as investors and creditors are also aware of the climate news and its underlying risks, thus would demand such adjustments eventually.

generating different accounting earnings for different firms. Therefore, climate news can reduce accounting comparability among industry peers.

While the above discussion suggests that climate news impacts expectations of future cash flows of productive assets, we can argue that climate news can affect various other accounting decisions that are subject to managerial discretion such as inventory write-down, goodwill impairment and write-down, allowance for doubtful accounts, and deferred tax assets and liabilities. Take the provision for doubtful accounts as an example. If customers of firms A and B are also subject to the same climate risks embedded in the news, climate news can also signal a detrimental effect of climate events on their performance. This, in turn, makes it harder for firms A and B to collect dues from these customers. According to the Accounting Standards Codification (ASC) 310, firms must recognize an allowance for uncollectible accounts and record a bad debt expense in the accounting period when they expect to collect less than 100 percent of their accounts receivable.[9] However, how much allowance to recognize depends significantly on managerial discretion. Therefore, given the same climate news, firms A and B may arrive at different estimates for their bad debt expense and, thus, different accounting earnings.

Besides variation in accounting estimates, climate news can also reduce accounting comparability through other channels. Managers can manage earnings to meet investors' expectations especially when climate news signals negative shocks to firm operations. This rationale is similar to that proposed by Dhole et al. (2021) that heightened economic policy uncertainty creates uncertain future cash flows, allowing managers to more easily manage earnings

[9] ASC 310 applies for firms not in the banking industries. For banks, the equivalent accounting regulation is ASC 326, which requires the recognition of provisions for credit losses, or loan loss provision (Hribar et al., 2017; Ng et al., 2020).

without getting caught. These earnings manipulation choices can further reduce the similarity of the accounting systems among industry peers.

While the discussion so far focuses on the possibility that climate news reduces accounting comparability, it is also possible that comparability may be the same or even increase following climate news. To the extent that firms in the same industry have the same economic fundamentals and are subject to the same market forces, institutional theory suggests that these firms may have the same accounting responses to climate news that are standard in their industry. Similarly, they may also use the same earnings management techniques that is typical of their industry, thus producing similar earnings numbers for the same news. Moreover, firms may also share the same audit firm that enforces consistent audit styles (Francis et al., 2014), making it even more likely that firms arrive at the same accounting earnings in response to the same news. If so, climate news may not have any effect on accounting comparability among industry peers. To the extent that firms seek to maintain or even improve their perceived legitimacy in the public's eyes (legitimacy theory), firms may even over-conform with the industry norms, in which case climate news can increase accounting comparability among industry peers.

The above discussion assumes a setting where climate news is relevant to the firms. When firms are not prone to climate risks, climate news is unlikely to have any effect on their comparability. For example, firms not in coastal areas are not prone to news of sea level rise. Therefore, the effects of climate news on accounting comparability can vary in the cross section. In summary, there are three possibilities for the relationship between climate news and accounting comparability – [1] increase, [2] decrease, or [3] no effect. Due to the lack of prior theoretical or empirical guidance, we state our central hypothesis in the null form as follows.

Hypothesis: Climate news is *not* related to accounting comparability.

4. RESEARCH DESIGN

4.1. Measure of Climate News

We use a measure of climate news developed by Engle et al. (2020) based on the intensity of news coverage of climate issues in the WSJ. This measure is an appropriate proxy for market participants' attention to climate risks for several reasons. First, the main source of information about climate issues for the public, including managers, is news media, even more than internet searches, entertainment programing, and government agencies (Chinn et al., 2020; NSB, 2016). Second, because the WSJ is a prominent news source for the business community, coverage of climate issues by the WSJ can be highly relevant to market participants. Third, while one can argue that stakeholders can also be aware of climate risks through disclosures by peer firms, it is likely that these peers also receive their climate news from the WSJ. Fourth, for firm-specific disclosures of climate risks, the general lack of stringent requirements for climate-related disclosures in the U.S. over our sample period suggests that such disclosures are largely voluntary, which means these disclosures are subject to managerial bias and self-selection and, thus, are unlikely to be the main sources of climate information for market participants. Fifth, climate events covered by the WSJ are likely to be exogenous to firms' accrual estimates, which helps mitigate endogeneity concerns.

To construct their measure of climate news, Engle et al. (2020) first derive a "climate change vocabulary" based on authoritative texts published by various governmental and research organizations.[10] Using textual analysis, they measure the intensity of the discussion of climate change topics in daily editions of the WSJ. Next, they construct a monthly climate news index

[10] Examples include the Intergovernmental Panel on Climate Change, the Environmental Protection Agency, and the U.S. Global Change Research Program.

(*CCN_m*) by averaging the daily news index values to the monthly level.[11] Finally, they estimate a first-order autoregressive model of *CCN_m* and use the residuals to measure the change in climate news coverage (*CCN_D_m*). A positive (negative) value of *CCN_D_m* signals an increase (decrease) in the intensity of the WSJ content dedicated to climate change topics. We report the time series of *CCN_m* and *CCN_D_m* in Figure 2, which reveals that both values fluctuate significantly over time and have been increasing since 1984.

[Insert Figure 2 here]

To apply the Engle et al. measure, we take the annual average of *CCN_D_m* over a 12-month period as of the firm's fiscal year-end and multiply it by 1,000 for ease of interpretation. The resulting variable (*CCN*) is a measure of *change* in climate news that a firm experiences during its fiscal year. As such, *CCN* is a firm-level measure of change in climate news based on each firm's fiscal year-end. Throughout our tests, we also use *CCN_L*, which is the annual average of *CCN_m*, to measure the *level* of climate news for each firm during its fiscal year.

Given the deterioration of the climate since the mid-20th century and the fact that the media tend to pay attention to climate issues only when there are reasons for concern, Engle et al. (2020) argue that their climate news index is more likely to capture climate risks than climate opportunities. Supporting this argument, Sautner et al. (2023)Click or tap here to enter text. find that the Engle et al. (2020) climate news is associated with firm-level exposure to climate risks but not to climate opportunities. Other studies (Cao, Chen, Dong, et al., 2024; Cao, Chen, Lee, et al., 2024; Huynh & Xia, 2021) also use the Engle et al. (2020) climate news index as a proxy for the market's attention to climate risks.

[11] The Engle et al. (2020) monthly index is publicly available via Professor Stroebel's website (https://pages.stern.nyu.edu/~jstroebe/. Last accessed June 02, 2024).

While both Engle et al. (2020) and Sautner et al. (2023) propose measures of climate risks, these measures are empirically distinct. While the measure from Engle et al. (2020) is a market-level measure based on the news coverage of climate events in the WSJ, the measure from Sautner et al. (2023) is at the firm level and is based on transcripts of quarterly earnings conference calls. We choose the Engle et al. (2020) market-level measure of climate news because the Sautner et al. (2023) firm-level measure of climate exposure is subject to some limitations. First, as Cao, Chen, Dong et al. (2024) and Cao, Chen, Lee et al. (2024) point out, managers in particular, and economic agents in general, tend to overweight climate events that are more salient to them. Second, because the Sautner et al. (2023) measure is based on self-disclosure through conference call transcripts, it is subject to measurement errors because managerial characteristics (e.g., opportunistic or conservative) may induce over- or under-disclosure of climate exposure. The Engle et al. (2020) measure, being based on objective professional journalism, is less likely to suffer from these limitations. Specifically, the WSJ covers a wide range of global climate news (from climate disasters to regulatory changes) rather than local events and is most likely to be exogenous to firm and manager fundamentals.

4.2. Measure of Accounting Comparability

Following De Franco et al. (2011), we measure accounting comparability between two industry peers using the closeness of their mapping functions of economic news, proxied by stock returns, into accounting outcomes, proxied by earnings. Specifically, we estimate the following time-series regression using a firm's eight quarters of data.[12]

$$EARNINGS_{iq} = \alpha_i + \beta_i RETURN_{iq} + \varepsilon_{iq} \quad (1)$$

[12] We adopt the SAS code provided by Rodrigo Verdi's website to compute the comparability measure (https://mitmgmtfaculty.mit.edu/rverdi/. Last accessed June 02, 2024).

In this equation, $EARNINGS_{iq}$ is firm *i*'s net income in quarter q scaled by market value at the end of quarter *q-1*. $RETURN_{iq}$ is stock return during quarter *q*. The estimated coefficients $\hat{\alpha}_i$ and $\hat{\beta}_i$ represent the accounting system of firm *i* in mapping economic events into earnings. Similarly, using time series data for peer firm *j*, where a peer firm is any firm operating in the same two-digit SIC code as firm *i*, we obtain $\hat{\alpha}_j$ and $\hat{\beta}_j$ that represent the accounting system of firm *j*. To control for economic news, we estimate the accounting responses of firm *i* and firm *j* to economic events of firm *i* using the following equations:

$$E(EARNINGS)_{iiq} = \hat{\alpha}_i + \hat{\beta}_i RETURN_{iq} + \varepsilon_{iq} \quad (2a)$$

$$E(EARNINGS)_{ijq} = \hat{\alpha}_j + \hat{\beta}_j RETURN_{iq} + \varepsilon_{iq} \quad (2b)$$

Where $E(EARNINGS)_{iiq}$ is predicted earnings of firm *i*, given the firm *i*'s accounting system $\hat{\alpha}_i$ and $\hat{\beta}_i$ and firm *i*'s stock return $RETURN_{iq}$ in quarter *q*. $E(EARNINGS)_{ijq}$ is the predicted earnings of the peer firm *j*, given the firm *j*'s accounting system $\hat{\alpha}_j$ and $\hat{\beta}_j$ and firm *i*'s stock return $RETURN_{iq}$ in quarter *q*. We define the pairwise accounting comparability ($COMP_{ijt}$) of firm *i* and peer firm *j* in fiscal year *t* as the mean absolute difference between the expected earnings of firm *i* and firm *j* over the preceding eight quarters (from quarter *q – 7* to quarter *q*), multiplied by -1.

$$COMP_{ijt} = -\frac{1}{8}\sum_{q-7}^{q}\left|E(EARNINGS)_{iiq} - E(EARNINGS)_{ijq}\right| \quad (3)$$

Where $COMP_{ijt}$ is a non-positive number capturing accounting comparability between firms *i* and *j* in year *t* that increases as the difference in their expected earnings decreases. We then compute the annual firm-level measure of firm *i*'s comparability with its industry peers ($COMP_{it}$)

by taking the average of firm *i*'s four largest pairwise comparability scores. This is the measure of accounting comparability used in the baseline analyses.[13]

4.3. Temporal Relation between Climate News and Accounting Comparability

In our research design, there is a one-year lag between climate news and accounting comparability because our measure of accounting comparability follows De Franco et al. (2011), which requires the estimation of the mapping function between stock returns and accounting earnings for each firm over an estimation window. While De Franco et al. originally use an ad hoc window of 16 quarters, we use eight quarters because this is the most appropriate timeframe in our setting. Figure 3 illustrates the temporal relationship between climate news and the eight-quarter estimation window for accounting comparability used in our study.

[Insert Figure 3 here]

An estimation window longer than eight quarters (e.g., 12 or 16 quarters) means there is a considerable gap between climate news and accounting comparability – it is hard to argue that climate news in year t-3 or t-2 can affect accounting comparability in year t because of the potential confounding factors in the interim years. Moreover, estimating the mapping function over 12 (16) quarters and measuring climate news in year t-1 (t-2) raises the concern of reverse causality because climate news occurs after the beginning of the estimation window.

Conversely, an estimation window shorter than eight quarters, i.e., four quarters, can appear too short compared to the 16 quarters used in De Franco et al. (2011) and thus raise concern of construct validity. Moreover, using four quarters for the estimation window and setting climate news in the same four quarters can raise the concern of the look-ahead bias because there is a

[13] We follow De Franco et al. (2011) in choosing the four largest pairwise comparability scores. The results are robust to choosing the ten largest pairwise comparability scores ($COMP10_{it}$). We present this result in the robustness check section in this paper.

chance that we observe the co-movement of climate news at the end of year t and accounting comparability at the beginning of year t, which weakens the causal claim between these two constructs.

Therefore, the best solution in our setting is to use eight quarters to estimate the mapping function and to measure climate news in the first four quarters of this timeframe. It is also reasonable to argue that a change in climate news in year t-1, i.e., the first four quarters of the estimation window, can lead to a change in accounting comparability in year t because it takes some time for firms to adjust their accounting estimates as well as their application of accounting standards. Note that our research design follows closely that in Dhole et al. (2021), which examines the effect of a market-level construct (economic policy uncertainty) on accounting comparability.

4.4. Baseline Model

We run the following regression to test our hypothesis.

$$COMP_{it} = \beta_0 + \beta_1 CCN_{it-1} + CONTROLS_t + FE + \varepsilon_{it} \quad (4)$$

In this equation, $COMP_{it}$ is the measure of comparability for firm *i* in year *t*. CCN_{it-1} is the measure of climate news that firm *i* experiences in year *t-1*. Because of our null hypothesis, we have no expectation for the coefficient of CCN_{it-1}. $CONTROLS_t$ stands for a set of control variables at the firm and macro levels in year *t*. Lang et al. (2010) and Francis et al. (2014) argue that there is no theoretical guidance on the appropriate controls for accounting comparability. Therefore, we follow these two studies and include a number of controls to capture a broad range of observable and unobservable firm-specific characteristics. These controls include [1] size (*SIZE*), [2] leverage (*LEV*), [3] market to book (*MTB*), [4] operating cash flows (*CFO*), [5] loss frequency (*LOSS*), [6] cash flow volatility (*STD_CFO*), [7] sales volatility (*STD_SALE*), [8] earnings volatility (*STD_EARN*), [9] labor intensity (*EMP*), [10] capital intensity (*PPE*), [11] sales growth

(*GROWTH*), [12] return on asset (*ROA*), and [13] whether the auditor is a Big Four (*AUDITOR*). Due to the lack of theory and prior guidance, we follow prior studies and make no predictions regarding the signs of the coefficient estimates of these controls. We further control for [14] economic policy uncertainty (*EPU*) because Dhole et al. (2021) and El Ghoul et al. (2021) show that periods of high economic policy uncertainty reduces accounting comparability and accounting quality, respectively. Like these studies, we expect *EPU* to be significantly negative with respect to accounting comparability. To the extent these variables are correlated with both climate news and accounting comparability, controlling for them mitigates the possibility of correlated omitted variables.[14]

FE stands for firm fixed effects that control for unobserved time-invariant characteristics at the firm level. In all regressions, standard errors are clustered by firm and year to adjust for correlations within these respective levels. The Appendix presents detailed descriptions and data sources for all variables used in this study.

5. EMPIRICAL RESULTS

5.1. Sample Selection and Summary Statistics

To test our hypothesis, we use a sample of U.S.-incorporated firms from 1987 to 2016. We limit our sample to this period because of data availability for the climate news measure obtained from Engle et al. (2020).[15] We start with all Compustat observations and remove companies with names that include the words "holding," "holdings," "ADR," "partnership," "L.P.," or "LLP,"

[14] While audit studies tend to show that firms sharing the same audit firms or auditors tend to have more comparable financial statements with each other (Chen et al., 2020; Francis et al., 2014), we do not control for these factors because these audit studies are at the *firm-pair* level, whereas our study is at the *firm* level.

[15] A concern with this sample period is that the market's attention to climate issues is a recent phenomenon, which casts doubt on the plausibility of the effect of climate news on accounting comparability in the early years of our sample (late 1980s and 1990s). However, the fact that Engle et al. (2020) can measure climate news in the WSJ starting in 1987 and then show that this measure has implications for climate hedge portfolios throughout these years indicates that even though climate issues have not been a mainstream phenomenon until recently, they were already important risk factors within the investment community even in the late 1980s and throughout 1990s.

financial institutions (SIC codes 6000–6999), utilities (SIC codes 4900–4999), and firms with assets or sales less than $10 million. To minimize the impact of outliers, we exclude observations with missing data needed to compute all variables used in our analyses and winsorize all continuous variables at the 1st and 99th percentiles. We exclude firms with fewer than three observations because we need at least three observations for each firm to compute a meaningful time-series standard deviation of its earnings, sales, and cash flows. Our final sample has 53,711 firm-year observations. Panel A of Table 1 shows sample selection process.

[Insert Table 1 here]

Panel B, Table 1 presents the summary statistics for the variables used in the main analysis. Accounting comparability in year *t* ($COMP_{it}$) averages around -0.843, with a standard deviation of 1.494 (Panel B), which is consistent with prior literature (Chen et al., 2018; Chircop et al., 2020; De Franco et al., 2011). Univariate tests presented in Panel C, Table 1 show that comparability has significant negative correlations with the change (*CCN*) and the level (*CCN_L*) measures of climate news, providing preliminary evidence about the relationship between climate news and accounting comparability. Panel C also shows that comparability has a significant negative correlation with economic policy uncertainty (*EPU*), consistent with the findings in Dhole et al. (2021). Further untabulated results show that change in climate news is negatively correlated with firm-level stock returns, suggesting that climate news at the market level is related to negative market reactions at the firm level. To the extent that stock returns can measure economic events, this finding also suggests that climate news is related to negative economic events for firms.

5.2. Climate News and Accounting Comparability

Table 2 presents the regression results for equation (4). Column [1] shows that the coefficient estimate of the change in climate news is significantly negative at the 1 percent

significance level after accounting for the full set of controls. This indicates that an increase in climate news coverage in the WSJ reduces comparability among industry peers. This finding is significant not only in statistical terms, but also in economic terms. A one standard deviation increase in climate news (0.623, Table 1, Panel B) is associated with a decrease in accounting comparability of 0.055 (0.623 x 0.088), which is a 6.5 percent decrease (0.055 / 0.843) from the average level of comparability (-0.843, Table 1, Panel B). To ensure that our baseline result is not driven by our measurement choices, we replace the change in climate news (*CCN*) in equation (4) with the level of climate news (*CCN_L*), which is the annual average of the monthly climate news index (*CCN_m*) from Engle et al. (2020). We then rerun the baseline regression and find consistent results (Table 2, column [2]).

[Insert Table 2 here]

6. ROBUSTNESS CHECKS

News coverage in the WSJ is exogenous to firm-level accounting comparability and it is unlikely that firm-level comparability can affect news coverage of the WSJ, given that this is a credible news source that maintains high journalistic integrity and objectivity. Therefore, reverse causality is unlikely to be a concern in our setting. However, because climate news is at the market level, there could be other endogeneity concerns related to correlated omitted variables and/or confounding factors that bias our baseline results. Consequently, we perform several robustness checks to address these endogeneity concerns.

6.1. Additional Controls

Because governance characteristics can affect financial reporting quality including accounting comparability (Hasan et al., 2022; Hoitash et al., 2009; Larcker et al., 2007), we add additional controls for corporate governance in the baseline regression model to ensure that the

observed baseline results are not driven by corporate governance characteristics. These characteristics include board size (*BOARDSIZE*), board independence (*BOARDIND*), and CEO-chair duality (*DUALITY*). Data to compute these variables come from BoardEx. We do not include these controls in the baseline analysis for a few reasons. First, prior research shows mixed results regarding the relationship between corporate governance characteristics and financial reporting quality (Larcker et al., 2007). Second, there is no study directly examining the relationship between climate news and corporate governance. Therefore, we have no expectation regarding the signs of these corporate governance controls. Third, including these controls for corporate governance in the baseline regression reduces the sample size to 23,426, which is a drop of 43.6 percent of the baseline sample (53,711). Climate news remains significantly negative after controlling for corporate governance characteristics (Table 3, Panel A, columns [1] and [2]).

[Insert Table 3 here]

Firms can have different earnings in response to the same news due to both accounting choices and other economic choices such as relocating or shifting business models. To further isolate the accounting choice component of comparability, we include cash flow co-movement (*CASH_CORR*) and return co-movement (*RET_CORR*) as additional controls in our second robustness check because these factors capture the economic similarity between a firm and its industry peers (Zhang, 2018). Following Zhang (2018), we measure *CASH_CORR* (*RET_CORR*) as the industry average of the pairwise correlation of cash flows (return) between firm *i* and all peer firms *j* over the preceding eight quarters, divided by the number of pairs of *i-j* firms. The results (Table 3, Panel A, columns [3] and [4]) are robust to these additional controls.

6.2. Alternative Measures

Our next set of analyses uses alternative measures of climate news or accounting comparability to check for sensitivity. We first replace the measures of climate news (*CCN* and *CCN_L*) with measures of climate news with negative tone (*NCN* and *NCN_L*, respectively). While Engle et al. (2020) posit that their baseline climate news measure generally reflects negative news about climate change, they further derive climate news measures focusing on articles with negative tone to address the negative aspect of the news more directly. They show in their Figure 3 that while the baseline climate news index and the negative-tone climate news index differ sometimes, they comove for most of their sample period (2008 – 2017). Panel B of Table 3 shows that both the change and the level specifications of the *negative* climate news maintain their negative associations with accounting comparability at the 1 percent level, which is even stronger than the baseline results. This finding suggests that the negative relationship between climate news and accounting comparability is largely driven by the negative component of climate news rather than the positive component.[16]

Following De Franco et al. (2011), the baseline analysis relies on the accounting comparability measure based on the four closest industry peers ($COMP_{it}$). We replace this measure with a comparability measure based on the top 10 closest peers ($COMP10_{it}$). The results for both the change and level specifications of the climate news index are qualitatively similar (Table 3, Panel C, columns [1] and [2]), suggesting that the number of peers used in the computation of the firm-level comparability measure does not drive the baseline results.

Further, to ensure that our finding is not driven by one-time items in accounting earnings, we replace $COMP_{it}$ in equation (4) with BSI_COMP_{it}, which is the modified De Franco et al. (2011) comparability measure using earnings before special items rather than net income as in the

[16] Again, we do not use the measures of climate news with negative tone in the baseline analysis because doing so would reduce the sample size significantly from 53,711 to 12,374, which is a 77 percent drop in sample size.

baseline analyses. The result (Table 3, Panel C, columns [3] and [4]) shows that both specifications of climate news remain negatively associated with this modified measure of accounting comparability.

Finally, we replace the De Franco et al. (2011) measure of accounting comparability with an alternative measure of comparability based on the differences in total accruals among pairs of industry peers (*ACC_DIFF*), following Francis et al. (2014). We measure *ACC_DIFF* as the industry average of the pairwise differences in total accruals between firm *i* and industry peer *j*, scaled by the number of *i-j* pairs. We compute accruals as the difference between net income and operating cash flows (Hribar & Collins, 2002). Thus, a greater measure of *ACC_DIFF* indicates a lower measure of accrual similarity. The results (Table 3, Panel C, columns [5] and [6]) show that the change in climate news is positively associated with *ACC_DIFF*, suggesting that climate news is negatively associated with accrual similarity.[17] Overall, these robustness checks provide assurance to the validity of our baseline findings.

6.3. Instrumental Variable Analysis

To further address endogeneity concerns, we perform a two-stage least square analysis using instrumental variable (IV). For this analysis, we choose population density as our IV. An IV is valid if it satisfies two main conditions – the relevance condition and the exogeneity (exclusion) condition. The relevance condition refers to the requirement that the IV be correlated with climate news. Albouy et al. (2016) control for population density when examining the relationship between climate measures and quality of life to mitigate concerns of correlated omitted variables (p. 228). They also show that population density is correlated with measures of climate temperatures in their

[17] Note that this measure does not capture the similarity of the accounting functions as in De Franco et al. (2011) because it only measure the output (total accruals) of this function but not the input (economic news). Therefore, the results from this analysis should be interpreted with caution.

Table A1.2. Furthermore, Cao, Chen, Dong, et al. (2024) study the effect of climate news, based on the Engle et al. (2020) WSJ coverage index, on supply chain financing. They also use population density as an IV and show that, in the first stage of their IV analysis, population density exhibits a significantly positive association with climate news (p. 19).

Theoretically, population density can be related to climate news. The *urban amplification hypothesis* posits that areas with higher population density (e.g., crowded cities) are more exposed to climate threats (e.g., drought, heatwaves, and sea level rise) compared to areas with lower population density (e.g., rural areas) (Assenova et al., 2024; Hanberry, 2022; Hong et al., 2022; Huang et al., 2023). This suggests that high-population-density areas tend to find climate news more salient and newsworthy. Economic theories suggest that media outlets seek to satisfy market demand for information by increasing their supply of news (Gravino et al., 2022; Mathewson, 1972; Mullainathan & Shleifer, 2005). Therefore, in our setting, the WSJ is likely to increase its coverage of climate-related matters in response to increased demand for climate news in periods with high population density. Therefore, population density can be positively correlated with climate news. Overall, prior research provides theoretical and empirical justifications for the relevance condition of population density in our setting.

The exogeneity condition refers to the requirement that the IV be independent from the error terms in the baseline model, i.e., the IV is correlated with accounting comparability only through its correlation with climate news. Because prior comparability research has made no connection between population density and accounting comparability, it is likely that our chosen IV can satisfy the exogeneity condition as well. We follow the standard two-stage regression analysis. In the first stage, we regress CCN_t on $DENS_t$, measured as the number of people per square kilometer. The specific equation is as follows:

$$CCN_{t-1} = \beta_0 + \beta_1 DENS_{t-1} + CONTROLS + FEs + \varepsilon \quad (5a)$$

Given that population density is positively correlated with climate news (Cao, Chen, Dong et al., 2024), we expect β_1 in equation (5a) to be positive. Indeed, the coefficient estimate for *DENS* is significantly positive at the 1 percent level (Table 4, column [1]). In the second stage, we use $CCN\_Predicted_{t-1}$, the predicted value of CCN_{t-1} computed from the first-stage regression in equation (5a), to replace CCN_{t-1} in equation (4) to derive the following equation:

$$COMP_{it} = \beta_0 + \beta_1 CCN\_Predicted_{t-1} + CONTROLS + FEs + \varepsilon \quad (5b)$$

Given our baseline findings, we expect β_1 in equation (5b) to be negative. The results (Table 4, column [2]) show that $CCN\_Predicted_{t-1}$ is significantly negative at the 1 percent level, consistent with the baseline finding. As before, we replace the change in climate news coverage (*CCN*) with the level of climate news coverage (*CCN_L*) and rerun the two-stage analysis. The results (Table 4, columns [3] and [4]) are also consistent with those for *CCN*.

[Insert Table 4 here]

To validate our instrument choice, we follow the approach of Larcker and Rusticus (2010) and conduct weak instrument identification tests. The first-stage regression yields a partial F-statistic of 28.37 for *CCN* (column [1]) and 31.62 for *CCN_L* (column [2]), which surpass the critical value of 10 according to Stock and Yogo (2005). Meanwhile, the second-stage regression yields an Anderson-Rubin Wald Chi-Squared of 14.46 for both *CCN* and *CCN_L* (columns [2] and [4]), which is significant at the 1 percent level. Therefore, our chosen IV successfully passes the weak instrument tests.[18]

[18] While our analysis above ascertains that our chosen IV is strong, good IVs can be hard to find in an empirical setting (Larcker & Rusticus, 2010). Therefore, we further use the Lewbel (2012) method to provide more assurance to the validity of our IV analysis. This method essentially generates IVs based on heteroscedasticity in the data rather than relying on our chosen IV. Due to this ability, the Lewbel method is particularly useful in empirical settings where traditional instrumental variables are weak or unavailable. Our baseline finding regarding the

7. ADDITIONAL ANALYSES

7.1. Mediator Analysis for Measurement Intensity

Prior research recognizes that accounting comparability is a function of both firms' choices of accounting standards and their application of the standards (Barth et al., 2012; Francis et al., 2014; Kim et al., 2013). Two firms choosing the same standard can still have low accounting comparability if they apply that standard differently. According to De Franco et al. (2011) and Dhole et al. (2021), accounting comparability among industry peers is driven primarily by firms' application of accounting standards. Firms in the same industry tend to have similar economic fundamentals, and, thus, tend to choose similar accounting standards to record the same transactions. However, the application of the same standards can vary across firms, leading to incomparability even among industry peers.[19] We argue that the reduction in firm accounting comparability following an increase in climate news is due to differences in the applications of accounting standards.

To test this conjecture, we use a path analysis to examine whether the accounting measurement intensity (AMI) is a mediator in the relationship between climate news and accounting comparability. According to Andreicovici et al. (2020), AMI refers to the intensity with which firms apply accounting standards to map economic transactions into financial outcomes. If climate news influences the implementation of accounting standards through accounting estimates, we expect a positive relation between climate news and AMI. This increase in AMI leads to lower comparability among industry peers because accounting estimates entails significant managerial

negative relationship between both measures of climate news and accounting comparability remains robust to this sensitivity check. Results are untabulated for brevity and are available upon request.

[19] Even banks, which are subject to the most stringent regulations, still cannot achieve completely comparability (De Franco et al., 2011). Therefore, firm-specific application of accounting standards does play a big role in the accounting system of each firm.

discretion. To conduct our path analysis, we follow Schoenfeld (2017), Nagar et al. (2019), and Hasan et al. (2024) in using a system of recursive structural equation model (SEM). Specifically, we estimate equation (4), the baseline regression model, together with the following equations:

$$AMI_{it} = \alpha_0 + \alpha_1 CCN_{it-1} + CONTROLS + FE + \varepsilon_{it} \quad (6a)$$

$$COMP_{it} = \gamma_0 + \gamma_1 CCN_{it-1} + \gamma_2 AMI_{it} + CONTROLS + FE + \varepsilon_{it} \quad (6b)$$

We rerun equation (4) using a sample of observations for which AMI_{it} is non-missing. Equation (6a) tests the association between climate news and AMI. If climate news affects firms' application of accounting standards, we expect that an increase in climate news in year *t-1* is associated with an increase in AMI in year *t*, suggesting a significantly positive α_1. Equation (6b) extends equation (4) by including *AMI* as an additional variable. *CONTROLS* in all equations are as defined in the baseline equation (4).

In this recursive framework, equation (4) establishes the direct effect of climate news on accounting comparability, equation (6a) the direct effect of climate news on AMI, and equation (6b) both the *direct* effect of climate news on comparability and the *indirect* effect of climate news on comparability through AMI. The product of α_1 from equation (6a) and γ_2 from equation (6b) represents the extent to which the change in AMI due to climate news contributes to the change in accounting comparability.

[Insert Table 5 here]

Table 5, columns [1], [2], and [3] present the regression results for equation (4), (6a), and (6b), respectively.[20] Results show a negative association between climate news and accounting comparability. In column [2], climate news is significantly positive with respect to *AMI*, suggesting that heightened climate news increases the intensity with which firms apply accounting

[20] The results in column [1] are slightly different from those reported in the baseline analysis (Table 2, column [1]) because we use a sample with non-missing values of AMI.

standards to map economic events into accounting outcomes. In column [3], *CCN* becomes insignificant while *AMI* remain significantly negative with respect to comparability.

The insignificant result for *CNN* in column [3] suggests no direct effect of climate news on comparability. Meanwhile, the *indirect effect* of climate news on comparability through accounting measurement intensity is -0.019 (α_1 of 0.011 from column [2]) × γ_2 of -1.660 from column [3]) and is significant at the 10 percent level (z-value = -1.840). Following Nagar et al. (2019), we use the delta method to compute the standard error of the product of α_1 (column [2]) and γ_2 (column [3]). Overall, this path analysis suggests that AMI is a valid mediator in the relationship between climate news and accounting comparability. Because AMI captures the intensity with which firms apply accounting standards in translating economic activities into accounting numbers, this analysis provides evidence supporting our argument that the link between climate news and comparability operates, to a certain extent, through accounting estimates, especially through the changes in firms' application of accounting standards.

7.2. Cross-Sectional Analyses

To further understand the baseline relationship, we perform three tests to examine how it varies in the cross section using the following model.

$$COMP_{it} = \beta_0 + \beta_1 CCN_{t-1} + \beta_2 CCN_{t-1} \times Z_{it} + \beta_3 Z_{it} + CONTROLS_t + FE + \varepsilon_{it} \quad (7)$$

This equation is similar to the baseline equation (4) except that we include *Z* and its interaction with *CCN*, where Z stands for a cross-sectional variable of interest.

7.2.1. Cross-Sectional Analysis – Sea Level Rise

If the relationship between climate news and accounting comparability is driven by firms' climate exposure, those with more exposure to climate risks are likely to experience a stronger

effect of climate news on their accounting comparability. As mentioned earlier, there are two types of climate risks – physical risks and transitional risks. To identify which of these risks are the main driver of the baseline relationship, we test whether the effect of climate news on accounting comparability is stronger for firms with more exposure to physical risks and for firms with more exposure to transitional risks.

For physical risk exposure, we use firms in coastal areas that are prone to sea level rise. Specifically, we create *SLR*, an indicator equal to one if a firm is headquartered in the East and Gulf coast states in the U.S. and zero if it is headquartered in West coast states. [21] Prior studies (Goldsmith-Pinkham et al., 2019; Nguyen et al., 2022) compare states in the East and Gulf coasts with those in the West coast because doing so parses out other natural disasters typical of the non-coastal regions such as droughts, wildfires, and hurricanes, that can confound the comparison. Additionally, the sea level rises twice as fast on the East and Gulf coasts compared to that on the West coast. Thus, the East and Gulf coasts are *relatively* more prone to sea level rise than the West coast.

[Insert Table 6 here]

Empirical results show that interaction between *CCN* and *SLR* is significantly negative at the 5 percent level (Table 6, column [1]), suggesting that the negative relationship between climate news and accounting comparability is stronger for firms headquartered in regions prone to rising sea levels. Using *CCN_L* in place of *CCN* yields qualitatively similar results (column [2]).

7.2.2. Cross-Sectional Analysis – Industry Classification

[21] The *East* coast states include Connecticut, Delaware, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, South Carolina, and Virginia. The *Gulf* coast states include Alabama, Florida, Louisiana, Mississippi, and Texas. The *West* coast states include Alaska, California, Hawaii, Oregon, and Washington.

For transitional risk exposure, we examine whether the effect of climate news on accounting comparability is industry specific. Firms in high-carbon industries are likely to be more exposed to transitional risks than firms in low-carbon industries, given the shift to a low-carbon economy. Following prior research (Aerts et al., 2006; Cho & Patten, 2007; Ding et al., 2021b), we identify high-carbon industries as oil exploration (SIC code between 1300 and 1399), paper (SIC code between 2600 and 2699), chemical and allied products (SIC code between 2900 and 2999), petroleum refining (SIC code between 2900 and 2999), metals (SIC code between 3300 and 3399) and mining (SIC code between 1000 and 1099). All other industries are low carbon.

Firms in high-carbon industries may experience a stronger negative effect of climate news on their comparability because these firms are more likely to adjust their expected cash flows to reflect the emerging transitional risks. However, it is possible that high-carbon industries are heavily regulated and tend to apply the same accounting standards in the same ways, thus may experience a weaker negative effect of climate news on comparability. Therefore, the moderating effect of industry classification is an empirical question.

To test this, we compute $INDUSTRY_{it}$, an indicator equal to one if firm *i* belongs to a high-carbon industry in year *t*, and zero otherwise. Regression results show that the coefficients on the interactions between *CCN* and *INDUSTRY* and between *CCN_L* and *INDUSTRY* are significantly positive at the 10 percent and 5 percent levels, respectively (Table 6, column [3] and [4]). These results provide some evidence that firms in high-carbon industries experience a somewhat weaker effect of climate news on their comparability. Meanwhile, the coefficient estimates on *CCN* and *CCN_L* remain significantly negative, suggesting that the effect of climate news on accounting comparability is widespread regardless of industry classifications. This also implies that this effect is driven mostly by physical climate risks rather than transitional risks.

7.2.3. Cross-Sectional Analysis – Environmental Performance

Next, we examine whether a company's environmental performance can affect the relationship between climate news and its accounting comparability. Huynh and Xia (2021) find that when climate news is high, the ability of a bond to hedge against climate risks is positively associated with the issuer's environmental performance. To the extent that firms with better environmental performance are less exposed to climate risks, it is possible that good environmental performance can help mitigate the negative effect of climate news on accounting comparability.

To test this, we compute $ESCORE_{it}$, an indicator equal to one if the firm-level net environmental performance score based on MSCI/KLD is positive, and zero otherwise. Following prior research (Engle et al., 2020; Huynh & Xia, 2021), we compute the net environmental performance score by adding up the environmental strengths and subtracting the total of the environmental concerns for each company. We also exclude observations where both environmental strengths and concerns have zero values.

The results shown indicate that the interaction between *CCN* and *ESCORE* is significantly positive at the 5 percent level (Table 6, column [5]), suggesting that firms with better environmental performance experience a smaller reduction in accounting comparability following an increase in climate news. Replacing *CCN* with *CCN_L* yields qualitatively similar results (Tabler 6, column [6]).

8. CONCLUSION

This study examines the effect of climate news on accounting comparability. Climate news can inform market participants of the firms' climate exposures. We use various economic theories to conjecture that climate news can induce firms to engage in various accounting decisions related to the reassessment of future cash flows from their assets. Because this reassessment relies

significantly on managerial discretion, climate news can have different effects on the accounting systems of different firms, potentially affecting the comparability in accounting systems among industry peers

Using a measure of climate news proposed by Engle et al. (2020) and a modified De Franco et al. (2011) accounting comparability measure on a sample of U.S. firms from 1987 to 2016, we find that climate news in the WSJ reduces one-year-ahead accounting comparability. This finding holds for both the change in and the level of climate news coverage and is robust to numerous robustness checks, including alternative measures and an instrumental analysis.

In additional analyses, we document the mediating effect of the intensity with which firms apply accounting standards to transform economic events into accounting numbers in the effect of climate news on comparability. We also find that this link is stronger for firms with more exposure to physical climate risks, but not transitional risks, and is mitigated by firm-level environmental performance.

Climate change has become a pressing socio-economic issue. We contribute to research about the effect of climate change on the business world by documenting the detrimental effect of climate news on accounting comparability, thus reducing the quality of firms' information environment. As such, climate change can affect not only the natural ecosystems but also the financial ecosystems. This finding supports the effort of the world governments to tackle climate issues as well as the SEC's initiative to mandate climate disclosure of U.S. firms. Our study also fills the gap in prior research about determinants of firm environment.

REFERENCES

Aerts, W., Cormier, D., & Magnan, M. (2006). Intra-industry imitation in corporate environmental reporting: An international perspective. *Journal of Accounting and Public Policy*, *25*(3), 299–331. https://doi.org/10.1016/j.jaccpubpol.2006.03.004

Afzali, M. (2023). Corporate culture and financial statement comparability. *Advances in Accounting*, *60*, 100640. https://doi.org/https://doi.org/10.1016/j.adiac.2022.100640

Albouy, D., Graf, W., Kellogg, R., & Wolff, H. (2016). Climate amenities, climate change, and American quality of life. *Journal of the Association of Environmental and Resource Economists*, *3*(1), 205–246. https://doi.org/10.1086/684573

Andreicovici, I., van Lent, L., Nikolaev, V. v, & Zhang, R. (2020). Accounting measurement intensity. *Chicago Booth Research Paper*, *20–17*.

Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, *131*(4), 1593–1636. https://doi.org/10.1093/qje/qjw024

Barnett, M., Brock, W., & Hansen, L. P. (2020). Pricing uncertainty induced by climate change. *Review of Financial Studies*, *33*(3), 1024–1066. https://doi.org/10.1093/rfs/hhz144

Barth, M. E., Landsman, W. R., Lang, M., & Williams, C. (2012). Are IFRS-Based and US GAAP-Based Accounting Amounts Comparable? *Journal of Accounting and Economics*, *54*(1), 68–93. https://doi.org/10.1016/j.jacceco.2012.03.001

Bergmann, A., Stechemesser, K., & Guenther, E. (2016). Natural resource dependence theory: Impacts of extreme weather events on organizations. *Journal of Business Research*, *69*(4), 1361–1366. https://doi.org/10.1016/j.jbusres.2015.10.108

Berkman, H., Jona, J., & Soderstrom, N. (2019). Firm value and government commitment to combating climate change. *Pacific Basin Finance Journal*, *53*, 297–307. https://doi.org/10.1016/j.pacfin.2018.11.003

Biswas, P. K., Habib, A., & Ranasinghe, D. (2022). Firm life cycle and financial statement comparability. *Advances in Accounting*, *58*, 100608. https://doi.org/https://doi.org/10.1016/j.adiac.2022.100608

Bolton, P., & Kacperczyk, M. (2021). Do investors care about carbon risk? *Journal of Financial Economics*, *142*(2), 517–549. https://doi.org/https://doi.org/10.1016/j.jfineco.2021.05.008

Bos, K., & Gupta, J. (2019). Stranded assets and stranded resources: Implications for climate change mitigation and global sustainable development. *Energy Research & Social Science*, *56*, 101215. https://doi.org/https://doi.org/10.1016/j.erss.2019.05.025

Brochet, F., Jagolinzer, A. D., & Riedl, E. J. (2013). Mandatory IFRS adoption and financial statement comparability. *Contemporary Accounting Research*, *30*(4), 1373–1400. https://doi.org/10.1111/1911-3846.12002

Bushman, R. M., & Smith, A. J. (2003). Transparency, financial accounting information, and corporate governance. *Economic Policy Review - Federal Reserve Bank of New York*, *9*(1), 65.

Cao, Z., Chen, S. X., Dong, T., & Lee, E. (2024). Climate change uncertainty and supply chain financing. *The British Accounting Review*, 101423. https://doi.org/https://doi.org/10.1016/j.bar.2024.101423

Cao, Z., Chen, S. X., Lee, E., & Xie, S. (2024). Weathering the Storm: Unravelling the Influence of Climate Change Risk Exposure on Firms' Human Capital Investment. *British Journal of Management*, *n/a*(n/a). https://doi.org/https://doi.org/10.1111/1467-8551.12868

Chen, A., & Gong, J. J. (2019). Accounting comparability, financial reporting quality, and the pricing of accruals. *Advances in Accounting*, *45*, 100415. https://doi.org/https://doi.org/10.1016/j.adiac.2019.03.003

Chen, C. W., Collins, D. W., Kravet, T. D., & Mergenthaler, R. D. (2018). Financial statement comparability and the efficiency of acquisition decisions. *Contemporary Accounting Research*, *35*(1), 164–202. https://doi.org/10.1111/1911-3846.12380

Chen, J. Z., Chen, M. H., Chin, C. L., & Lobo, G. J. (2020). Do firms that have a common signing auditor exhibit higher earnings comparability? *The Accounting Review*, *95*(3), 115–143. https://doi.org/10.2308/ACCR-52522

Chinn, S., Hart, P. S., & Soroka, S. (2020). Politicization and Polarization in Climate Change News Content, 1985-2017. *Science Communication*, *42*(1), 112–129. https://doi.org/10.1177/1075547019900290

Chircop, J. (2021). The Relation Between Accounting Comparability and Firm Productivity. *Journal of Accounting, Auditing & Finance*, 0148558X211046221. https://doi.org/10.1177/0148558X211046221

Chircop, J., Collins, D. W., Hass, L. H., & Nguyen, N. Q. (2020). Accounting comparability and corporate innovative efficiency. *The Accounting Review*, *95*(4), 127–151. https://doi.org/10.2308/ACCR-52609

Chircop, J., Nguyen, N. Q., & Nguyen, T. T. (2024). Accounting comparability and customer concentration. *Journal of Accounting and Public Policy*, *48*, 107244. https://doi.org/10.1016/j.jaccpubpol.2024.107244

Cho, C. H., & Patten, D. M. (2007). The role of environmental disclosures as tools of legitimacy: A research note. *Accounting, Organizations and Society*, *32*(7–8), 639–647. https://doi.org/10.1016/j.aos.2006.09.009

Choi, D., Gao, Z., & Jiang, W. (2020). Attention to global warming. *Review of Financial Studies*, *33*(3), 1112–1145. https://doi.org/10.1093/rfs/hhz086

De Franco, G., Kothari, S. P., & Verdi, R. S. (2011). The benefits of financial statement comparability. *Journal of Accounting Research*, *49*(4), 895–931. https://doi.org/10.1111/j.1475-679X.2011.00415.x

Delis, M., Greiff, K. de, & Ongena, S. (2019). *Being Stranded with Fossil Fuel Reserves? Climate Policy Risk and the Pricing of Bank Loans*.

Dhole, S., Liu, L., Lobo, G. J., & Mishra, S. (2021). Economic policy uncertainty and financial statement comparability. *Journal of Accounting and Public Policy*, *40*(1), 106800. https://doi.org/10.1016/j.jaccpubpol.2020.106800

DiMaggio, P. J., & Powell, W. W. (1983). The Iron Cage Revisited: Institutional Isomorphism and Collective Rationality in Organizational Fields. *American Sociological Review*, *48*(2), 147–160. https://doi.org/10.2307/2095101

Ding, R., Liu, M., Wang, T., & Wu, Z. (2021a). The impact of climate risk on earnings management: International evidence. *Journal of Accounting and Public Policy*, *40*(2), 106818. https://doi.org/10.1016/j.jaccpubpol.2021.106818

Ding, R., Liu, M., Wang, T., & Wu, Z. (2021b). The impact of climate risk on earnings management: International evidence. *Journal of Accounting and Public Policy*, *40*(2), 106818. https://doi.org/10.1016/j.jaccpubpol.2021.106818

Dong, X., & Liu, L. (2023). Climate risk and future stock price crash: Evidence from U.S. firms. *Journal of Climate Finance*, *3*, 100012. https://doi.org/https://doi.org/10.1016/j.jclimf.2023.100012

El Ghoul, S., Guedhami, O., Kim, Y., & Yoon, H. J. (2021). Policy Uncertainty and Accounting Quality. *The Accounting Review*, *96*(4), 233–260. https://doi.org/10.2308/TAR-2018-0057

Endrawes, M., Feng, Z., Lu, M., & Shan, Y. (2020). Audit committee characteristics and financial statement comparability. *Accounting & Finance*, *60*(3), 2361–2395. https://doi.org/https://doi.org/10.1111/acfi.12354

Engle, R. F., Giglio, S., Kelly, B., Lee, H., & Stroebel, J. (2020). Hedging climate change news. *Review of Financial Studies*, *33*(3), 1184–1216. https://doi.org/10.1093/rfs/hhz072

Ertimur, Y., & Ferri, F. (2019). When is corporate governance research relevant to accounting? Evidence from JAR 2002–2018. In *Evidence from JAR* (Vol. 2018).

Financial Accounting Standards Board (FASB). (2001). *Accounting for the impairment or disposal of long-lived assets. Statement of Financial Accounting Standards No. 144.* https://www.fasb.org/news/nr100301.shtml

Financial Accounting Standards Board (FASB). (2018). *Statement of Financial Reporting Concepts No. 8 – Conceptual Framework for Financial Reporting – Chapter 3, Qualitative Characteristics of Useful Financial Information (as Amended)*. FASB Conceptual Framework. https://fasb.org/Page/ShowPdf?path=Concepts+Statement+8+Chapter+3+As+Amended.pdf

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Francis, J. R., Pinnuck, M. L., & Watanabe, O. (2014). Auditor style and financial statement comparability. *The Accounting Review*, *89*(2), 605–633. https://doi.org/10.2308/accr-50642

Freeman, R. E. (2010). *Strategic Management: A Stakeholder Approach*. Cambridge University Press. https://doi.org/10.1017/CBO9781139192675

Garnache, C., & Guilfoos, T. (2019). *A City on Fire ? Effect of Salience on Risk Perceptions*.

Geng, H., Zhang, C., & Zhou, F. S. (2023). Financial Reporting Quality and Myopic Investments: Theory and Evidence. *The Accounting Review*, *98*(6), 223–251. https://doi.org/10.2308/TAR-2021-0380

Giglio, S., Kelly, B., & Stroebel, J. (2021). Climate Finance. *Annual Review of Financial Economics*, *13*(1), 15–36. https://doi.org/10.1146/annurev-financial-102620-103311

Giglio, S., Maggiori, M., Rao, K., Stroebel, J., & Weber, A. (2021). Climate Change and Long-Run Discount Rates: Evidence from Real Estate. *The Review of Financial Studies*, *34*(8), 3527–3571. https://doi.org/10.1093/rfs/hhab032

Goldsmith-Pinkham, P., Gustafson, M., Lewis, R. C., & Schwert, M. (2019). *Sea level rise and municipal bond yields*. Rodney L. White Center for Financial Research.

Gulluscio, C. (2020). Legitimacy Theory. In S. Idowu, R. Schmidpeter, N. Capaldi, L. Zu, M. Del Baldo, & R. Abreu (Eds.), *Encyclopedia of Sustainable Management* (pp. 1–7). Springer International Publishing. https://doi.org/10.1007/978-3-030-02006-4_175-1

Hansen, J., Sato, M., & Ruedy, R. (2012). Perception of climate change. *Proceedings of the National Academy of Sciences*, *109*(37), E2415–E2423. https://doi.org/10.1073/pnas.1205276109

Hasan, A., Aly, D., & Hussainey, K. (2022). Corporate governance and financial reporting quality: a comparative study. *Corporate Governance: The International Journal of Business in Society*, *22*(6), 1308–1326. https://doi.org/10.1108/CG-08-2021-0298

Hasan, M. M., Bhuiyan, M. B. U., & Taylor, G. (2024). Corporate culture and carbon emission performance. *The British Accounting Review*, *56*(6, Part A), 101462. https://doi.org/https://doi.org/10.1016/j.bar.2024.101462

Hino, M., & Burke, M. (2021). The effect of information about climate risk on property values. *Proceedings of the National Academy of Sciences*, *118*(17), e2003374118. https://doi.org/10.1073/pnas.2003374118

Hoitash, U., Hoitash, R., & Bedard, J. C. (2009). Corporate Governance and Internal Control over Financial Reporting: A Comparison of Regulatory Regimes. *The Accounting Review*, *84*(3), 839–867. https://doi.org/10.2308/accr.2009.84.3.839

Hong, H., Karolyi, G. A., & Scheinkman, J. A. (2020). Climate finance. *Review of Financial Studies*, *33*(3), 1011–1023. https://doi.org/10.1093/rfs/hhz146

Hong, H., Li, F. W., & Xu, J. (2019). Climate risks and market efficiency. *Journal of Econometrics*, *208*(1), 265–281. https://doi.org/https://doi.org/10.1016/j.jeconom.2018.09.015

Hribar, P., & Collins, D. W. (2002). Errors in Estimating Accruals: Implications for Empirical Research. *Journal of Accounting Research*, *40*(1), 105–134. https://doi.org/https://doi.org/10.1111/1475-679X.00041

Hribar, P., Melessa, S. J., Small, R. C., & Wilde, J. H. (2017). Does managerial sentiment affect accrual estimates? Evidence from the banking industry. *Journal of Accounting and Economics*, *63*(1), 26–50. https://doi.org/10.1016/j.jacceco.2016.10.001

Hsu, P.-H., Li, K., & Tsou, C.-Y. (2022). The Pollution Premium. In *SSRN Electronic Journal*. Elsevier BV. https://doi.org/10.2139/ssrn.3578215

Hsu, P.-H., Li, K., & Tsou, C.-Y. (2023). The Pollution Premium. *The Journal of Finance*, *78*(3), 1343–1392. https://doi.org/https://doi.org/10.1111/jofi.13217

Huang, H., Kerstein, J., & Wang, C. (2018). The impact of climate risk on firm performance and financing choices: An international comparison. *Journal of International Business Studies*, *49*(5), 633–656. https://doi.org/10.1057/s41267-017-0125-5

Huynh, T. D., & Xia, Y. (2021). Climate change news risk and corporate bond returns. *Journal of Financial and Quantitative Analysis*. https://papers.ssrn.com/abstract=3577321

Huynh, T. D., & Xia, Y. (2023). Panic Selling When Disaster Strikes: Evidence in the Bond and Stock Markets. *Management Science*, *69*(12), 7448–7467. https://doi.org/10.1287/mnsc.2021.4018

Ilhan, E., Sautner, Z., & Vilkov, G. (2021). Carbon tail risk. *The Review of Financial Studies*, *34*(3), 1540–1571. https://doi.org/10.1093/rfs/hhaa071

Imhof, M. J., Seavey, S. E., & Watanabe, O. V. (2022). Competition, proprietary costs of financial reporting, and financial statement comparability. *Journal of Accounting, Auditing & Finance*, *37*(1), 114–142. https://doi.org/10.1177/0148558X18814599

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/https://doi.org/10.1016/0304-405X(76)90026-X

Kahneman, D., & Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, *47*(2), 263–291. https://doi.org/10.2307/1914185

Kim, J. B., Li, L., Lu, L. Y., & Yu, Y. (2016). Financial statement comparability and expected crash risk. *Journal of Accounting and Economics*, *61*(2–3), 294–312. https://doi.org/10.1016/j.jacceco.2015.12.003

Kim, S., Kraft, P., & Ryan, S. G. (2013). Financial statement comparability and credit risk. *Review of Accounting Studies*, *18*(3), 783–823. https://doi.org/10.1007/s11142-013-9233-z

Kraft, A. G., Vashishtha, R., & Venkatachalam, M. (2018). Frequent Financial Reporting and Managerial Myopia. *The Accounting Review*, *93*(2), 249–275. https://doi.org/10.2308/accr-51838

Lang, M. H., Maffett, M. G., & Owens, E. (2010). *Earnings comovement and accounting comparability: The effects of mandatory IFRS adoption*. Simon School Working Paper No. FR 11-03. https://doi.org/https://dx.doi.org/10.2139/ssrn.1676937

Larcker, D. F., Richardson, S. A., & Tuna, I. (2007). Corporate Governance, Accounting Outcomes, and Organizational Performance. *The Accounting Review*, *82*(4), 963–1008. https://doi.org/10.2308/accr.2007.82.4.963

Larcker, D. F., & Rusticus, T. O. (2010). On the use of instrumental variables in accounting research. *Journal of Accounting and Economics*, *49*(3), 186–205. https://doi.org/10.1016/J.JACCECO.2009.11.004

Lewbel, A. (2012). Using Heteroscedasticity to Identify and Estimate Mismeasured and Endogenous Regressor Models. *Journal of Business & Economic Statistics*, *30*(1), 67–80. https://doi.org/10.1080/07350015.2012.643126

Linnenluecke, M., & Griffiths, A. (2010). Beyond Adaptation: Resilience for Business in Light of Climate Change and Weather Extremes. *Business & Society*, *49*(3), 477–511. https://doi.org/10.1177/0007650310368814

Linnenluecke, M., Griffiths, A., & Winn, M. (2012). Extreme Weather Events and the Critical Importance of Anticipatory Adaptation and Organizational Resilience in Responding to Impacts: Extreme Weather Events: Adaptation and Organizational Resilience. *Business Strategy and the Environment*, *21*(1), 17–32. https://doi.org/10.1002/bse.708

McCoy, S. J., & Walsh, R. P. (2018). Wildfire risk, salience & housing demand. *Journal of Environmental Economics and Management*, *91*, 203–228. https://doi.org/10.1016/j.jeem.2018.07.005

Mills, E. (2009). A Global Review of Insurance Industry Responses to Climate Change. *Geneva Papers on Risk and Insurance. Issues and Practice*, *34*(3), 323–359. https://doi.org/10.1057/gpp.2009.14

Mizik, N. (2010). The Theory and Practice of Myopic Management. *Journal of Marketing Research*, *47*(4), 594–611. https://doi.org/10.1509/jmkr.47.4.594

Nagar, V., Schoenfeld, J., & Wellman, L. (2019). The effect of economic policy uncertainty on investor information asymmetry and management disclosures. *Journal of Accounting and Economics*, *67*(1), 36–57. https://doi.org/10.1016/j.jacceco.2018.08.011

Ng, J., Saffar, W., & Zhang, J. J. (2020). Policy uncertainty and loan loss provisions in the banking industry. *Review of Accounting Studies*, *25*(2), 726–777. https://doi.org/10.1007/s11142-019-09530-y

Nguyen, D. D., Ongena, S., Qi, S., & Sila, V. (2022). Climate Change Risk and the Cost of Mortgage Credit. *Review of Finance*, *26*(6), 1509–1549. https://doi.org/10.1093/rof/rfac013

Nguyen, D. D., Ongena, S. R. G., Qi, S., & Sila, V. (2020). Climate Change Risk and the Costs of Mortgage Credit. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3738234

NSB. (2016). *Science and Engineering Indicators 2016*. https://www.nsf.gov/nsb/publications/2016/nsb20161.pdf

Pedersen, L. H., Fitzgibbons, S., & Pomorski, L. (2020). Responsible investing: The ESG-efficient frontier. *Journal of Financial Economics*. https://doi.org/10.1016/j.jfineco.2020.11.001

Ploeg, F. van der, & Rezai, A. (2020). Stranded Assets in the Transition to a Carbon-Free Economy. *Annual Review of Resource Economics*, *12*(1), 281–298. https://doi.org/10.1146/annurev-resource-110519-040938

Sautner, Z., Van Lent, L., Vilkov, G., & Zhang, R. (2023). Firm-Level Climate Change Exposure. *The Journal of Finance*, *78*(3), 1449–1498. https://doi.org/10.1111/jofi.13219

Schnellnhuber, H. Joachim., & Cramer, W. P. (2006). *Avoiding dangerous climate change*. Cambridge University Press.

Schoenfeld, J. (2017). The effect of voluntary disclosure on stock liquidity: New evidence from index funds. *Journal of Accounting and Economics*, *63*(1), 51–74. https://doi.org/https://doi.org/10.1016/j.jacceco.2016.10.007

SEC. (2022). *SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors*. https://www.sec.gov/news/press-release/2022-46

Solomon, J. F., Solomon, A., Norton, S. D., & Joseph, N. L. (2011). Private climate change reporting: an emerging discourse of risk and opportunity? *Accounting, Auditing, & Accountability*, *24*(8), 1119–1148. https://doi.org/10.1108/09513571111184788

Stern, N. (2007). *The economics of climate change: the Stern review*. Cambridge University Press.

Stock, J., & Yogo, M. (2005). Testing for Weak Instruments in Linear IV Regression. In D. W. K. Andrews (Ed.), *Identification and Inference for Econometric Models: Essays in Honor of Thomas Rothenberg* (pp. 80–108). Cambridge University Press.

http://www.economics.harvard.edu/faculty/stock/files/TestingWeakInstr_Stock%2BYogo.pdf

TCFD. (2017). *Recommendations of the Task Force on Climate-related Financial Disclosures*. https://assets.bbhub.io/company/sites/60/2020/10/FINAL-2017-TCFD-Report-11052018.pdf

USGCPR. (2018). *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment* (D. R. Reidmiller, C. W. Avery, D. R. Easterling, K. E. Kunkel, K. L. M. Lewis, T. K. Maycok, & S. B.C., Eds.). U.S. Government Publishing Office. https://nca2018.globalchange.gov/

Wang, C. (2014). Accounting standards harmonization and financial statement comparability: Evidence from transnational information transfer. *Journal of Accounting Research*, *52*(4), 955–992. https://doi.org/10.1111/1475-679X.12055

Winn, M., Kirchgeorg, M., Griffiths, A., Linnenluecke, M., & Günther, E. (2011). Impacts from climate change on organizations: a conceptual foundation. *Business Strategy and the Environment*, *20*(3), 157–173. https://doi.org/10.1002/bse.679

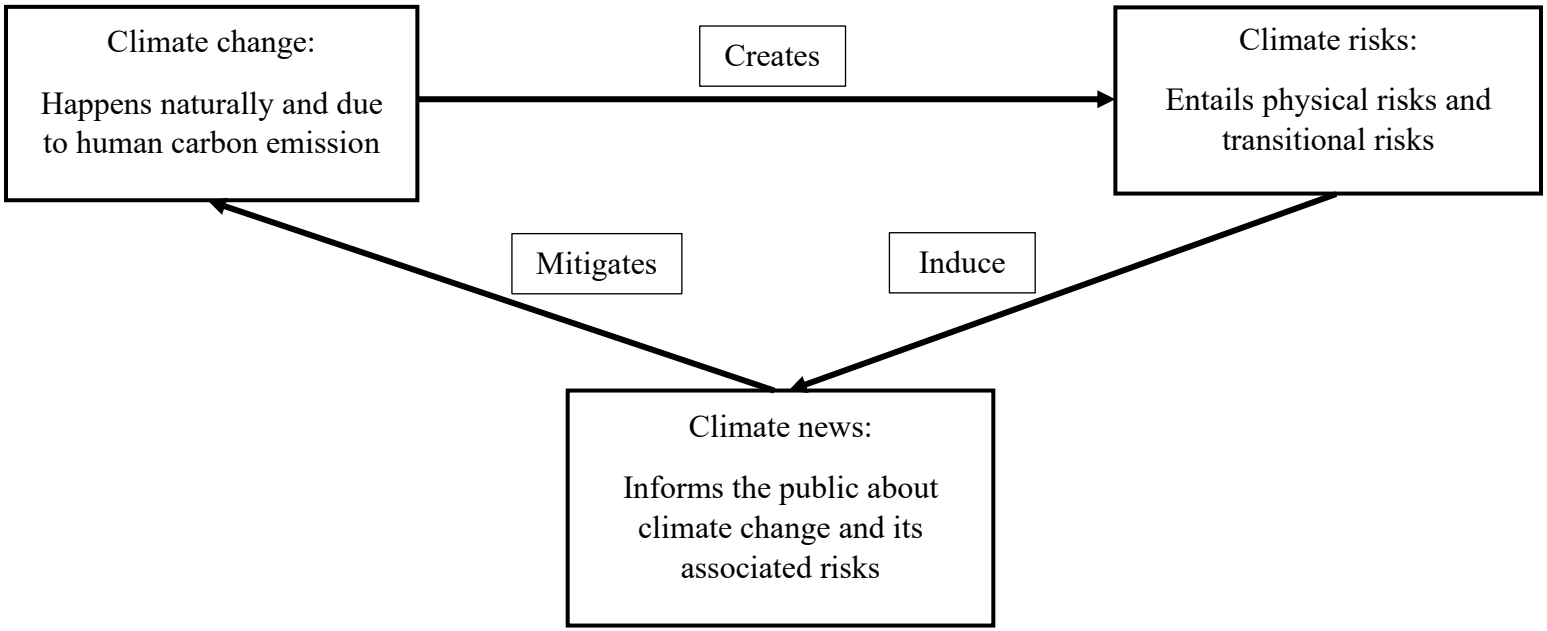
Wu, J., Liu, B., Chang, S., & Chan, K. C. (2022). Effects of air pollution on accounting conservatism. *International Review of Financial Analysis*, *84*, 102380. https://doi.org/https://doi.org/10.1016/j.irfa.2022.102380

Yip, R. W. Y., & Young, D. (2012). Does mandatory IFRS adoption improve information comparability? *The Accounting Review*, *87*(5), 1767–1789. https://doi.org/10.2308/accr-50192

Zhang, J. H. (2018). Accounting Comparability, Audit Effort, and Audit Outcomes. *Contemporary Accounting Research*, *35*(1), 245–276. https://doi.org/https://doi.org/10.1111/1911-3846.12381

Figure 1

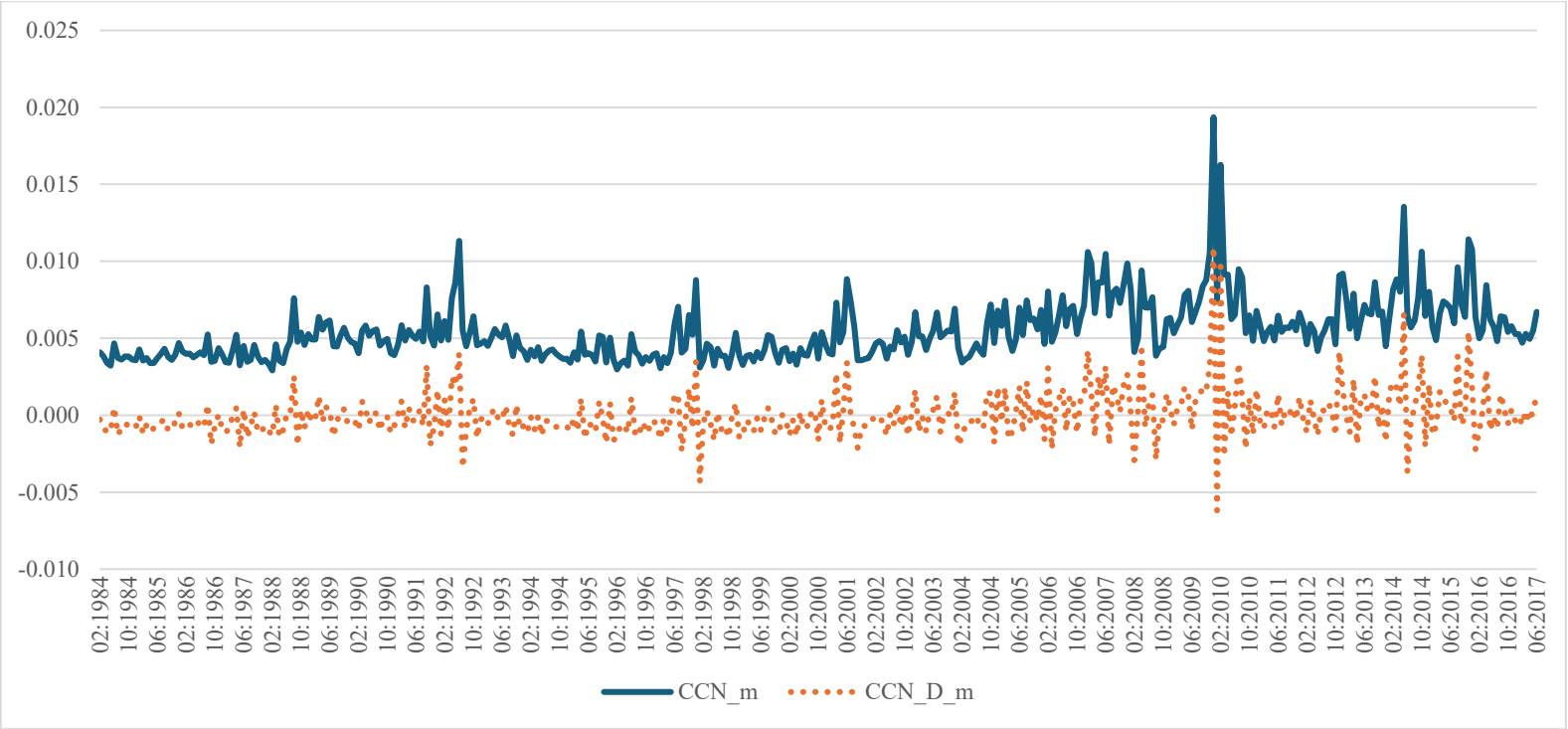
Relationship among climate change, climate risks, and climate news



This figure illustrates the relationship among climate change, climate risks, and climate news. Accordingly, climate change happens both naturally and due to human carbon emission over the last centuries. This climate change deteriorates the Earth's weather patterns (global warming). This changing in climate patterns creates climate risks to the corporate world in particular and human societies in general. These risks induce media coverage (climate news), which raises public awareness about climate change and its associated risks. The public, upon knowing about climate risks through news coverage, attempts to mitigate climate change to manage climate risks.

Figure 2

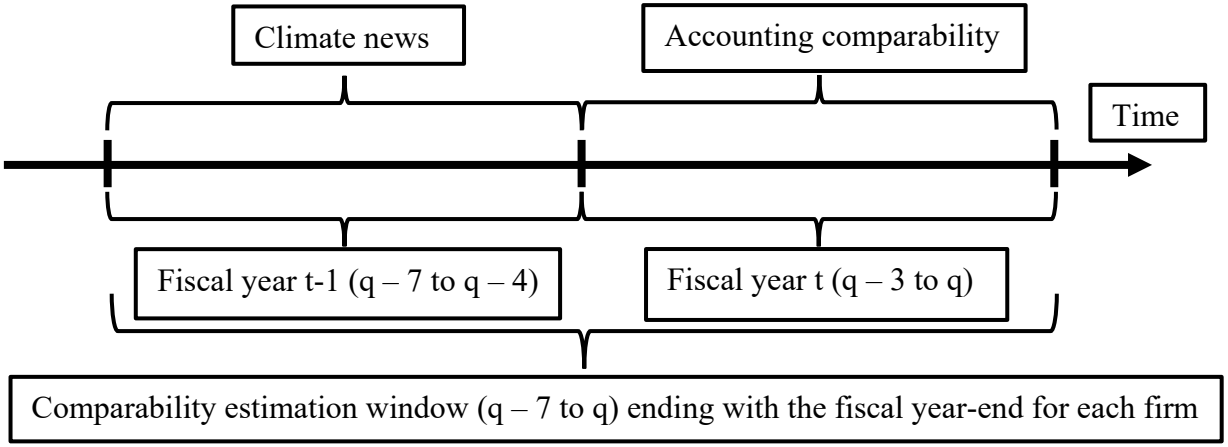
Wall Street Journal climate change news indices by Engle et al. (2020)



In this figure, the WSJ climate news index (*CCN_m*) represents the fraction of the Wall Street Journal articles covering climate change issues, while its residuals from the first-order autoregressive model (*CCN_D_m*) represent the change in this fraction over time. Both measures come from Engle et al. (2020).

Figure 3

Estimation Window of Climate News and Accounting Comparability



This figure illustrates the relative timing of the measure of accounting comparability with respect to the measure of climate news. We measure firm-level accounting comparability in fiscal year *t* over a rolling eight-quarter window (*q-7* to *q*) ending with the fiscal year end of each firm. We measure climate news by taking the average of the monthly climate news index (*CCN_D_m*) developed by Engle et al. (2020) over the four-quarter window (*q – 7* to *q – 4*), where *q* is the quarter corresponding to the fiscal year-end of each firm.

Table 1

Sample Selection, Descriptive Statistics and Correlations

Panel A: Sample selection

The panel shows the sample selection process.

Description	Observations
All firms Compustat/CRSP fundamental from 1987 to 2016	198,907
Subtract:	
Observations for companies with names that include the words "holding," "holdings," "ADR," "partnership," "L.P.," or "LLP,"	-18,488
Observations for financial and utility firms	-60,420
Observations for companies with assets or sales less than $10 million	-22,392
Observations with missing data for baseline regressions	-43,896
Final Sample	**53,711**

Panel B: Descriptive Statistics

Panel A shows descriptive statistics of selected variables, including mean (Mean), median (Median), standard deviation (Std), minimum (Min), and maximum (Max) for a sample of firm-year observations from 1987 to 2016. Variable definitions and data sources are presented in the Appendix. All continuous variables are winsorized at the 1% and 99% percentiles to eliminate the impact of outliers.

No.	Variables	N	Mean	Median	Std	Min	Max
[1]	$COMP_{it}$	53,711	-0.843	-0.305	1.494	-9.376	-0.033
[2]	$COMP10_{it}$	53,711	-1.211	-0.477	1.953	-11.844	-0.059
[3]	CCN_{t-1}	53,711	-0.001	-0.157	0.623	-0.859	1.854
[4]	CCN_L_{t-1}	53,711	5.411	5.084	1.367	3.719	8.593
[5]	$SIZE_{it}$	53,711	5.802	5.626	1.933	2.476	10.793
[6]	LEV_{it}	53,711	0.223	0.192	0.205	0.000	0.905
[7]	MTB_{it}	53,711	1.393	0.966	1.354	0.089	7.701
[8]	CFO_{it}	53,711	0.141	0.157	0.157	-0.465	0.519
[9]	$LOSS_{it}$	53,711	0.265	0.125	0.326	0.000	1.000
[10]	STD_CFO_{it}	53,711	0.023	0.017	0.022	0.003	0.125
[11]	*STD_SALEt*	53,711	0.042	0.029	0.039	0.004	0.224
[12]	STD_EARN_{it}	53,711	0.026	0.013	0.036	0.001	0.217
[13]	$EMPL_{it}$	53,711	0.008	0.005	0.010	0.000	0.062
[14]	PPE_{it}	53,711	0.277	0.206	0.229	0.010	0.896
[15]	$GROWTH_{it}$	53,711	0.152	0.084	0.356	-0.491	2.118
[16]	ROA_{it}	53,711	0.004	0.038	0.150	-0.734	0.258
[17]	$AUDITOR_{it}$	53,711	0.159	0.000	0.366	0.000	1.000
[18]	EPU_{t-1}	53,711	4.623	4.640	0.243	4.273	5.137

Panel C: Pearson Correlations

Panel B reports the Pearson pairwise correlation coefficients for all variables used in the main regressions. The symbol *, **, *** indicates that the coefficients are statistically significant at the 10%, 5%, and 1% level of significance, respectively.

No.	Variable	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]	[17]	[18]
[1]	$COMP_{it}$	1.00																	
[2]	$COMP10_{it}$	0.97***	1.00																
[3]	CCN_{t-1}	-0.03***	-0.04***	1.00															
[4]	CCN_L_{t-1}	-0.03***	-0.04***	0.96***	1.00														
[5]	$SIZE_{it}$	0.10***	0.09***	0.19***	0.20***	1.00													
[6]	LEV_{it}	-0.22***	-0.23***	-0.04***	-0.04***	0.22***	1.00												
[7]	MTB_{it}	0.21***	0.22***	0.01	0.00	-0.07***	-0.32***	1.00											
[8]	CFO_{it}	0.22***	0.22***	-0.08***	-0.08***	0.23***	0.07***	0.08***	1.00										
[9]	$LOSS_{it}$	-0.39***	-0.40***	0.06***	0.07***	-0.27***	0.09***	-0.01**	-0.67***	1.00									
[10]	STD_CFO_{it}	-0.19***	-0.20***	-0.03***	-0.04***	-0.31***	-0.08***	0.17***	-0.22***	0.30***	1.00								
[11]	*STD_SALEt*	-0.13***	-0.13***	-0.10***	-0.11***	-0.28***	-0.04***	0.02***	-0.06***	0.11***	0.45***	1.00							
[12]	STD_EARN_{it}	-0.34***	-0.34***	0.02***	0.02***	-0.25***	-0.03***	0.11***	-0.35***	0.44***	0.59***	0.27***	1.00						
[13]	$EMPL_{it}$	-0.03***	-0.02***	-0.16***	-0.17***	-0.26***	-0.02***	-0.08***	0.12***	-0.08***	0.01***	0.19***	-0.03***	1.00					
[14]	PPE_{it}	-0.08***	-0.10***	-0.08***	-0.09***	0.17***	0.31***	-0.21***	0.20***	-0.08***	-0.09***	-0.16***	-0.13***	0.09***	1.00				
[15]	$GROWTH_{it}$	0.09***	0.09***	-0.06***	-0.07***	-0.05***	0.01	0.25***	0.05***	0.02***	0.10***	0.12***	0.04***	-0.03***	-0.03***	1.00			
[16]	ROA_{it}	0.33***	0.34***	-0.04***	-0.04***	0.22***	-0.11***	0.07***	0.76***	-0.68***	-0.25***	-0.07***	-0.43***	0.05***	0.07***	0.06***	1.00		
[17]	$AUDITOR_{it}$	-0.00	-0.00	-0.03***	-0.03***	0.07***	0.02***	0.00	0.01***	0.00	-0.01***	-0.02***	-0.00	-0.02***	0.03***	0.01**	0.00	1.00	
[18]	EPU_{t-1}	-0.05***	-0.06***	0.23***	0.28***	0.08***	-0.02***	-0.02***	-0.01	0.02***	-0.2***	-0.06***	0.00	-0.03***	-0.01**	-0.06***	0.02***	-0.01***	1.00

Table 2

Climate News and Accounting Comparability

This table reports the OLS results on the climate news – accounting comparability relationship for the 1987 – 2016 sample period.

$$COMP_{it} = \beta_0 + \beta_1 CCN_{it-1} + CONTROLS_t + FE + \varepsilon_{it} \quad (4)$$

$COMP_{it}$ is the firm-level accounting comparability measures of firm *i* in year *t* based on eight preceding quarters (De Franco et al., 2011). CCN_{it-1} is the change in climate news that firm *i* experiences in fiscal year *t-1*, measured by the innovation (residual) of the climate news index (Engle et al., 2020) from the first-order autoregressive model and multiplied by 1,000 for interpretation. *CONTROLS* stands for a set of fundamentals at the firm and macro levels. The Appendix presents detailed descriptions and data sources for all variables. *FE* stands for firm fixed effects. In all regressions, standard errors are robust and clustered at the firm and year levels. Figures in parentheses are t-statistics. ***, **, and * indicate that the coefficients are statistically significant at the 1%, 5%, and 10% levels of significance, respectively.

Column [1] presents results for comparability based on accounting earnings. Column [2] presents comparability based on accounting earnings before special items. Column [3] presents comparability based on accounting accruals.

(Continued on next page)

	$COMP_{it}$	
	[1]	[2]
CCN_{t-1}	**-0.088*** (-2.90)**	
CCN_L_{t-1}		**-0.42** (-2.64)**
$SIZE_{it}$	0.050*** (2.93)	0.052*** (2.94)
LEV_{it}	-0.553*** (-6.89)	-0.555*** (-6.89)
MTB_{it}	0.061*** (5.22)	0.60*** (5.18)
CFO_{it}	-1.471*** (-10.51)	-1.468*** (-10.49)
$LOSS_{it}$	-1.507*** (-15.60)	-1.507*** (-15.67)
STD_CFO_{it}	-1.137 (-1.52)	-1.148 (-1.54)
STD_SALE_{it}	0.487 (1.68)	0.488 (1.69)
STD_EARN_{it}	-10.386*** (-9.20)	-10.390*** (-9.26)
$EMPL_{it}$	5.538** (2.16)	5.429** (2.12)
PPE_{it}	0.244* (1.89)	0.238* (1.81)
$GROWTH_{it}$	0.177*** (7.51)	0.176*** (7.58)
ROA_{it}	1.968*** (7.78)	1.966*** (7.76)
$AUDITOR_{it}$	-0.015 (-0.59)	-0.016 (-0.62)
EPU_{t-1}	-0.317*** (-4.97)	-0.306*** (-4.77)
Constant	1.108*** (3.85)	1.278*** (4.33)
Firm FE	Yes	Yes
Clustering by firm and year	Yes	Yes
Observations	53,711	53,711
Adjusted R^2	0.483	0.483

Table 3

Robustness Checks: Additional Controls and Alternative Measures

This table reports various alternative measures for the baseline equation.

$$COMP_{it} = \beta_0 + \beta_1 CCN_{it-1} + CONTROLS_t + FE + \varepsilon_{it} \quad (4)$$

In equation (4), $COMP_{it}$ is the firm-level accounting comparability measures of firm *i* in year *t* based on eight preceding quarters (De Franco et al., 2011). CCN_{it-1} is the change in climate news that firm *i* experiences in fiscal year *t-1*, measured by the innovation (residual) of the climate news index (Engle et al., 2020) from the first-order autoregressive model and multiplied by 1,000 for interpretation. *CONTROLS* stands for a set of fundamentals at the firm and macro levels.

In Panel A, we add more controls for corporate governance to equation (4), including board size (*BOARDSIZE*), board independence (*BOARDIND*), and chair-CEO duality (*DUALITY*). For brevity, we omit the coefficient estimates of these additional controls.

In Panel B, we replace CCN_{t-1} with NCN_{t-1} and NCN_L_{t-1}, which are the change and level of climate news with negative tone (Engle et al., 2020), measured in year *t-1* and multiplied by 1,000 for interpretation.

In Panel C, we replace $COMP_{it}$ with $COMP10_{it}$ (columns [1] and [2]), BSI_COMP_{it} (columns [3] and [4]), or *ACC_DIFF* (columns [5] and [6]). $COMP10_{it}$ is the average of the ten largest comparability scores between firm *i* and peer firm *j* in the same two-digit SIC code, based on eight preceding quarters (De Franco et al. 2011). BSI_COMP_{it} is the firm-level accounting comparability measures of firm *i* in year *t* based on eight preceding quarters (De Franco et al. 2011) and based on *income before special items*. *ACC_DIFF* is the industry average of the pairwise absolute differences in total accruals between firms *i* and *j*, scaled by the number of *i-j* pairs.

The Appendix presents detailed descriptions and data sources for all variables. *FE* stands for firm fixed effects. In all regressions, standard errors are robust and clustered at the firm and year levels. Figures in parentheses are t-statistics. ***, **, and * indicate that the coefficients are statistically significant at the 1%, 5%, and 10% levels of significance, respectively.

(Continued on next page)

Panel A: Additional controls

	$COMP_{it}$			
	[1]	[2]	[3]	[4]
CCN_{t-1}	**-0.089****		**-0.075****	
	(-2.65)		**(-2.47)**	
CCN_L_{t-1}		**-0.045****		**-0.036****
		(-2.71)		**(-2.29)**
$BOARDSIZE_{it}$	0.068	0.066		
	(0.78)	(0.75)		
$BOARDIND_{it}$	-0.045	-0.021		
	(-0.21)	(-0.10)		
$DUALITY_{it}$	0.035	0.034		
	(1.20)	(1.18)		
$CASH\_CORR_{it}$			0.026	0.026
			(1.27)	(1.24)
RET_CORR_{it}			0.002	0.004
			(0.05)	(0.10)
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Clustering by firm and year	Yes	Yes	Yes	Yes
Observations	23,426	23,426	39,692	39,692
Adjusted R^2	0.523	0.523	0.490	0.490

Panel B: Negative tone climate news

	$COMP_{it}$	
	[1]	[2]
NCN_{it-1}	**-0.289*****	
	(-3.68)	
NCN_L_{it-1}		**-0.103*****
		(-5.68)
Controls	Yes	Yes
Firm FE	Yes	Yes
Clustering by firm and year	Yes	Yes
Observations	12,347	12,488
Adjusted R^2	0.585	0.588

Panel C: Alternative comparability measures

	$COMP10_{it}$		BSI_COMP_{it}		ACC_DIFF	
	[1]	[2]	[3]	[4]	[5]	[6]
CCN_{it-1}	**-0.134*****		**-0.058*****		**0.004***	
	(-2.82)		**(-3.26)**		**(1.73)**	
CCN_L_{it-1}		**-0.062****		**-0.027*****		**0.002**
		(-2.49)		**(-2.76)**		**(0.83)**
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering by firm and year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	53,640	53,640	49,611	49,611	53,619	12,346
Adjusted R^2	0.522	0.522	0.477	0.477	0.347	0.333

Table 4

Robustness Check: Instrumental Variable

This table reports regression results for the following models.

$$CCN_{t-1} = \beta_0 + \beta_1 DENS_{t-1} + CONTROLS + FEs + \varepsilon \quad (5a)$$

$$COMP_{it} = \beta_0 + \beta_1 CCN\_Predicted_{t-1} + CONTROLS + FEs + \varepsilon \quad (5b)$$

In these equations, $DENS_t$ stands for population density, measured as the number of people per square kilometer, and $CCN\_Predicted_{t-1}$ the predicted value of CCN_{t-1} computed from equation (5a). *CONTROLS* stands for a set of fundamentals at the firm and macro levels defined in equation (4). We also replace CCN_{t-1} with CCN_L_{t-1} and repeat the analyses for more robustness. The Appendix presents detailed descriptions and data sources for all variables. In all regressions, standard errors are robust and clustered at the firm and year levels. Figures in parentheses are t-statistics. ***, **, and * indicate that the coefficients are statistically significant at the 1%, 5%, and 10% levels of significance, respectively.

	CCN_{t-1}	***$COMP_{it}$***	***CCN_L_{t-1}***	***$COMP_{it}$***
	[1]	**[2]**	**[3]**	**[4]**
$CCN\_Predicted_{t-1}$		**-0.310***** **(-3.47)**		
$CCN\_L\_Predicted_{t-1}$				**-0.133***** **(-3.47)**
$DENS_{t-1}$	**0.062***** **(5.33)**		**0.145***** **(5.62)**	
Controls	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
Clustering by firm and year	Yes	Yes	Yes	Yes
Observations	53,401	53,401	53,401	53,401
F statistic for weak identification	28.37		31.62	
Anderson-Rubin Wald Chi-Squared		14.46		14.46
Adjusted R^2		0.24		0.24

Table 5

Accounting Measurement Intensity as a Mediator

In column [1], we rerun the baseline regression (equation (4)) using a sample with non-missing values of AMI_{it}, which is the measure of accounting measurement intensity (Andreicovici et al., 2020).

In column [2], we run the following regression.

$$AMI_{it} = \alpha_0 + \alpha_1 CCN_{it-1} + CONTROLS_t + FE + \varepsilon_{it} \quad (6a)$$

In column [3], we run the following regression:

$$COMP_{it} = \gamma_0 + \gamma_1 CCN_{it-1} + \gamma_2 AMI_{it} + CONTROLS_t + FE + \varepsilon_{it} \quad (6b)$$

The Appendix presents detailed descriptions and data sources for all variables. *FE* stands for firm fixed effects. In all regressions, standard errors are robust and clustered at the firm and year levels. Figures in parentheses are t-statistics. ***, **, and * indicate that the coefficients are statistically significant at the 1%, 5%, and 10% levels of significance, respectively.

	COMP$_{it}$	***AMI$_{it}$***	***COMP$_{it}$***
	[1]	**[2]**	**[3]**
CCN$_{t-1}$	**-0.080****	**0.011****	**-0.062**
	(-2.51)	**(2.87)**	**(-1.72)**
AMI$_{it}$			**-1.660****
			(-2.40)
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Clustering by firm and year	Yes	Yes	Yes
Observations	23,267	23,267	23,267
Adjusted R^2	0.519	0.668	0.519
Product			-0.019
Product SE			0.010
Z-value			-1.840
p-value			0.066

Table 6

Cross-Sectional Tests

This table presents regression results for the following equation.

$$COMP_{it} = \beta_0 + \beta_1\, CCN_{t-1} + \beta_2\, CCN_{t-1} \times Z_{it} + \beta_3\, Z_{it} + CONTROLS_t + FE + \varepsilon_{it} \quad (7)$$

$COMP_{it}$ is the firm-level accounting comparability measures of firm *i* in year *t* based on eight preceding quarters (De Franco et al., 2011). CCN_{it-1} is the change in climate news that firm *i* experiences in fiscal year *t-1*, measured by the innovation (residual) of the climate news index (Engle et al., 2020) from the first-order autoregressive model and multiplied by 1,000 for interpretation. *CONTROLS* stands for a set of fundamentals at the firm and macro levels. Z_{it} is the cross-sectional variable of interest, which stands for SLR_{it} (columns [1] and [2]), $ESCORE_{it}$ (columns [5] and [6]), and $INDUSTRY_{it}$ (columns [7] and [8]).

In columns [1] and [2], SLR_{it} equals one if a firm is headquartered in East or Gulf Coast states, and zero if a firm is headquartered in West Coast states. The East Coast states are Connecticut, Delaware, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, South Carolina, and Virginia while Gulf Coast states are Alabama, Florida, Louisiana, Mississippi, and Texas. The West Coast states are Alaska, California, Hawaii, Oregon, and Washington (Goldsmith-Pinkham et al., 2019; Nguyen et al., 2020).

In columns [3] and [4], $INDUSTRY_{it}$ equals one if a firm is operating in a high-carbon industry, and zero otherwise. High-carbon industries include oil exploration (SIC code is between 1300 and 1399), paper (SIC code is between 2600 and 2699), chemical and allied products (SIC code is between 2900 and 2999), petroleum refining (SIC code is between 2900 and 2999), metals (SIC code is between 3300 and 3399) and mining (SIC code is between 1000 and 1099) (Aerts et al., 2006; Cho & Patten, 2007; Ding et al., 2021b).

In columns [5] and [6], $ESCORE_{it}$ equals one if the firm-level net environmental performance score (MSCI/KLD) is positive, and zero otherwise. We compute the net environmental performance score by adding up the strengths and subtracting the total of the concerns (Engle et al., 2020; Huynh & Xia, 2021). In our analysis, we exclude observations where both environmental strengths and concerns have zero values.

The Appendix presents detailed descriptions and data sources for all variables. *FE* stands for firm fixed effects. In all regressions, standard errors are robust and clustered at the firm and year levels. Figures in parentheses are t-statistics. ***, **, and * indicate that the coefficients are statistically significant at the 1%, 5%, and 10% levels of significance, respectively.

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***DV* =**	***COMP*$_{it}$**					
***Z* =**	***SLR*$_{it}$**		***INDUSTRY*$_{it}$**		***ESCORE*$_{it}$**	
	[1]	**[2]**	**[3]**	**[4]**	**[5]**	**[6]**
CCN_{t-1}	-0.025		-0.101***		-0.082**	
	(-0.80)		(-3.26)		(-2.62)	
$CCN_{t-1} \times Z_{it}$	**-0.079****		**0.069***		**0.050****	
	(-2.66)		**(1.91)**		**(2.16)**	
CCN_L_{t-1}		-0.010		-0.049***		-0.043***
		(-0.68)		(-2.99)		(-2.96)
$CCN\_L_{t-1} \times Z_{it}$		**-0.039****		**0.037****		**0.031****
		(-2.39)		**(2.19)**		**(2.28)**
Z_{it}					-0.054	-0.228**
					(-1.66)	(-2.39)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering by firm and year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	35,099	35,099	53,711	53,711	14,211	14,211
Adjusted R^2	0.484	0.484	0.483	0.483	0.514	0.514

Appendix

Variable definitions

Variables	Definitions	Sources
COMP	De Franco et al. (2011) measure of comparability, computed as the average of the four largest pairwise comparability scores of peers within two-digit SIC industry over the eight preceding quarters using net income.	Compustat/CRSP. We use the SAS code to calculate the comparability score provided by Rodrigo Verdi's website (https://mitmgmtfaculty.mit.edu/rverdi/. Last accessed June 02, 2024)
COMP10	De Franco et al. (2011) measure of comparability, computed as the average of the ten largest pairwise comparability scores of peers within two-digit SIC industry over the eight preceding quarters using net income.	Compustat/CRSP. We use the SAS code to calculate the comparability score provided by Rodrigo Verdi's website (https://mitmgmtfaculty.mit.edu/rverdi/. Last accessed June 02, 2024)
BSI_COMP	De Franco et al. (2011) measure of comparability, computed as the average of four largest pairwise comparability scores of peers within the same two-digit SIC industry over the eight preceding quarters using *income before special items*.	Compustat/CRSP. We use the SAS code to calculate the comparability score provided by Rodrigo Verdi's website (https://mitmgmtfaculty.mit.edu/rverdi/. Last accessed June 02, 2024)
CCN	The innovation (residual) from the first-order autoregressive model of the climate news index, averaged over the firm's fiscal year and multiplied by 1,000 for interpretation.	Data come from Engle et al. (2020) and available at http://pages.stern.nyu.edu/~jstroebe/. Last accessed June 02, 2024.
CCN_L	The level of climate news by Engle et al. (2020), averaged over the firm's fiscal year and multiplied by 1,000 for interpretation.	Data are provided by Engle et al. (2020) and available at http://pages.stern.nyu.edu/~jstroebe/. Last accessed June 02, 2024**.**
NCN	The innovation (residual) from the first-order autoregressive model of the negative sentiment climate change index, averaged over the firm's fiscal year end and multiplied by 1,000 for interpretation.	Data come from Engle et al. (2020) and available at http://pages.stern.nyu.edu/~jstroebe/. Last accessed June 02, 2024.

NCN_L	The level of negative sentiment climate news by Engle et al. (2020), averaged over the firm's fiscal year and multiplied by 1,000 for interpretation.	Data come from Engle et al. (2020) and available at http://pages.stern.nyu.edu/~jstroebe/. Last accessed June 02, 2024.
SIZE	Firm size, which is the log of total assets.	Compustat/CRSP
LEV	Financial leverage, equal to the sum of short term and long-term debts, scaled by total assets.	Compustat/CRSP
MTB	Market to book ratio, equal to share price times number of outstanding shares all scaled by total assets.	Compustat/CRSP
CFO	Cash flows from operations, equal to operating income before depreciation plus interest expense plus tax expense plus dividend paid, all scaled by total assets.	Compustat/CRSP
LOSS	Loss frequency, equal to the number of quarters a firm reports negative earnings before extraordinary items over the preceding eight quarters.	Compustat/CRSP
STD_EARN	The standard deviation of net incomes scaled by total assets over the preceding eight quarters, with at least seven observations.	Compustat/CRSP
STD_SALE	The standard deviation of sales scaled by total assets over the preceding eight quarters, with at least seven observations.	Compustat/CRSP
STD_CFO	The standard deviation of *CFO* over the preceding eight quarters, with at least seven observations.	Compustat/CRSP
EMP	Labor intensity, equal to number of employees divided by total assets.	Compustat/CRSP
PPE	Capital intensity, equal to net property, plant and equipment divided by total assets	Compustat/CRSP
GROWTH	Sale growth, equal to sales in year *t* minus sales in year *t-1*, divided by sales in year *t-1*.	Compustat/CRSP

ROA	Return on assets, equal to net income divided by total assets.	Compustat/CRSP
AUDITOR	An indicator equal to one if a firm is audited by a Big Four auditor, and zero otherwise.	Audit Analytics
EPU	Natural logarithm of the news-based measure of economic policy uncertainty (Baker et al., 2016).	Data are available at www.policyuncertainty.com. Last accessed June 02, 2024.
BOARDSIZE	The log of the number of directors on the board of directors.	BoardEx
BOARDIND	The percentage of non-executive independent directors.	BoardEx
DUALITY	An indicator variable equals one if the chairman and chief executive officer is the same person, and zero otherwise.	BoardEx
CASH_CORR	The industry average of the correlation of cash flows between firm *i* and peer firms *j* over the preceding eight quarters, divided by the number of pairs of *i-j* firms (Zhang, 2018). The pairs of *i-j* firms are the same as in the computation of *COMP*.	Authors' calculation
RET_CORR	The industry average of correlation of returns between firm *i* and peer firms *j* over the preceding eight quarters, divided by the number of pairs of *i-j* firms (Zhang, 2018). The pairs of *i-j* firms are the same as in the computation of *COMP*.	Authors' calculation
ACC_DIFF	The industry average of the difference in total accruals between firm *i* and peer firms *j* over the preceding eight quarters, divided by the number of pairs of *i-j* firms (Francis et al., 2014). The pairs of *i-j* firms are the same as in the computation of *COMP*. Total accrual is the difference between net income and cash flows from operations (Hribar & Collins, 2002).	Authors' calculation
DENS	Population density, measured as the number of people per square kilometer.	Authors' computation
AMI	Measure of accounting measurement intensity (Andreicovici et al., 2020).	Data are available at https://osf.io/5zgk3/. Last accessed June 02, 2024.

SLR	Indicator variable equal to one if a firm is headquartered in East or Gulf Coast states, and zero if a firm is headquartered in West Coast states. The East Coast states are Connecticut, Delaware, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, North Carolina, Rhode Island, South Carolina, and Virginia while Gulf Coast states are Alabama, Florida, Louisiana, Mississippi, and Texas. The West Coast states are Alaska, California, Hawaii, Oregon, and Washington (Goldsmith-Pinkham et al., 2019; Nguyen et al., 2022).	Authors' calculation.
ESCORE	An indicator variable equals one if the firm-level net environmental performance score (MSCI/KLD) is positive, and zero otherwise. The net environmental performance score is calculated by adding up the strengths and subtracting the total of the concerns (Engle et al., 2020; Huynh & Xia, 2021). In our analysis, we exclude observations where both environmental strengths and concerns have zero values.	MSCI/KLD
INDUSTRY	Indicator variable equals one if a firm is operating in a high-carbon industry, and zero otherwise. High-carbon industries include oil exploration (SIC code is between 1300 and 1399), paper (SIC code is between 2600 and 2699), chemical and allied products (SIC code is between 2900 and 2999), petroleum refining (SIC code is between 2900 and 2999), metals (SIC code is between 3300 and 3399) and mining (SIC code is between 1000 and 1099) (Aerts et al., 2006; Cho & Patten, 2007; Ding et al., 2021b).	Compustat/CRSP