Disclosure standards and communication norms: Evidence of voluntary disclosure standards as a coordinating device for capital markets

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In this paper, we examine how the emergence of voluntary disclosure standards can alter the nature of information available to capital market participants. Using industry-specific dictionaries of sustainability terms contained in voluntary disclosure standards developed by the Sustainability Accounting Standards Board (SASB), we find a significant increase in earnings call sustainability disclosures following the release of SASB standards, particularly for firms that had little or no coverage of sustainability issues historically. This trend begins around the time when SASB released a provisional disclosure standard for a given company's industry and continues in the years after. We also find a stronger impact of SASB standards on sustainability disclosures of firms operating in industries with high uncertainty around sustainability reporting. Overall, these results inform our understanding of the conditions under which standards created in response to market forces are likely to affect voluntary disclosures and communication norms.

Keywords: environmental, social, and corporate governance (ESG) disclosures, sustainability, reporting standards, voluntary disclosure, earnings conference calls.

We would like to thank the Sustainability Accounting Standards Board (SASB) for providing access to the data files used to create the dictionary of sustainability terms. We also thank John Barrios, Elizabeth Blankespoor, Seungju Choi, Roman Chychyla, Ed deHaan, Bryan Esterly, Yonca Ertimur, Fabrizio Ferri, Gail Glazerman, Anton Gorodniuk, Anthony Joffre, Peter Joos, Zachary Kaplan and seminar participants at Georgetown University, the JMAR Brownbag Series, the 2021 Miami Corporate Governance Forum, the SASB Academic Research Series, the UN PRI Academic Seminar Series, the University of Miami, University of New South Wales, University of Washington, Washington University in St. Louis, Florida State University, University of Oklahoma and Kent State University for their helpful comments and suggestions. We also thank Shaan Khosla, Diaya Tulshi, Michael Mariconda, and George Hartman for excellent research assistance. Jeffrey Hales and George Serafeim have been involved in the development of the SASB standards, and Jeffrey Hales currently serves as the Chair of the SASB Standards Board. The views reflected here are those of authors and do not necessarily reflect the views of other SASB board members or staff.

I. Introduction

What role do disclosure standards play in shaping voluntary corporate communications in capital markets? Voluntary disclosure, by definition, is governed by market forces, rather than mandates (e.g., Grossman and Hart (1980), Milgrom (1981), Milgrom and Roberts (1986)). Therefore, if the disclosure standards themselves are also voluntary, they should have little effect on voluntary corporate communications unless the standards mitigate, in some way, the conditions that prevent more complete disclosure.[1] In this paper, we argue that the standards development process can serve as an important coordinating mechanism to overcome some of the frictions that might otherwise prevent market forces from inducing voluntary disclosure on issues of interest to capital market participants.

Studying the implications of disclosure standards for voluntary disclosure can, of course, be difficult because the use of disclosure standards is often mandated, creating a challenge for disentangling the effects of having *standards* for disclosure from the effect of having a *requirement* to disclose in the first place (Leuz and Wysocki 2016). In this study, we directly address the question of how disclosure standards can alter the voluntary communications that take place between firms and investors by studying a unique setting in which disclosure standards for the voluntary communication of corporate sustainability issues were developed on a staggered basis across various industries. Using this setting, we examine how the standards development process in given industries coordinates the two-way communication between managers and analysts/investors that takes place in earnings conference calls.

For our research setting, we focus on the development of sustainability reporting standards by the Sustainability Accounting Standards Board (SASB). SASB standards identify disclosure topics and performance metrics for sustainability issues, such as the management

[1] As summarized in Beyer et al. (2010), the conditions for the "unraveling result" that would induce full disclosure, include: "(1) disclosures are costless; (2) investors know that firms have, in fact, private information; (3) all investors interpret the firms' disclosure in the same way and firms know how investors will interpret that disclosure; (4) managers want to maximize their firms' share prices; (5) firms can credibly disclose their private information; and (6) firms cannot commit ex-ante to a specific disclosure policy" (p. 300-301).

of human capital or natural resources. The standards are *industry-specific* and, to date, SASB has developed standards for 77 industries across 11 sectors. These standards were developed and provisionally released one sector at time between 2012 to 2016, and then were officially approved in November 2018 by the SASB Standards Board. Importantly, the timing of provisional standards releases was quasi-random as SASB scheduled specific release dates for all industry sectors prior to the launch of its standards-setting activities in 2012.

Voluntary sustainability standards provide a unique and important setting for studying the coordination role of standards. As noted above, from a design standpoint, the voluntary nature and the staggered development of the standards allows us to better disentangle the effect of creating a standard from the regulatory and enforcement effects associated with an imposed mandate to use a new standard (Leuz and Wysocki 2016). But, in addition to the design features of this setting, the topic of sustainability disclosure is important in its own right. The volume of corporate sustainability disclosures and investor demand for those disclosures has significantly increased in the last decade, suggesting the importance of better understanding the emergence of these disclosures. Moreover, both investors and companies have voiced concerns that the absence of agreed upon reporting standards has led to inconsistency in corporate disclosure practices and a lack of decision useful information (Amel-Zadeh and Serafeim 2018; USCC 2018), suggesting a need to better understand the demand for disclosure standards for sustainability reporting.

One of the challenges for sustainability disclosure is that corporate sustainability can cover a wide range of issues and topics, from human capital to the environment to supply chain management and can reflect multiple user perspectives. The diversity of potential topics and reporting angles has, not surprisingly, led to concerns about confusion and disagreement in the marketplace when it comes to questions about sustainability (Mackintosh 2018), and companies have expressed having difficulty in determining what sustainability information investors (and others) would be most interested in (USCC 2018). From a theoretical perspective, this type of uncertainty can undermine the market forces that would

otherwise induce voluntary disclosure of sustainability information (Beyer et al. 2010). In other words, when managers are uncertain about how investors will respond to disclosures (or to the absence of disclosure) or when investors are uncertain as to whether managers are endowed with information on a particular issue, market forces are less likely to induce voluntary disclosure. In the face of these market frictions, the development of sustainability disclosure standards, even when voluntary, could help induce greater disclosure of sustainability issues by helping to coordinate expectations between companies and investors.

To test this premise, we use a difference-in-differences research design and examine how the development and release of SASB standards are associated with changes in the nature of sustainability information voluntarily disclosed in earnings conference calls. We examine sustainability disclosures in the context of earnings conference calls because conference calls represent one of the major forms of investor communication (Frankel et al. 1999; Kimbrough 2005; Matsumoto et al. 2011; Bochkay et al. 2020). Moreover, observable management, analyst and investor participation in earnings calls makes it a good setting to study verbal discussions of hard-to-quantify environmental, social, and governance (ESG) information. Unlike quantitative CSR and ESG rankings which are often inconsistent across rating agencies and/or contain missing or outdated information (Christensen et al. 2021), capturing verbal ESG disclosures in earnings calls provides timely measures of management and investor focus on sustainability. In addition, brokerage firms, asset management firms, and media outlets often highlight ESG disclosures in the context of earnings calls (e.g., Langley (2019), Carlson (2021), Butters (2021), Bullard (2021), and Brower and Jacobs (2021)), demonstrating the importance of earnings calls in communicating relevant information to investors.

To examine whether changes in the ESG content of earnings conference calls have been driven by the development of SASB standards, we began by creating dictionaries of industry-specific ESG terms. To do so, we extracted the disclosure topics and their descriptions for

all of the disclosure topics contained in SASB's 77 industry standards.[2] We then hired research assistants to read descriptions of every ESG disclosure topic in SASB standards and to extract relevant keywords and phrases that characterize each topic. In this manner, we coded 444 disclosure topics across 77 industries, corresponding to around five or six ESG topics per industry.

Industry-specific dictionaries of ESG terms allow us to test whether the ESG topics, deemed by SASB as reasonably likely to be financially material for a given industry, are being covered in corresponding companies' earnings conference calls over the sample period.[3] As such, our analysis considers, for example, whether greenhouse gas emissions is a topic of conversation in the earnings conference calls of airline companies or whether data privacy is a topic of conversation among e-commerce companies, but not the reverse. While we would expect ESG topics that are financially material to be covered occasionally in quarterly earnings conference calls, we have no *ex-ante* prior on how often that would be the case. That said, we would expect corporate executives to be more likely to include – and analysts more likely to inquire about – ESG topics when those topics are financially material to their company's operations. For expositional purposes, we refer in the remainder of this paper to the industry-specific SASB disclosure topics simply as industry ESG disclosure topics.

We rely on staggered releases of SASB provisional standards for 11 different industry sectors to identify the causal effect of voluntary SASB standards on firms' sustainability disclosures in earnings calls. We mark firm-quarters prior to the SASB release of a provisional standard in a given industry as the pre-SASB standards period for that industry and firm-quarters that follow as the post-period. We then estimate a generalized difference-in-difference model that controls for firm and time fixed effects as well as time-varying firm

[2]We thank SASB for providing access to the SASB Standards copyrighted content and the Sustainable Industry Classification System® (SICS®).

[3]SASB uses the term *materiality* in the same sense as U.S. securities law. Because materiality determinations are inherently firm- (and indeed, item-) specific, SASB looks for sustainability disclosure topics that are reasonably likely to be financially material for a typical company in a given industry. To do so, their research and outreach looks for evidence of financial impact (e.g., revenue growth, cost structure, or cost of capital implications) and investor interest for the purposes of capital allocation and/or stewardship decisions.

characteristics. Using our dictionaries of industry ESG terms to quantify ESG disclosures, we find a significant increase in the amount of ESG discussion in earnings calls following SASB standards. The increase is economically meaningful as it translates to a 21.3% increase in ESG disclosures relative to the sample median. Moreover, we find that the increase in ESG disclosures begins around the time when SASB started working on provisional standards and continues in the years after.

Next, we examine whether firms' response to SASB standards varies with their pre-standards sustainability disclosure strategy. Specifically, we distinguish between firms that were already disclosing relevant sustainability information and those that provided little or no such disclosure prior to SASB standards. If the creation of SASB standards acts as a coordination mechanism that helps to resolve uncertainty in investor and manager expectations, we expect to see an increase in ESG disclosure, particularly among firms that provided little or no ESG disclosures historically. It is plausible, however, that even firms with high ESG disclosure prior to SASB standards might increase their disclosure to keep differentiating themselves (Verrecchia 1983). Consistent with our expectations, we find that subsequent to SASB standards both sets of firms increased their ESG disclosures. However, the increase in ESG disclosure for low disclosing firms is much higher. Specifically, we find that the increase for low disclosing firms is equivalent to 57.6% of that sub-sample median, while the increase for high disclosing firms is equivalent to 7.9% relative to that sub-sample median.

We provide additional evidence on the coordinating role of SASB standards by examining an industry-level agreement (among corporate managers) about ESG topics that are relevant to a specific industry. If SASB standards help coordinate sustainability disclosures, then companies operating in industries with high disagreement are likely to respond to SASB standards more than those operating in industries with high agreement. In our empirical tests, we find support for this prediction, providing further evidence that SASB standards help mitigate uncertainty in ESG reporting. We also analyze changes in ESG disclosures

in different parts of the earnings call and find that ESG discussion increases in both the introductory remarks and in the Q&A sections. In addition, when we examine who is speaking, we find an increase among both management and analysts, but the effect appears stronger among management. Both results seem consistent with SASB standards having a greater impact on the supply side of management-investor communications.

As a way to help rule out alternative explanations, we next turn to a analysis of changes in disclosures of broad (i.e., non-industry-specific) ESG topics. If, subsequent to the release of a SASB provisional standard for their industry, companies increased their ESG disclosures *in general*, then either SASB's development process spurred a more general discussion of ESG issues or, more likely, the process simply coincided with some other unidentified trends or events, which is what are main results happen to be picking up. To examine this concern, we create a comprehensive dictionary of ESG terms that contains keywords for all ESG topics across all industries. In other words, we ignore 'industry specificity' of ESG topics in this analysis. Using a difference-in-difference design as before, we find no change in broad ESG disclosures following SASB standards. In addition, we find a *reduction* in discussion of ESG topics that are deemed immaterial for a specific industry by SASB. Both of these results provide additional support that the shifts in voluntary ESG disclosures that coincide with SASB's standards development are largely SASB-specific.

Next, we test the sensitivity of our findings to the discussion of climate change issues, which have been a particularly important sustainability topic in recent years for many parties (e.g., the Task Force on Climate-related Financial Disclosures). To do so, we exclude a list of common climate-related topics from our analysis. This has the potential to limit our ability to detect an effect of SASB standards because climate is the most commonly occurring theme in the standards. However, despite this, we continue to observe a significant impact of SASB standards on ESG disclosures even after we exclude the discussion of common climate-related terms from our analysis. This result shows that the ESG discussion is broader than just climate and also helps mitigate the concern that our results are not driven by SASB's

standards development process, but rather reflect the growing focus on one prominent ESG issue covered in many SASB standards (i.e., climate change).

Finally, we test the sensitivity of our findings to using an alternative method of capturing ESG content in earnings calls. Specifically, we calculate a cosine similarity between earnings calls and SASB standards which captures how similar topics discussed in earnings calls are to those in SASB industry standards. Consistent with our earlier findings, we find a significant increase in similarity following SASB standards. This corroborates our earlier findings and further validates industry-specific ESG dictionaries developed by human coders.

Broadly our paper provides evidence that voluntary standards emerge in the sustainability setting to fill a market need for coordinating corporate disclosures. Our identification strategy, which takes advantage of the staggered development of industry-specific SASB standards, and various sensitivity tests help rule out a possibility that our results reflect a general shift in corporate communication independent of SASB's standards development process. Given that voluntary corporate disclosure standards are relatively rare and unstudied (Barton and Waymire 2004; Serafeim 2011), this private sector effort is a powerful setting to study the evolving norms guiding corporate disclosures. It is not obvious that managers will respond to the release of SASB standards given that voluntary ESG disclosures were always allowed prior to the standards. Thereby, our study contributes both to the literature that analyzes the accounting standards formation (Leuz and Wysocki 2016) and the literature on voluntary disclosure (Beyer et al. 2010).

We also contribute to the literature on corporate sustainability disclosures (e.g., Dhaliwal et al. (2011), Cheng et al. (2014), Lys et al. (2015), and Ferrell et al. (2016)). While prior studies examine the importance of CSR reports and other quantitative sustainability metrics, we study how the development of SASB standards change the topic of conversation in earnings conference calls. Our dictionary of industry-specific ESG terms based on SASB standards opens new avenues for future research. Researchers interested in conducting textual analysis of non-numeric ESG information could use our dictionary to examine the

amount of ESG disclosure, its determinants, and its information content.

II. Background

II.1. Sustainability Accounting Standards Board (SASB)

In 2011, SASB was formed to develop sustainability accounting standards that help public corporations disclose material, decision-useful information to investors. The basic idea for SASB was first articulated in Lydenberg et al. (2010). In that paper, Lydenberg et al. (2010) argued that capital markets needed improved disclosure of sustainability issues and that the type of disclosure needed would be industry-specific and supported by key performance measures for each disclosure topic. While Lydenberg et al. (2010) provided some initial thinking on how to develop industry-specific standards, they also acknowledged that more work would need to be done to develop a process for "how to determine relevant sector-specific key performance indicators as a minimum basis for sustainability reporting" (pg. vi). The concept of a "Sustainability Accounting Standards Board" to oversee that process was floated in an appendix of that paper, and one of the authors, Jean Rogers, went on to establish SASB as a 501(c)(3) the following year. Some of the earliest work of SASB involved fundraising and hiring of a research team as well as forming a board of directors to oversee mission and strategy. In 2012, a Standards Council was formed to monitor the due process activities involved in the standards development process. In that year, SASB also received its first operating grant from Bloomberg Philanthropies, and the work of developing standards got officially underway with the public launch of standard setting activities for the health care sector.

The process that SASB used to develop the provisional industry standards for each sector involved five stages. First, the staff engaged in industry research to identify potential issues and disclosure topics. Second, the industry briefs were vetted with industry working groups (IWGs). Each IWG consisted of individuals with relevant corporate, investor, or other subject matter expertise, who were recruited to review the industry briefs and provide

comments (through structured surveys) on the potential disclosure topics identified by SASB, including whether any should be removed and/or others added. After receiving feedback from the IWGs, the third step was for staff to release for public comment an exposure draft of the revised set of topics and metrics identified for the sector. At the close of public comment, the full drafts of each industry standard were developed, including topic descriptions and technical guidance for each performance metric. The fifth and final step was to publicly release the completed industry standards on a provisional basis.[4]

The above process was repeated for 11 sectors.[5] The entire process took approximately a year for each sector with some sectors taking a few months more or less time depending on a number of factors, including sector size, industry complexity, and team capacity. The sectors were developed on a staggered, overlapping basis, beginning with the health care sector in the fourth quarter of 2012 and culminating with the issuance of eight industry standards for the infrastructure sector in the first quarter of 2016.[6] Importantly, the order and schedule for developing provisional standards across all 11 sectors was laid out at the start of the process in 2012, and it took approximately three and half years to complete.

After the work of developing the provisional standards was completed, SASB began the second phase of its standard setting activities. During 2016 and 2017, SASB engaged in outreach and consultation across all sectors. As an organization, it also adapted its structure, moving from having a Standards Council to monitor due process to having a Standards Board with sole responsibility for all standard setting activities, from technical agenda setting

[4]Khan et al. (2016) and Spandel et al. (2020) assess capital market effects of SASB's provisional standards. Khan et al. (2016) find that SASB's materiality framework helps to better screen companies for ESG performance, while Spandel et al. (2020) find that, conditional on ESG performance, SASB standards change investors' perceptions of firm value.

[5]Health Care; Financials; Technology & Communications; Non-Renewable Resources; Transportation; Services; Resource Transformation; Consumption I; Consumption II; Renewable Resources and Alternative Energy; Infrastructure. After the provisional industry standards were developed, SASB revised SICS®. As a result, most of the industries in Consumption I and II were reorganized into two new sector classifications: Consumer Goods and Food and Beverage.

[6]The six health care industries SASB has identified in its SICS® classification system are: Biotech and Pharmaceuticals; Drug Retailers; Health Care Delivery; Heath Care Distributors; Managed Care; and Medical Equipment and Supplies. The eight infrastructure industries include: Electric Utilities and Power Generators; Engineering and Construction Services; Gas Utilities and Distributors; Home Builders; Real Estate; Real Estate Services; Waste Management; and Water Utilities and Services.

to final approval of standards content. In 2017, the Standards Board was seated, and it announced a technical agenda for potential revisions to the provisional standards, across all sectors. After review and approval by the Standards Board, exposure drafts of proposed changes were released (simultaneously) for a public comment period in Q4 of 2017. SASB received 120 comment letters in response to the public comment period, which closed in Q1 of 2018. After redeliberating the proposed changes in light of the feedback received during the public comment period, the staff prepared a set of final set of revisions to the provisional standards for the Standards Board to review. In Q4 of 2018, the Standards Board voted to approve these changes and to remove the provisional status of all 77 industry standards, officially launching the codified set of standards. Figure 1 summarizes SASB's organizational milestones over the period 2011-2020.

In late 2020, SASB announced an intent to merge with the International Integrated Reporting Council (IIRC) under a new organization, the Value Reporting Foundation. IIRC maintains the ⟨IR⟩ Framework, which provides guidance on integrated reporting. The framework was developed between September 2011 and April 2013. While the framework makes reference to six capitals (financial, manufactured, intellectual, human, social, and natural), the framework does not identify specific disclosures. The merger between SASB and IIRC was announced in June of 2021 and did not alter the SASB Standards Board's responsibility for the oversight of the SASB standards or its mission.

III. Data and methodology

III.1. Industry-specific dictionary of ESG terms

As noted in the previous section, SASB's standard setting process was designed to identify sustainability issues that are reasonably likely to have a material impact on operating performance and financial condition of companies in a given industry. Because SASB's standards are industry-specific, they are intended to facilitate communication between companies and investors about decision-useful information on sustainability matters. In total, SASB's

codified standards identify and provide guidance on 444 industry-specific disclosure topics.[7]

We use SASB's description of these 444 topics to construct dictionaries of ESG terms specific to each industry.[8] Specifically, we hired research assistants who had accounting and finance background and whose native language was English and asked them to read disclosure topic descriptions for each industry and select keywords and phrases that characterize that disclosure topic. Table 1 provides several examples of ESG relevant keywords for three different industries and disclosure topics in our dictionary. For example, the standard for the *Food Retailers & Distributors* industry identifies *Labor Practices* as a material disclosure topic. Given the description of that disclosure topic in the corresponding industry standard, our dictionary includes words and phrases like 'worker(s)', 'average wage', 'employee strike', etc. as being relevant to sustainability topics for companies in the *Food Retailers & Distributors* industry.

Constructing industry-specific dictionaries based on SASB standards, rather than using a generic dictionary of ESG terms, allows us to more directly assess how written sustainability standards coordinate corporate disclosures. These dictionaries, therefore, can help with identification because general trends unrelated to SASB's work would be expected to be more widespread across industries (and less tied to the specific timing of SASB's standard setting efforts). In contrast, these dictionaries specify which topics would be expected to occur more frequently in which industries in the post-SASB period. For example, rather than expecting data security and workforce safety to be more generally prominent disclosures in the post-SASB period, our dictionaries would capture that SASB identified data security, but not workforce safety, as a disclosure topic for e-commerce companies, and the reverse for coal companies. On average, our industry dictionaries contain 11 words and/or phrases for a given disclosure topic, with the minimum (maximum) of 3 (28) words/phrases per topic.

[7] See https://materiality.sasb.org/ for a visual overview of the topic structure by industry.
[8] We obtained codified standards directly from SASB by signing a research copyright agreement.

III.2. Earnings conference calls sample

Earnings conference calls are one of the most important and timely public spoken events that connect firm management with participating analysts and investors. Typically, earnings calls begin with a short introduction of the management team present on the call and a legal disclaimer about forward-looking statements. Then participating executives (usually the CEO and/or CFO) discuss firm current operating performance and provide information on the company's prospects, plans, and operations. After management introductory remarks, the calls are opened for questions from analysts and investors. Given that earnings calls can cover a limited number of topics and that analysts/investors drive a large portion of the discussion in the call, we believe that earnings call disclosures are the most suitable setting to capture both management and analyst/investor focus on sustainability topics.[9]

To construct our sample of earnings calls, we use *www.seekingalpha.com* - one of the largest investor-oriented websites in the United States.[10] Using a Python script, we downloaded all transcripts of earnings calls available on Seeking Alpha for the period January 2006 to August 2019. All transcripts are in the HTML format, making it relatively easy to extract the textual content from each file. We then attempted to match company names, tickers, and dates of earnings calls to relevant COMPUSTAT data. To ensure the accuracy of our matching, we performed extensive manual checks of matched company names and earnings announcement dates. The Exchange Act Form 8-K (Section 206) states that earnings calls that are made publicly available and occur within 48 hours of the earlier earnings announcement will not trigger additional 8-K disclosures. Not surprisingly, most companies in our sample hold earnings calls on the day of the earnings announcement (around 80%) or on the following day (around 18.6%), and a few companies hold the call within

[9]Generally, earnings conference calls last about 45 to 60 minutes, imposing time limits on managers and analysts to discuss relevant matters.

[10]Seeking Alpha was founded in 2004, but a comprehensive coverage of firms on the website started in 2006. Chen et al. (2014) and Bochkay et al. (2020) are examples of large-scale empirical studies that use Seeking Alpha's articles to study investor opinions, management disclosures, market returns, and earnings surprises.

one week of the earnings announcement (around 1.4%). From our initial sample of 93,250 earnings conference calls, we were able to obtain matching COMPUSTAT data for 84,899 firm-quarters.

We then proceeded to download relevant financial statements, analyst forecasts, and market data from COMPUSTAT, IBES, and CRSP, respectively. For our empirical tests at the firm-quarter level, we require non-missing values for earnings call disclosure characteristics, analyst forecast activity prior to the call, the number of analysts following the firm, and enough information to calculate earnings surprise, return-on-assets, market capitalization, pre-announcement return, market-to-book ratio, leverage, Altman's Z-Score, earnings volatility, return volatility, and firm age. To estimate earnings surprise, we used the most recent analyst consensus forecast of one- or two-quarters-ahead earnings issued or reviewed in the last 60 days before the earnings announcement. We also required at least 1,000 words in each earnings conference call transcript as sometimes Seeking Alpha publishes a short summary of an earnings call instead of the whole transcript. These data requirements reduced our sample to 50,535 firm-quarter observations. For several tests we require Morgan Stanley Capital International (MSCI) ESG ratings, further reducing our sample to 40,965 observations.[11] Table 2 outlines all variables with definitions and data sources used in our analyses.

III.3. Measures of ESG disclosures in earnings conference calls

There are many empirical studies in the literature that attempt to capture companies' focus on corporate sustainability matters using numerical sustainability scores and/or indicators of sustainability reports. For example, Cheng et al. (2014), Ferrell et al. (2016), Dhaliwal et al. (2011), and Lys et al. (2015) use corporate social responsibility (CSR) scores and reports to study the relationships between companies' sustainability activities and fi-

[11]Numerical MSCI ESG ratings are missing for many company years. Therefore, to keep as many observations in the sample as possible, we impute a missing ESG rating for a company in year t if there is a sufficient number of historical ratings for the company in prior years.

nancial performance, access to finance, cost of capital, and corporate governance.[12] While these studies provide initial evidence on the value of ESG information to the market, several important limitations pertain to the use of numerical ESG scores to capture companies' ESG disclosures. The construction of ESG ratings/scores is often a "black box", and it is often unclear whether or how rating agencies aggregate the different sustainability metrics that companies report. As such, it can be easier to identify when a company makes a public disclosure on their ESG activities (e.g., verbal statements about workforce diversity), than to identify how or when such statements were incorporated in ESG ratings, if at all. Indeed, numerical ESG ratings often contain missing or outdated information that they intend to capture. Moreover, even if a rating agency had a very clear and transparent methodology for its ratings, research suggests there is considerable disagreement in method and approach among various ratings agencies (Christensen et al. 2021; Berg et al. 2020).

Given our focus, we directly examine companies' verbal communications in earnings conference calls. To capture companies' focus on sustainability, we use our industry-specific dictionaries of ESG terms (see Section III.1). Specifically, we count the occurrences of ESG terms in management and analyst communications in earnings calls as follows:

$$ESG\ Call = 100 \times \frac{\text{Number of ESG-Focused Sentences in the Call}}{\text{Number of All Sentences in the Call}}, \tag{1}$$

where *ESG SASB Call* measures the proportion of ESG relevant sentences in a given earnings conference call.

Intuitively, earnings calls with higher (lower) values of *ESG SASB Call* exhibit greater (lower) focus on material sustainability matters identified by SASB. In addition to measuring ESG disclosures for the entire earnings call, we calculate separate measures for the introductory remarks and questions and answers (Q&A) sections of the call (*ESG Intro* and *ESG Q&A*) as well as for the executive and analyst portions of the call (*ESG Exec* and *ESG*

[12] Christensen et al. (2018) and Grewal and Serafeim (2020) provide extensive surveys of the relevant studies in accounting, finance, management, and economics.

Ana). Table 2 provides formal definitions and Table 3 presents the descriptive statistics for our measures of ESG disclosures. Descriptively, we observe a significant variation in ESG disclosures across firm-quarters and across different parts of the earnings call. The mean (median) of *ESG SASB Call* is 2.98% (0.93%) and of *ESG Intro* and *ESG Q&A* is 4.09% (1.18%) and 2.24% (0.61%), respectively. The mean (median) of *ESG Exec* is 10.27% (3%) and of *ESG Ana* is 1.77% (0).

III.4. The impact of SASB standards on conference call content

As discussed in Section II.1, between 2012 and 2016, SASB was issuing sets of industry-specific provisional ESG standards on a staggered basis for 11 industry sectors. We use dates of those staggered releases to examine the impact of voluntary sustainability standards by SASB on corporate disclosures in earnings conference calls. Specifically, we estimate the following generalized difference-in-difference model:

$$\begin{aligned} ESG\ Disclosure_{ijt} = \beta_0 + \beta_1 SASB\ Standards_{jt} + \gamma_i + \theta_t \\ + Controls_{ijt} + \epsilon_{ijt}, \end{aligned} \tag{2}$$

where i, j and t denote firm, industry (as per the Sustainable Industry Classification System, SICS) and year-quarter, respectively. *ESG Dislosure* measures the level of ESG disclosures in the entire earnings call or its parts (e.g., introductory remarks, Q&A section), depending on the analysis.

The independent variable of interest, *SASB Standards*, takes the value of one if SASB's provisional industry-specific sustainability standards are released and available for an industry j in year-quarter t, and 0 otherwise.[13] Firm fixed effects, γ_i, account for time-invariant firm characteristics, while year-quarter fixed effects, θ_t, account for the variation in ESG

[13] In our setting, we have 11 different release dates for 77 industry-specific standards, corresponding to their 11 sector groupings. This staggered setting helps with identification in our empirical analyses by reducing the likelihood that our results are driven by an unidentified factor or event unrelated to the development of SASB standards.

disclosures across time.[14] The two-way fixed effects specification represents a generalized difference-in-difference model where firms operating in industries with no provisional SASB standards in a given year-quarter serve as a control group for firms in industries with released SASB standards in that year-quarter. As such, the coefficient β_1 in Eq. (2) captures the average effect of SASB's standards on ESG disclosures in earnings calls for treatment observations relative to the control group.

Since including time-varying control variables may lead to inconsistent estimates (Gormley and Matsa 2014), we first estimate Eq. (2) with no controls. In this specification, we rely on fixed effects to control for time-invariant factors within firms and general variation in sustainability disclosures across time. We then estimate Eq. (2) with firm-level controls that include company size, earnings surprise, return-on-assets, stock return, market-to-book, leverage, earnings volatility, return volatility, Altman's Z score, number of analysts following the company, company age, earnings call length, and the company's ESG rating.[15]

To provide additional evidence on the impact of SASB standards on ESG disclosures, we further expand our difference-in-difference analysis by arguing that firms' response to sustainability standards likely depends on their disclosure strategy prior to the standards. If a firm was already disclosing relevant ESG information to investors, then SASB standards will have little effect on the firm's disclosure strategy. In other words, the value of the standards as a coordinating mechanism is minimal. In contrast, if a firm was not reporting on ESG matters due to market frictions, SASB standards may induce ESG disclosures by helping to resolve uncertainty in investor and management expectations. Therefore, we predict that SASB standards are likely to have a stronger impact on ESG disclosures of firms that were silent on these matters before.

[14] We cannot include industry–year fixed effects in the model, as such fixed effects would be perfectly correlated with our treatment variable, *SASB Standards*.

[15] Since our focus is on the amount of ESG disclosures in earnings calls, regardless of whether disclosures exhibit positive or negative tone, we take absolute values of the earnings surprise, return-on-assets, and stock return.

To test this prediction, we estimate the following difference-in-difference model:

$$\begin{aligned} ESG\ Disclosure_{ijt} = \beta_0 &+ \beta_1 SASB\ Standards_{jt} + \beta_2 Low\ ESG\ Pre_i \\ &+ \beta_3 Low\ ESG\ Pre_i \times SASB\ Standards_{jt} \\ &+ \gamma_i + \theta_t + Controls_{ijt} + \epsilon_{ijt}, \end{aligned} \tag{3}$$

where *Low ESG Pre* denotes companies that provided little or no ESG disclosures in the pre-SASB standards period. All other terms in the model are the same as in Eq. (2). We expect the coefficient estimate on the interaction term of *Low ESG Pre* and *SASB Standards*, β_3, to be positive and significant.

To identify *Low ESG Pre* companies, we proceed as follows:

1. Identify all earnings conference calls in the pre-standards period that have ESG disclosures in the introductory remarks section of the call lower than the pre-period sample median.
2. Identify companies that have 50% or more of earnings conference calls in the pre-period that meet the first criteria.

Accordingly, our *Low ESG Pre* sample consists of companies that provided *little* or *no* material ESG disclosure in their earnings calls prior to SASB standards, and our *High ESG Pre* sample consists of companies that provided *high* levels of ESG disclosures in their earnings calls prior to the standards. Collectively, we have 2,915 unique firms in our sample with 1,909 firms (or around 65.5%) in the *Low ESG Pre* group. Importantly, both *Low ESG Pre* and *High ESG Pre* groups have a significant variation in the representation of 11 industry sectors, mitigating the problem of one specific sector driving group assignments.

Identifying *Low ESG Pre* observations by looking at the ESG disclosures in each earnings call available for a given company in the pre-standards release period enables us to pinpoint the company's overall ESG disclosure strategy prior to the SASB standards, and then compare how such strategy changes after the industry's exposure to the standards.[16]

[16]We note that we use the introductory remarks section of the earnings call to assign companies to *Low ESG Pre* or *High ESG Pre* groups. This design choice ensures that analysts' focus on ESG (observable in the Q&A section of the call) does not impact our classification.

IV. Results

IV.1. Earnings call content pre- and post-SASB

We begin with the results of our difference-in-difference analysis of whether the development of voluntary industry-specific sustainability standards by SASB is associated with a change in firms' ESG disclosures in earnings conference calls. Table 4 presents the results for the impact of SASB standards on sustainability disclosures using various specifications of Eq. (2). In Column (1), we estimate Eq. (2) with two-way fixed effects, by firm and by time, but with no other control variables because including covariates that may be affected by the release of SASB standards can undermine our ability to draw causal inferences (Gormley and Matsa 2014). The coefficient estimate of 0.199 on *SASB Standards* is positive and statistically significant at the 1% level, and translates to a 21.3% increase in sustainability disclosures relative to the sample median. If we add time-varying control variables, the magnitude of the coefficient for *SASB Standards* is slightly reduced (to 0.183), as shown in Column (2), but remains significant.[17] These results suggest that firms in the treatment group increased their level of ESG disclosures after the release of SASB standards relative to the control group (i.e., compared to firms in industries for which a provisional SASB standard had not yet been released).

In Column (3), we report the estimation results for Eq. (2) when using a reduced sample of 40,965 firm quarters for which we have Morgan Stanley Capital International (MSCI) annual ESG ratings. Including a company's ESG rating in the estimation helps to ensure that our results are robust to controlling for the company's past ESG performance. Similar to our findings in Columns (1) and (2), we observe that the coefficient estimate of 0.183 on *SASB Standards* remains positive and statistically significant at the 1% level.

In Table 4, the adjusted R-squared of 87% suggests substantial explanatory power of our

[17] In untabulated tests, we re-estimate Eq. (2) by excluding one of the eleven industry sectors at a time. In all instances, we find results similar to those reported in Table 4. This analysis helps to rule out a possibility that one specific industry sector drives our inferences.

empirical models, mitigating correlated omitted variable concerns. In addition, including or excluding the time-varying control variables has little effect on either the R-squared of the model or the magnitude of the coefficient of interest. These results help reduce concerns that omitted variables, if found and added to Eq. (2), would significantly increase the explanatory power of the model or alter the significance of *SASB Standards* in the model (Oster 2019).

IV.2. Time trends in ESG content

While we use the release dates of SASB's provisional standards to align the standards development process across industries, it is important to note that standards development is a multi-year process that did not begin (or end) on the day SASB released a provisional industry standard. The process leading up to the release of a provisional industry standard involved months of initial staff research, IWG recruiting and engagement, standards drafting, a public comment period, and redrafting. All of this took approximately 12-14 months per sector. In addition, after releasing a provisional industry standard, SASB continued to engage in market consultation and formal standard setting activity on all provisional standards during the second major stage of SASB's standards development. This second stage culminated with the SASB Standards Board's codification vote in November of 2018, which released the 77 industry standards from their provisional status.

To help visualize the time trends, we plot the year-over-year evolution of the treatment effect. Event-study graphs in staggered settings like ours can be an important tool to confirm the parallel trend assumption and to examine dynamic effects of the treatment (Barrios 2021).[18] As seen in Figure 2, the year-over-year evolution confirms pre-treatment parallel trends in years $t-4$, $t-3$, $t-2$ relative to the release of SASB standards. We also begin observing an increase in ESG disclosures in year $t-1$, which roughly coincides with the period during which SASB started the development of the provisional standards. Importantly, we find a sustained increase in ESG disclosures following the release of provisional SASB

[18] We thank John Barrios for publicly sharing code to build event graphs on his website.

standards. This sustained increase is observable when analyzing the content of the entire earnings call (part (a) of Figure 2) as well as the content of the introductory remarks of the call (part (b) of Figure 2).

IV.3. ESG content conditional on pre-standards disclosure

To provide further evidence on the impact of SASB standards on ESG disclosures in earnings calls, we examine whether firms' response to the standards' depends on their pre-standards ESG disclosure strategy. Specifically, we estimate a version of Eq. (2), where we introduce an interaction term between *SASB Standards* and *Low ESG Pre* (see Eq.(3)). *Low ESG Pre* is equal to 1 for firms that provided little or no ESG disclosure prior to the standards, and 0 otherwise. This specification allows us to estimate whether SASB standards had a larger or smaller effect on the ESG disclosures of firms that were largely silent on such matters before.

In Table 5, we provide results of estimating different specifications of Eq.(3). Given that *Low ESG Pre* is a firm fixed effect, in the first three columns of Table 5, we include *Low ESG Pre*, *SASB Standards*, and their interaction, while controlling for industry and time fixed effects. We also include time-varying control variables in Columns (2) and (3). Consistent with the manner in which we constructed *Low ESG Pre*, we find a significant negative coefficient on *Low ESG Pre*, indicating that *Low ESG Pre* firms provide much less ESG disclosures than their counterparts in the pre-SASB standards period. However, the interaction term between *Low ESG Pre* and *SASB Standards* is positive and strongly significant. In other words, those firms that tended to not report on ESG matters prior to the standards development are the firms where we see the largest increase in ESG disclosures.

In Columns (4)-(6) of Table 5, we include firm and time fixed effects. This estimation removes the main effects of *Low ESG Pre* and *SASB Standards*, and we continue to observe a significant and positive coefficient estimate on *Low ESG Pre* $\times$ *SASB Standards*. In untabulated tests, we also estimate Eq. (2) on sub-samples of *Low ESG Pre* and *High ESG*

Pre firms. This method is an alternative to including an interaction term as in Eq.(3). We find that the coefficient estimate on *SASB Standards* is 0.133 (significant at the 1% level and equivalent to a 57.6% increase relative to that sub-sample's median of 0.231) and 0.270 (significant at the 5% level and equivalent to a 7.9% increase of that sub-sample's median of 3.424) for *Low ESG Pre* and *High ESG Pre* firms, respectively.[19]

Taken together, results in this section are consistent with our earlier findings of a significant increase in ESG disclosures associated with the development of SASB standards. Importantly, they go further in helping us to understand the increase we observe on average. Because the standards are voluntary, any change associated with their development is, by definition, a market response, rather than a mandatory one. As such, if low disclosure in the pre-period was due to market frictions preventing an "unraveling" effect among some firms, we would expect to see the largest increase in disclosure among the *Low ESG Pre* firms, which is, in fact, what we document.

IV.4. Combined analysis of trend and pre-standards strategy

One important concern with our difference-in-difference design is that the change in firms' ESG disclosures may precede SASB standards or be driven by some other unobservable events. While the evidence presented in Figure 2 and Table 5 each separately helps address this concern, in this section, we provide a more complete picture by bringing those two analyses together. To do so, we follow Bertrand and Mullainathan (2003) and replace our *SASB Standards* indicator variable in Eq. (2) with several time period indicators for each of the 11 industry sectors. Specifically, we replace our single *SASB Standards* dummy with six dummy variables, $SASB\ Standards^{=-2}$, $SASB\ Standards^{=-1}$, ..., and $SASB\ Standards^{\geq+3}$, that correspond to each year before and after SASB standards. We do this for the full sample

[19]Observing an increase in ESG disclosures for both groups of firms alleviates concerns of observing significant results due to the mean reversion of *ESG SASB Call* as the assignment of firms into *Low ESG Pre* and *High ESG Pre* groups was performed on the pre-SASB standards period. If mean reversion was driving our results, we would see a significant decrease (increase) in ESG disclosures among firms that were (were not) reporting on ESG prior to the SASB standards. However, we observe that both groups of firms increased their ESG disclosures, with *Low ESG Pre* firms increasing their disclosures the most.

and then conditional on the firms' pre-standards disclosure strategy.

Table 6 provides the results of estimating Eq. (2) with the specifications described above. In all columns, the coefficients on *SASB Standards*$^{=-2}$ are not statistically significant, suggesting that there was no change in ESG disclosures two years prior to SASB standards. We begin to observe a meaningful increase in ESG disclosures in year '-1' for the full sample as well as for the sub-sample of *High ESG Pre* firms as suggested by positive and significant coefficient estimates on *SASB Standards*$^{=-1}$ in Columns (1) and (2). In Column (3), we do not observe significant changes in ESG disclosures of *Low ESG Pre* firms until in year '0'. For all firms, we find increases in ESG disclosures in the years that follow SASB standards, especially among *Low ESG Pre* firms.[20]

Overall, the results of this section provide further evidence that SASB's standard setting process was associated with increases in ESG disclosure in earnings conference calls. We find that the effect is particularly strong for firms that had low pre-standards ESG disclosure. However, we also find evidence that firms with high pre-standards ESG disclosure responded more quickly than did the low disclosure firms. This latter result could arise if firms with high pre-standards ESG disclosures were more aware of SASB's standard setting activities (e.g., through higher monitoring of or engagement with ESG standard setters).

IV.5. ESG Reporting uncertainty and firms' response to SASB standards

In this section, we examine a different cross-sectional variation in firms' response to SASB standards. If SASB standards help align management and investor expectations with regard to sustainability disclosures, then industries with more disagreement about relevant sustainability topics might be more affected by the development of standards than industries with higher levels of agreement on what issues are likely to be material to investors. To test this prediction, we obtain data on disclosure topic agreement among corporate representatives

[20] In untabulated tests, we randomly shift backward and forward the timing of *SASB Standards* and do not find consistent and meaningful trends. This further helps to reduce concerns that a general trend might explain the average increase in ESG content that we see.

of SASB's IWGs. We code an industry as *Low Agreement* if corporate representatives' IWG agreement on ESG topics is below the median and as *High Agreement* if agreement is equal to or above the median. In this manner, we differentiate between industries with high and low uncertainty about sustainability reporting.

Table 7 reports the results of estimating Eq. (2) and (3) for sub-samples of *Low Agreement* and *High Agreement* observations. We find that the coefficient estimate on *SASB Standards* is positive and statistically significant for *Low Agreement* observations and insignificant for *High Agreement* observations. Similarly, when we condition on firms' disclosure behavior prior to SASB standards, we observe a stronger effect of the standards among *Low Agreement* observations relative to the *High Agreement* observations.[21] Collectively, observing a stronger effect of SASB standards on disclosures among industries with high disagreement provides additional evidence that SASB standards help mitigate frictions in voluntary reporting associated with uncertainty.

IV.6. General or SASB-specific trends in ESG disclosures

Our results so far suggest that firms increased their ESG disclosures subsequent to SASB standards. However, there is a possibility that firms increased their sustainability reporting of general ESG topics, not just reporting of ESG topics that pass SASB's materiality threshold. In this section, we examine whether our results reflect general trends in ESG reporting that may coincide in timing with SASB standards.

To capture general ESG disclosures in earnings calls, we merge all our industry dictionaries into one comprehensive dictionary of ESG terms and use this dictionary to construct relevant counts, *ESG All Call*. In other words, we ignore 'industry specificity' of ESG topics when constructing *ESG All Call*. We also construct a dictionary of non-industry-specific ESG terms (i.e., all but ESG terms in SASB standards) and use this dictionary to capture

[21] In untabulated tests, we repeat this analysis using the overall (corporate representatives', intermediaries', and investors') IWG agreement on ESG topics and find similar results. This finding reflects high correlation in agreement across different IWG members.

the discussion of other (non-SASB) ESG topics in earnings calls, *ESG Other Call*. If subsequent to SASB standards firms increased their ESG disclosures in general, then we should observe a positive and significant coefficient estimate on *SASB Standards* when we estimate Eq. (2) with *ESG All Call* as the dependent variable. In contrast, if our results in Table 4 are specific to SASB's industry standards, then we should observe attenuated or no results and perhaps see a reduction in discussion of ESG topics that are deemed immaterial for a specific industry by SASB.

Table 8 reports the results. Controlling for firm and year-quarter fixed effects and time varying firm characteristics, we find no effect of *SASB Standards* on general ESG disclosures in earnings calls. At the same time, we find a reduction in ESG disclosures that are deemed immaterial by SASB as indicated by a negative and significant coefficient estimate on *SASB Standards* in the third column of Table 8.[22] These results demonstrate that our earlier finding of an increase in earnings call ESG content is specific to SASB standards. Moreover, these results are consistent with the coordinating role of SASB standards: firms increase ESG disclosures deemed material by SASB, while reducing their discussion of other ESG matters.

IV.7. Changes in the level of ESG disclosures

Even though our results show a significant increase in *ESG SASB Call*, it is still possible that the information content of earnings calls did not change following SASB standards. That is, firms keep discussing relevant ESG matters as they did prior to SASB standards, but now using SASB's terminology. In other words, there is a possibility that the level of ESG disclosures is the same before and after SASB standards, but terms used to report on ESG have converged to SASB vocabulary. In this section, we examine the nature of documented changes in ESG disclosures - changes in the level of disclosure and/or changes in focus / terminology.

[22]For completeness, Table 8 reiterates results using the industry-specific ESG dictionary in Column (2). These results are reported earlier in Table 4.

To isolate specific drivers of our results, we partition our sample into groups based on firms' ESG reporting behavior in the pre-SASB period. Following the same process as in Section III.4, we identify Low and High reporters of industry-specific ESG information (based on *ESG SASB Call*) and Low and High reporters of non-industry-specific ESG information (based on *ESG Other Call*). These partitions result in four mutually exclusive categories of firms:

- {Low, Low} group consists of firms with low industry-specific (as per SASB standards) and low non-industry-specific ESG disclosures prior to SASB standards,
- {Low, High} group consists of firms with low industry-specific and high non-industry-specific ESG disclosures prior to SASB standards,
- {High, Low} group consists of firms with high industry-specific and low non-industry-specific ESG disclosures prior to SASB standards,
- {High, High} group consists of firms with high industry-specific and high non-industry-specific ESG disclosures prior to SASB standards.

Using each of the sample partitions, we estimate Eq. (2) with *ESG SASB Call* and *ESG Other Call* as dependent variables. Table 9 reports the results. We find that firms in the {Low, Low} category have a significant increase in *ESG SASB Call* following SASB standards, while there is no significant change in *ESG Other Call*. We find similar results for firms in the {High, Low} category. Both of these results demonstrate the increase in the *level* of industry-specific ESG disclosure following SASB standards. That is, firms that provided limited ESG discussion (both industry- and non-industry-specific) prior to SASB standards increase their disclosure of industry ESG topics subsequent to the standards. Similarly, firms that reported on industry ESG topics continue to increase the level of such disclosure after the release of SASB standards.

Further, we find that firms with the low level of industry-specific ESG disclosure and high level of other ESG disclosure (i.e., {Low, High} group) have a significant increase (decrease) in *ESG SASB Call* (*ESG SASB Call*) following SASB standards. Finally, we find that firms with the high level of ESG disclosure prior to SASB standards (i.e., {High, High} group) have

a significant reduction in non-industry-specific ESG disclosures, while no significant change in industry-specific ESG disclosures. These results are consistent with the substitution effect of ESG information: firms increase their discussion of industry ESG matters as per SASB standards, while lowering the amount of other ESG information.

Taken together, results in Table 9 provide evidence of changes in the level of ESG disclosures in earnings calls following SASB standards. They also corroborate our earlier findings about the coordinating role of SASB standards: firms increase disclosures of relevant ESG matters (as per SASB standards), while reducing their discussion of other ESG topics.

IV.8. Supplemental Tests

IV.8.1. Management and analyst focus on ESG matters

In this section, we provide some insight into whether the observed increase in *ESG SASB Call* following SASB standards is driven by management ESG disclosures and/or analyst demand for ESG disclosures. In other words, we are interested in understanding how SASB standards changed the supply and demand side of management and analyst interactions on sustainability matters. To help answer this question, we split the content of the earnings call into the introductory remarks and Q&A sections as well as into executives' and analysts' parts. If we see the increase in disclosure only in the Q&A section and particularly among analysts, then that would suggest that analysts play a key intermediary role for ESG disclosure in earnings conference calls.

As shown in Table 10, we find that the coefficient estimates on *SASB Standards* and *Low ESG Pre* $\times$ *SASB Standards* are positive and significant in every specification. We also find that the coefficient estimates on *SASB Standards* is positive and strongly significant for the executives' portion of the call, but only marginally significant for the analysts' portion of the call. Together, these results suggest that SASB standards impact the ESG content of earnings conference calls more through what management is prepared to say and how they respond to questions than just through the questions that analysts ask.

IV.8.2. Changes in ESG disclosures not related to climate change

As previously noted, an important caveat when interpreting our results is that they could be contributed to by other organizational, regulatory, and/or policy changes unrelated to SASB's standards development. For example, in recent years, there has been an increasing focus on climate issues, resulting in the establishment of various organizations to help mitigate the challenges associated with climate change. One such organization is the Task Force on Climate-Related Financial Disclosures (TCFD), which was established with a goal of developing high-level guidance to facilitate disclosure of climate-related financial risks and opportunities to investors in mainstream financial reports. The TCFD was established in December of 2015, and it released its disclosure recommendations in June 2017. Even though TCFD's disclosure recommendations were released more than a year after SASB's last provisional standard, the work of the TCFD could have contributed to some of the results we observe. Note that the concern here is less about understanding the role of the TCFD, *per se*, in helping overcome market frictions to voluntary disclosure, but rather the possibility that the market was responding to a shifting landscape of materiality *independent* of the activities of SASB and (later) the TCFD.

To address this concern, we examine whether our main findings extend to ESG topics other than those most directly related to climate. Specifically, we create a variable *ESG Call, excl. Climate Change* that captures the amount of ESG disclosure in earnings calls that is less related to climate issues.[23] Then, we re-estimate Eq. (2) and (3) with *ESG Call,*

[23]In our ESG dictionary, words related to climate include: *climate change, climate risk, climate risks, climate exposure, climate-exposed, climate exposed, greenhouse gas emissions, gas emissions, air quality, GHG, GHGs, exhaust gas, environmental impact, environmental impacts, transportation fuel, greenhouse gas, GHG emissions, carbon emissions, contaminant, contaminants, carbon dioxide, effluent, acid rain, contamination, nitrogen, oxygen, energy efficient, emissions, fossil fuels, greenhouse gases, fuel management, fuel economy, energy efficiency, alternative fuels, combustion, fossil fuel, scope 1, alternative energy, air emissions, air pollutants, sulfur dioxide, nitrogen oxide, HAPs, sulfur dioxide, rising sea levels, environment protection, low carbon, carbon neutral, carbon-neutral, fuel efficiency, fuel-efficient, fuel efficient, emission, sulfur oxide, sulfur oxides, nitrogen oxides, heavy fuel, clean burning, clean-burning, leaner-burning fuel, global warming, fuel combustion, fleet fuel, environmentally friendly, methane, volatile organic compounds, volatile organic compound, VOCs, VOC, ecological impact, ecological impacts, carbon intensive, carbon-intensive.*

excl. Climate Change as the dependent variable. Table 11 reports the results.

Despite 'climate change' being the most commonly occurring issue in SASB's standards, we still find an increase in firms' ESG disclosures when looking at ESG issues less related to climate.[24] Overall, these results provide additional support for our earlier findings on the impact of SASB standards and mitigate concerns of climate change disclosures being the only driver of our inferences.

IV.8.3. Similarity between SASB standards and earnings conference calls

One important concern in our analyses of ESG content in earnings calls is the reliance on human coders to construct industry-specific dictionaries of ESG terms. To address this concern and to test the robustness of our findings to alternative research designs, we use a cosine similarity metric to measure similarities between SASB industry standards and earnings call transcripts. This approach completely eliminates human judgment in selecting which words / phrases are representative of SASB industry topics, and instead measures the distance between vectors of words that occur in earnings calls and vectors of words that are present in SASB's industry topic descriptions.[25]

Table 12 reports the results of estimating Eq. (2) - (3) with the cosine similarity between earnings calls and SASB standards as the dependent variable. In all specifications, we find positive and significant coefficient estimates on *SASB Standards*, indicating an increase in similarity of earnings call content and SASB ESG topics following SASB standards. These results are consistent with our earlier findings and provide validity for our industry-specific dictionaries developed by human coders.

[24] In untabulated tests, we run our difference-in-difference analyses using TCFD's release date of disclosure recommendations as the focal date, and find no results for changes in *ESG SASB Call*. This null result is not particularly surprising as the high-level TCFD guidance is compatible with, but not a substitute for the detailed guidance in SASB standards on a broad range of ESG issues by industry.

[25] See https://nlp.stanford.edu/IR-book/html/htmledition/dot-products-1.html.

V. Conclusion

Do voluntary disclosure standards alter corporate communications? If so, how and why? In this paper, we examine how the coverage of sustainability issues in earnings conference calls has changed over the period during which the Sustainability Accounting Standards Board (SASB) developed a set of voluntary ESG disclosure standards. Using industry-specific dictionaries of the sustainability terms contained in SASB standards and the difference-in-difference research design, we find a significant increase in ESG disclosures in earnings calls following the release of SASB standards. This trend begins around the time when SASB released a provisional disclosure standard for a given company's industry and continues in the years after. In addition, we find that the increase in ESG disclosures is particularly strong for firms that had little or no coverage of sustainability topics historically.

When examining managers' disclosures on (supply-side) and analysts' interest in (demand-side) ESG topics, we find that both parties increased their focus on ESG subsequent to SASB standards, but this is likely due to executives being more prepared to discuss ESG issues and respond to ESG questions from analysts, rather than being driven primarily by the questions raised by analysts. Further, we find a stronger impact of SASB standards on ESG disclosures of firms operating in industries with high disagreement on ESG reporting. This result is consistent with SASB standards helping to reduce market frictions to voluntary disclosure by resolving uncertainty in which topics to discuss. Finally, we find that our results are specific to material sustainability topics as identified by SASB, and are not the outcome of the increased interest in broad ESG issues or in climate issues in particular. Overall, given that SASB sustainability standards are voluntary in nature, these results inform our understanding of how disclosure standards (and their development process) help coordinate expectations between companies and investors to shape voluntary disclosure.

We believe our paper is the first large-scale, linguistic analysis of industry-specific sustainability disclosures. Our dictionary of industry-specific ESG terms based on SASB standards

opens new avenues for future research. Researchers interested in conducting analysis of textual ESG information could use our dictionary to examine the amount of ESG disclosure, the determinants and information content of those disclosures, and the consequences for firm performance, capital markets, and broader society.

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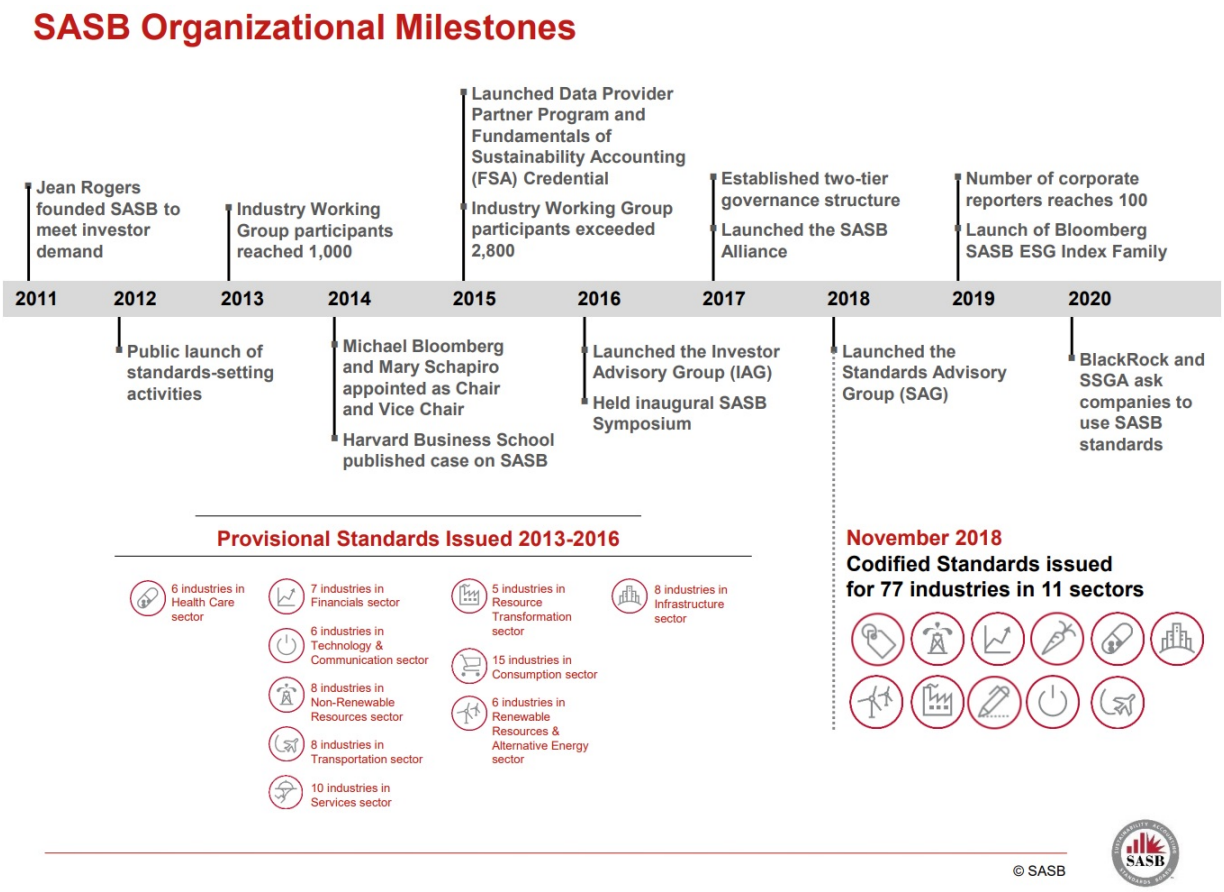
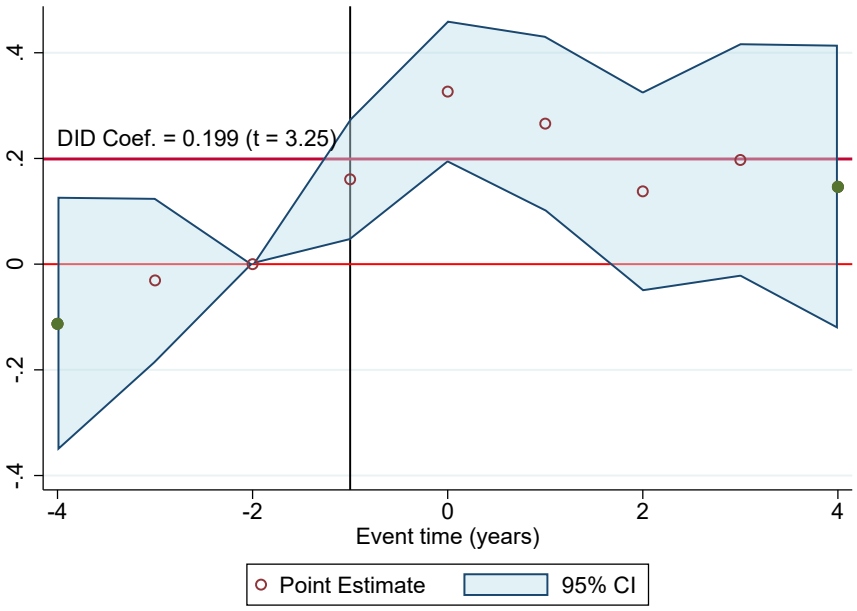
Figures and Tables

FIGURE 1
Timeline of Major SASB Events

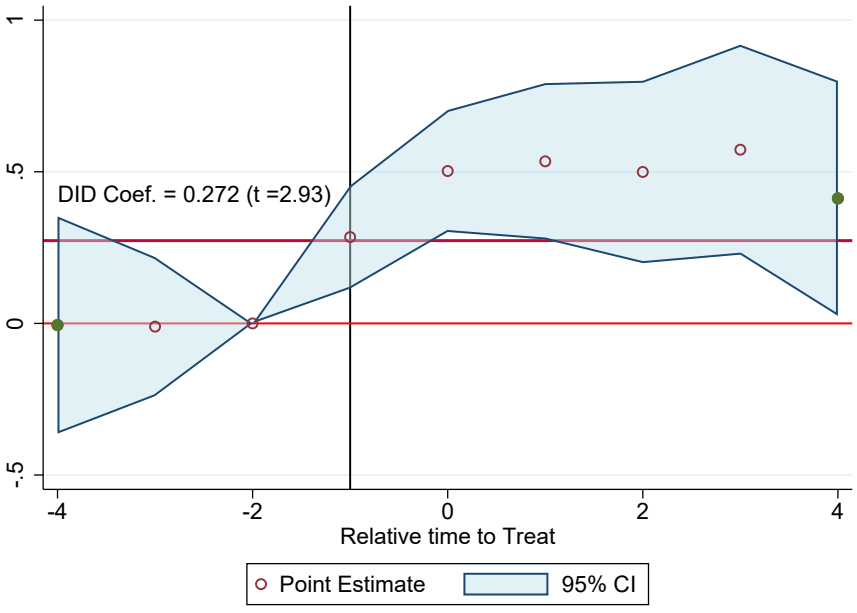


This figure outlines major events at SASB over the period 2011 - 2020.
Source: https://www.sec.gov/files/10152020-sasb-sec-amac-esg-subcommittee.pdf.

FIGURE 2
The effect of SASB industry-specific sustainability standards on ESG disclosures in earnings conference calls



(a) Entire Earnings Conference Call



(b) Introductory Remarks Section of Earnings Call

This figure plots event-study estimates from a two-way fixed effects regression of the effect of SASB industry-specific sustainability standards on ESG statements in the (a) entire earnings conference call and (b) introductory remarks of the earnings call. The specification includes firm and year-quarter fixed effects. The 95% confidence interval is shaded around the coefficients. Standard errors are robust to clustering at the firm level.

TABLE 1
Examples of ESG disclosure topic keywords based on SASB's Codified Industry Standards

Sector	Industry	Disclosure Topic	Disclosure Topic Description	Disclosure Topic Keywords
Food & Beverage	**Food Retailers & Distributors**	Labor Practices	The Food Retailers & Distributors industry employs many hourly workers. Low average wages in the industry, which help companies maintain low prices for products, may result in labor-related risks. Worker dissatisfaction with wages and benefits, combined with high unionization rates, have led to employee strikes at major food retail companies, resulting in business disruption and reputational damage. Additionally, companies in the industry have been involved in gender and racial discrimination cases, sometimes resulting in costly financial settlements. Companies may benefit from taking a long-term perspective on managing workers, including their pay and benefits, in a way that protects the rights of workers and enhances their productivity while strengthening the company's reputation and brand value.	worker, workers, average wage, worker dissatisfaction, employee strikes, employee strike, discrimination, labor-related, wages, unionization rates, pay and benefits, worker productivity
Technology & Communications	**Internet Media & Services**	Data Privacy, Advertising Standards & Freedom of Expression	Companies in the Internet & Media Services industry rely on customer data to innovate new tools and services, generate revenues through advertising sales, and track and prevent criminal activities, such as hacking and online predators targeting children. However, the use and storage of a wide range of customer data, such as personal, demographic, content, and behavioral data, raises privacy concerns, leading to increased regulatory scrutiny in many countries around the world. Companies face reputational risks from providing access to user data to governments, which raises concerns that the data may be used to limit the freedoms of citizens. Companies may also face increased costs of compliance associated with the varying local laws or government demands related to censorship of culturally or politically sensitive material on websites. This issue has impacts on company profitability through the loss of users and can influence decisions to enter or operate in certain markets.	hacking, privacy concerns, customer data, online predators, targeting children, user data, freedom of citizens, sensitive materials, sensitive material
Health Care	**Health Care Distributors**	Product Safety	Health care distributors play an integral role in the delivery of health care products to consumers. The industry therefore has a shared responsibility with manufacturers to ensure product safety and address concerns related to toxicity. Further, health care distributors face additional risks related to controlled substances and the potential for mislabeled products. Companies that limit the incidences of safety or other product concerns may be better positioned to protect shareholder value.	product delivery, toxicity, product safety, mislabeled products, controlled substances, incidences of safety

TABLE 2
Variable definitions and data sources

Variable	Definition	Source
SASB Standards	Equals to 1 for firm-quarters after the SASB's standards release in a specific industry sector, and 0 otherwise.	Standards release dates are from SASB's press releases
ESG SASB Call	Number of ESG-focused sentences in the entire earnings call, divided by the number of all sentences in the call, multiplied by 100. ESG focus is determined using industry-specific dictionaries of ESG terms based on SASB standards (see Section III.3).	Earnings calls are from: www.seekingalpha.com
ESG Intro	Number of ESG-focused sentences in the introductory remarks section of the earnings call, divided by the number of all sentences in the section, multiplied by 100. ESG focus is determined using industry-specific dictionaries of ESG terms based on SASB standards.	Earnings calls are from: www.seekingalpha.com
ESG Q&A	Number of ESG-focused sentences in the Q&A section of the earnings call, divided by the number of all sentences in the section, multiplied by 100. ESG focus is determined using industry-specific dictionaries of ESG terms based on SASB standards.	Earnings calls are from: www.seekingalpha.com
ESG Exec	Number of ESG-focused sentences in the management portion of the earnings call, divided by the number of all management sentences, multiplied by 100. ESG focus is determined using industry-specific dictionaries of ESG terms based on SASB standards.	Earnings calls are from: www.seekingalpha.com
ESG Ana	Number of ESG-focused sentences in the analyst portion of the earnings call, divided by the number of all analyst sentences, multiplied by 100. ESG focus is determined using industry-specific dictionaries of ESG terms based on SASB standards.	Earnings calls are from: www.seekingalpha.com
Low ESG Pre	Equals to 1 for firms that prior to the SASB's standards have more than 50% of earnings calls with ESG disclosures lower than the sample median in the pre-standards period, and 0 otherwise.	
High ESG Pre	Equals to 1 for firms that prior to the SASB's standards have more than 50% of earnings calls with ESG disclosures higher than the sample median in the pre-standards period, and 0 otherwise.	
ESG All Call	Number of ESG-focused sentences in the entire earnings call, divided by the number of all sentences in the call, multiplied by 100. ESG focus is determined using a *all* ESG terms in the combined ESG dictionary (see Section III.3).	Earnings calls are from: www.seekingalpha.com
ESG Other Call	Number of non-industry-specific ESG sentences in the entire earnings call, divided by the number of all sentences in the call, multiplied by 100. Non-industry-specific ESG sentences are determined using a *combined* dictionary of ESG terms that excludes industry-specific ESG terms as per SASB standards (see Section III.3).	Earnings calls are from: www.seekingalpha.com

Table 2, continued

Variable	Definition	Source
ESG Call, excl. Climate Change	Number of ESG-focused sentences in the entire earnings call, divided by the number of all sentences in the call, multiplied by 100. ESG focus is determined using industry-specific dictionaries of ESG terms based on SASB standards, excluding terms related to "climate change" (see Section IV.8.2).	Earnings calls are from: www.seekingalpha.com
Low Agreement	Equals to 1 to one when SASB Industry Working Group (IWG) agreement among corporate representatives is lower than the industry sample median, and 0 otherwise.	IWG's survey agreement measures are from SASB
High Agreement	Equals to 1 to one when SASB IWG agreement among corporate representatives is equal to or higher than the industry sample median, and 0 otherwise.	IWG's survey agreement measures are from SASB
AbsUE	Absolute value of the actual earnings per share (EPS) minus analyst consensus forecast of one- or two-quarters-ahead earnings issued or reviewed in the last 60 days before earnings announcement divided by stock price at the end of quarter, winsorized at 1% and 99%.	IBES
AbsROA	Absolute value of earnings before extraordinary items scaled by total assets, winsorized at 1% and 99%.	COMPUSTAT
AbsReturn	Absolute value of the annual buy-and-hold stock return over the past year.	CRSP
Size	Natural logarithm of the market value of equity at the end of the previous quarter.	COMPUSTAT
MTB	Market value of equity, divided by common equity at the end of the previous quarter, winsorized at 1% and 99%.	COMPUSTAT
Leverage	Long-term debt to total assets ratio, winsorized at 1% and 99%.	COMPUSTAT
ZScore	Altman's Z-Score, winsorized at 1% and 99%.	COMPUSTAT
EarnVol	Standard deviation of earnings, calculated using earnings scaled by total assets in the last twenty quarters, with a minimum of eight quarters required.	COMPUSTAT
RetVol	Standard deviation of monthly returns, calculated using returns in the last twelve month, with a minimum of six months required.	CRSP
NumAnalysts	Natural logarithm of the number of analysts that issue an earnings forecast for a given firm.	IBES
FirmAge	Natural logarithm of the number of years since a company appears in the CRSP's monthly file.	CRSP
CallLength	Natural logarithm of the number of words in the earnings call.	Earnings calls are from: www.seekingalpha.com
ESG Rating	Annual Morgan Stanley Capital International (MSCI) ESG rating of a company. Letter ratings are converted to numerical scores as follows: "AAA" $\mapsto$ 7, "AA" $\mapsto$ 6, "A" $\mapsto$ 5, "BBB" $\mapsto$ 4, "BB" $\mapsto$ 3, "B" $\mapsto$ 2, "CCC" $\mapsto$ 1.	MSCI, see https://www.msci.com/esg-ratings

TABLE 3
Descriptive statistics

Variable	N	Mean	Median	SD	Q1	Q3
Main Variables of Interest						
SASB Standards	50,535	0.5457	1.0000	0.4979	0.0000	1.0000
ESG SASB Call	50,535	2.9826	0.9311	4.9098	0.1764	3.5985
ESG Call, excl. GHG	50,535	2.8834	0.8721	4.8602	0.0000	3.4483
ESG Intro	50,535	4.0999	1.1834	6.7378	0.0000	4.9587
ESG Q&A	50,535	2.2407	0.6186	4.0999	0.0000	2.5773
ESG Exec	50,535	10.2711	3.0000	18.0804	0.0000	12.0000
ESG Ana	50,535	1.7723	0.0000	3.9056	0.0000	2.0000
General ESG Call	50,535	17.4979	16.6172	6.0213	13.2075	20.8995
Non-industry Specific ESG Call	50,535	14.5153	14.1876	5.3704	11.0727	17.6471
Control Variables						
AbsUE	50,535	0.0045	0.0014	0.0090	0.0005	0.0040
Size	50,535	7.8848	7.8736	1.7445	6.6913	9.0485
AbsROA	50,535	0.0281	0.0164	0.0413	0.0081	0.0303
AbsReturn	50,535	0.3586	0.2486	0.5307	0.1156	0.4478
MTB	50,535	3.7471	2.5568	5.1092	1.5401	4.4037
Leverage	50,535	0.2382	0.2122	0.2262	0.0617	0.3424
EarnVol	50,535	0.0396	0.0138	0.3816	0.0072	0.0315
RetVol	50,535	0.1105	0.0937	0.0711	0.0651	0.1359
ZScore	50,535	3.4427	2.0873	5.7659	1.0201	3.8610
NumAnalysts	50,535	1.5490	1.3863	0.7182	1.0986	2.0794
FirmAge	50,535	2.4251	2.5928	1.1771	1.5420	3.3982
Call Length	50,535	8.8942	8.9591	0.3241	8.7151	9.1161
ESGRating	40,965	3.5072	3.0000	1.3436	2.5600	4.0000

This table reports descriptive statistics for main dependent and independent variables in the study. All variables are defined in Table 2.

TABLE 4
ESG disclosures in earnings calls following SASB standards

	ESG Call		
	(1)	(2)	(3)
SASB Standards	0.199***	0.183***	0.183***
	(3.25)	(2.98)	(2.74)
AbsUE		−2.299	−2.292
		(−1.38)	(−1.04)
Size		−0.051	−0.041
		(−0.98)	(−0.65)
AbsROA		−2.071***	−2.241***
		(−4.19)	(−3.58)
AbsReturn		−0.003	−0.012
		(−0.15)	(−0.35)
MTB		0.003	0.002
		(1.02)	(0.54)
Leverage		−0.229	−0.321
		(−1.20)	(−1.56)
EarnVol		−0.011	0.042
		(−0.27)	(1.18)
RetVol		−0.620*	−0.758*
		(−1.67)	(−1.95)
ZScore		0.003	0.003
		(0.69)	(0.45)
NumAnalysts		−0.074***	−0.082***
		(−2.97)	(−3.00)
FirmAge		−0.227**	−0.310***
		(−2.50)	(−3.21)
Call Length		−0.079	−0.140
		(−0.84)	(−1.27)
ESGRating			0.023
			(1.06)
Firm FE	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes
Observations	50,535	50,535	40,965
Adj. R^2	0.871	0.871	0.869

This table reports the results of estimating a difference-in-difference model in Eq. (2) with the proportion of ESG sentences in earnings call, *ESG SASB Call*, as the dependent variable. Firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 5
ESG disclosures in earnings calls following SASB standards, conditional on the level of pre-standards disclosures

	ESG Call					
	(1)	(2)	(3)	(4)	(5)	(6)
Low ESG Pre	−1.162***	−1.257***	−1.176***			
	(−11.03)	(−12.55)	(−11.14)			
SASB Standards	−0.188*	−0.156	−0.129			
	(−1.81)	(−1.52)	(−1.26)			
Low ESG Pre	0.738***	0.672***	0.545***	0.612***	0.607***	0.528***
× *SASB Standards*	(7.14)	(6.47)	(5.14)	(7.91)	(7.98)	(6.60)
AbsUE		−4.465	−4.353		−2.227	−2.163
		(−1.62)	(−1.34)		(−1.34)	(−0.98)
Size		−0.121***	−0.119**		−0.062	−0.059
		(−2.82)	(−2.34)		(−1.23)	(−0.96)
AbsROA		3.386***	4.156***		−2.076***	−2.225***
		(4.70)	(4.34)		(−4.23)	(−3.59)
AbsReturn		−0.035	−0.029		−0.003	−0.010
		(−1.01)	(−0.66)		(−0.16)	(−0.29)
MTB		0.005	0.008		0.003	0.001
		(1.10)	(1.48)		(0.98)	(0.51)
Leverage		−0.277	−0.394**		−0.267	−0.379*
		(−1.55)	(−2.00)		(−1.43)	(−1.87)
EarnVol		0.073***	0.095***		−0.009	0.042
		(2.59)	(2.81)		(−0.23)	(1.17)
RetVol		0.922*	1.022		−0.584	−0.727*
		(1.81)	(1.62)		(−1.59)	(−1.91)
ZScore		0.012**	0.012*		0.004	0.003
		(1.98)	(1.79)		(0.78)	(0.51)
NumAnalysts		−0.035	−0.017		−0.057**	−0.065**
		(−0.69)	(−0.29)		(−2.37)	(−2.47)
FirmAge		−0.086**	−0.107**		−0.228***	−0.315***
		(−2.24)	(−2.51)		(−2.59)	(−3.37)
Call Length		0.019	−0.008		−0.078	−0.135
		(0.16)	(−0.06)		(−0.84)	(−1.23)
ESGRating			−0.003			0.029
			(−0.11)			(1.32)
Industry FE	Yes	Yes	Yes	No	No	No
Firm FE	No	No	No	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	50,535	50,535	40,965	50,535	50,535	40,965
Adj. R^2	0.739	0.743	0.744	0.871	0.872	0.870

This table reports the results of estimating a difference-in-difference model in Eq. (3) with the proportion of ESG sentences in earnings call, *ESG SASB Call*, as the dependent variable. Industry fixed effects (as per Sustainable Industry Classification System, SICS®) or firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 6
ESG disclosures in earnings conference calls following releases of SASB standards, trend tests

	Full Sample (1)	***High ESG Pre*** (2)	***Low ESG Pre*** (3)
SASB Standards$^{=-2}$	0.035	−0.060	−0.051
	(0.34)	(−0.35)	(−1.46)
SASB Standards$^{=-1}$	0.239**	0.416**	−0.003
	(2.49)	(2.39)	(−0.07)
SASB Standards$^{=0}$	0.445***	0.780***	0.104**
	(4.18)	(3.85)	(2.09)
SASB Standards$^{=+1}$	0.376***	0.668***	0.123**
	(3.33)	(3.07)	(2.30)
SASB Standards$^{=+2}$	0.252**	0.362	0.094*
	(2.11)	(1.59)	(1.68)
SASB Standards$^{\geq+3}$	0.298**	0.364	0.183***
	(2.29)	(1.46)	(2.84)
Controls	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes
Observations	50,535	22,696	27,839
Adj. R^2	0.871	0.835	0.871

This table reports the results of estimating a difference-in-difference model in Eq. (2) with the proportion of ESG sentences in earnings call, *ESG SASB Call*, as the dependent variable and yearly indicators for *SASB Standards* as independent variables. Control variables, firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. Column (1) reports the results for the full sample. Columns (2) and (3) report results for *High ESG Pre* and *Low ESG Pre* sub-samples, respectively. *SASB Standards*$^{=-n}$ equals to 1 for observations n years prior to SASB standards release, and 0 otherwise. *SASB Standards*$^{=0}$ equals to 1 for observations in the year of SASB standards release, and 0 otherwise. *SASB Standards*$^{=+n}$ equals to 1 for observations n years after SASB standards release, and 0 otherwise. *SASB Standards*$^{\geq+n}$ equals to 1 for observations n or more years after SASB standards release, and 0 otherwise. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 7
Effects of SASB standards on ESG disclosures in earnings calls for industries with Low and High ESG topic agreement

	Low Agreement		***High Agreement***	
SASB Standards	0.339***		0.068	
	(3.09)		(1.04)	
Low ESG Pre × SASB Standards		0.896***		0.327***
		(7.27)		(4.08)
AbsUE	−3.391	−3.221	−0.710	−0.668
	(−1.38)	(−1.33)	(−0.38)	(−0.36)
Size	−0.057	−0.069	−0.066*	−0.072**
	(−0.63)	(−0.77)	(−1.93)	(−2.13)
AbsROA	−2.875***	−2.906***	−0.547*	−0.538*
	(−3.89)	(−3.97)	(−1.71)	(−1.68)
AbsReturn	−0.001	0.002	−0.014	−0.015
	(−0.01)	(0.06)	(−0.62)	(−0.70)
MTB	0.004	0.003	−0.000	−0.000
	(0.96)	(0.86)	(−0.06)	(−0.03)
Leverage	−0.211	−0.225	−0.208	−0.257*
	(−0.75)	(−0.81)	(−1.30)	(−1.65)
EarnVol	−0.018	−0.016	0.006	0.014
	(−0.40)	(−0.36)	(0.06)	(0.15)
RetVol	−0.691	−0.631	−0.528*	−0.498*
	(−1.23)	(−1.14)	(−1.76)	(−1.67)
ZScore	0.006	0.006	0.004	0.004
	(0.67)	(0.67)	(1.01)	(1.04)
NumAnalysts	−0.123***	−0.089**	−0.021	−0.018
	(−2.71)	(−2.02)	(−0.93)	(−0.77)
FirmAge	−0.297**	−0.303**	−0.145	−0.143*
	(−2.00)	(−2.08)	(−1.61)	(−1.66)
Call Length	0.002	0.006	−0.161	−0.162
	(0.02)	(0.04)	(−1.61)	(−1.62)
Firm FE	Yes	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes
Observations	25,289	25,289	25,246	25,246
Adj. R^2	0.877	0.878	0.824	0.824

This table reports the results of estimating difference-in-difference models in Eq. (2) - (3) with the proportion of ESG sentences in earnings call, *ESG SASB Call*, as the dependent variable. *Low Agreement* columns report results for a sub-sample of observations with Corporate representatives' IWG agreement equal to or below the industry-level median, while *High Agreement* columns report results for a sub-sample of observations with Corporate representatives' IWG agreement above the industry-level median. Firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 8
Industry-specific vs. general ESG disclosures in earnings calls following SASB standards

	ESG All Call	***ESG SASB Call***	***ESG Other Call***
SASB Standards	−0.043	0.183***	−0.226**
	(−0.35)	(2.98)	(−2.05)
AbsUE	−2.765	−2.299	−0.466
	(−0.90)	(−1.38)	(−0.16)
Size	−0.295***	−0.051	−0.245***
	(−3.73)	(−0.98)	(−3.42)
AbsROA	−1.175	−2.071***	0.896
	(−1.51)	(−4.19)	(1.29)
AbsReturn	−0.003	−0.003	0.000
	(−0.08)	(−0.15)	(0.01)
MTB	−0.002	0.003	−0.005
	(−0.42)	(1.02)	(−1.00)
Leverage	−0.940***	−0.229	−0.710***
	(−3.64)	(−1.20)	(−3.02)
EarnVol	−0.047	−0.011	−0.035
	(−1.41)	(−0.27)	(−1.29)
RetVol	−0.636	−0.620*	−0.016
	(−1.19)	(−1.67)	(−0.04)
ZScore	0.001	0.003	−0.002
	(0.10)	(0.69)	(−0.29)
NumAnalysts	−0.009	−0.074***	0.065
	(−0.18)	(−2.97)	(1.47)
FirmAge	−0.234*	−0.227**	−0.008
	(−1.88)	(−2.50)	(−0.08)
Call Length	0.284**	−0.079	0.363***
	(2.06)	(−0.84)	(3.08)
Firm FE	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes
Observations	50,535	50,535	50,535
Adj. R^2	0.623	0.871	0.605

This table reports the results of estimating a difference-in-difference model in Eq. (2) with the proportion of ESG disclosures in earnings calls based on a combined dictionary of ESG terms (i.e., industry and non-industry specific), *ESG All Call*, industry-specific dictionary based on SASB standards, *ESG SASB Call*, and dictionary of ESG terms that are not relevant for a given company industry as per SASB standards, *ESG Other Call*, as dependent variables. Firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 9
ESG disclosures in earnings calls following SASB Standards, conditional on pre-standards levels of industry-specific and non-industry-specific ESG disclosures

		ESG Other Call Pre	
		Low	**High**
ESG SASB Call Pre	**Low**	*ESG SASB Call:* $\alpha_1 = 0.126^{**}$ (2.16) *ESG Other Call:* $\beta_1 = 0.148$ (0.76) N = 15,941	*ESG SASB Call:* $\alpha_1 = 0.124^{***}$ (2.92) *ESG Other Call:* $\beta_1 = -0.618^{***}$ (-2.79) N = 11,898
	High	*ESG SASB Call:* $\alpha_1 = 0.518^{***}$ (2.69) *ESG Other Call:* $\beta_1 = 0.301$ (1.53) N = 12,027	*ESG SASB Call:* $\alpha_1 = -0.060$ (-0.44) *ESG Other Call:* $\beta_1 = -0.538^{**}$ (-2.11) N = 10,669

This table reports coefficient estimates for *SASB Standards* after estimating the following models:

$$ESG\ SASB\ Call_{ijt} = \alpha_0 + \alpha_1 SASB\ Standards_{jt} + \gamma_i + \theta_t + Controls_{ijt} + \epsilon_{ijt},$$

$$ESG\ Other\ Call_{ijt} = \beta_0 + \beta_1 SASB\ Standards_{jt} + \gamma_i + \theta_t + Controls_{ijt} + \epsilon_{ijt}$$

on four mutually exclusive sub-samples of observations based on firms' ESG disclosure strategy prior to SASB standards. {Low, Low} group consists of firms with low industry-specific (as per SASB standards) and low non-industry-specific ESG disclosures prior to SASB standards. {Low, High} group consists of firms with low industry-specific and high non-industry-specific ESG disclosures prior to SASB standards. {High, Low} group consists of firms with high industry-specific and low non-industry-specific ESG disclosures prior to SASB standards. {High, High} group consists of firms with high industry-specific and high non-industry-specific ESG disclosures prior to SASB standards. Firms are assigned into Low and High groups in respective categories based on *ESG SASB Call* and *ESG Other Call* values in the pre-standards period (see Section III.4). Control variables (as in Table 4), firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 10
ESG Disclosures following SASB Standards, Split by Different Parts of the Earnings Call

	Introductory Remarks		***Q&A***		***Executives' Part***		***Analysts' Part***	
SASB Standards	0.252***		0.118**		0.204***		0.130*	
	(2.71)		(2.07)		(2.87)		(1.81)	
Low ESG Pre		0.628***		0.552***		0.573***		0.580***
× *SASB Standards*		(5.52)		(8.63)		(6.44)		(8.22)
AbsUE	−3.366	−3.304	−1.206	−1.131	−3.335*	−3.273*	−3.138	−3.061
	(−1.32)	(−1.30)	(−0.68)	(−0.64)	(−1.71)	(−1.69)	(−1.20)	(−1.18)
Size	−0.128*	−0.141**	0.009	−0.000	−0.087	−0.098*	0.011	0.001
	(−1.83)	(−2.06)	(0.18)	(−0.01)	(−1.52)	(−1.75)	(0.20)	(0.03)
AbsROA	−2.335***	−2.344***	−1.517***	−1.518***	−2.123***	−2.130***	−1.619***	−1.620***
	(−3.20)	(−3.23)	(−3.18)	(−3.20)	(−3.70)	(−3.73)	(−2.67)	(−2.68)
AbsReturn	0.005	0.005	0.011	0.011	0.008	0.008	−0.030	−0.030
	(0.14)	(0.15)	(0.54)	(0.52)	(0.30)	(0.30)	(−0.95)	(−0.95)
MTB	0.006	0.005	0.003	0.003	0.003	0.003	0.003	0.003
	(1.36)	(1.32)	(1.04)	(1.01)	(1.05)	(1.01)	(0.85)	(0.83)
Leverage	−0.194	−0.235	−0.212	−0.246	−0.191	−0.228	−0.306	−0.342
	(−0.71)	(−0.86)	(−1.09)	(−1.29)	(−0.85)	(−1.03)	(−1.44)	(−1.64)
EarnVol	−0.014	−0.012	−0.020	−0.018	0.005	0.006	−0.025	−0.023
	(−0.27)	(−0.23)	(−0.59)	(−0.54)	(0.09)	(0.13)	(−0.60)	(−0.57)
RetVol	−0.147	−0.113	−0.903**	−0.867**	−0.484	−0.452	−0.831	−0.794
	(−0.31)	(−0.24)	(−2.35)	(−2.28)	(−1.13)	(−1.07)	(−1.38)	(−1.33)
ZScore	0.007	0.008	−0.000	0.000	0.006	0.006	−0.006	−0.006
	(0.91)	(0.96)	(−0.01)	(0.07)	(1.02)	(1.08)	(−1.23)	(−1.17)
NumAnalysts	−0.073*	−0.056	−0.019	−0.004	−0.083***	−0.067**	−0.021	−0.006
	(−1.95)	(−1.51)	(−0.82)	(−0.17)	(−2.85)	(−2.37)	(−0.79)	(−0.22)
FirmAge	−0.259**	−0.262***	−0.148	−0.148*	−0.261***	−0.262***	−0.131	−0.131
	(−2.49)	(−2.58)	(−1.63)	(−1.67)	(−2.62)	(−2.70)	(−1.28)	(−1.30)
Call Length	0.501***	0.502***	0.372***	0.372***	−0.052	−0.051	−0.204**	−0.204**
	(3.88)	(3.88)	(4.48)	(4.51)	(−0.46)	(−0.46)	(−2.32)	(−2.33)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	50,535	50,535	50,535	50,535	50,535	50,535	50,535	50,535
Adj. R^2	0.854	0.854	0.795	0.796	0.872	0.872	0.615	0.616

This table reports the results of estimating difference-in-difference models in Eq. (2) - (3) with the proportion of ESG sentences in the introductory remarks and questions and answers (Q&A) sections of the earnings call as well as in the executives' and analysts' parts, *ESG Intro*, *ESG Q&A*, *ESG Exec*, and *ESG Ana*, as dependent variables. Firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 11
Non-GHG Disclosures and SASB Standards.

	ESG Call, excl. Climate Change	
	(1)	(2)
SASB Standards	0.173***	
	(2.82)	
Low ESG Pre × SASB Standards		0.615***
		(5.98)
AbsUE	−2.127	−5.037*
	(−1.28)	(−1.84)
Size	−0.047	−0.123***
	(−0.92)	(−2.86)
AbsROA	−2.023***	3.330***
	(−4.11)	(4.64)
AbsReturn	−0.005	−0.040
	(−0.24)	(−1.19)
MTB	0.002	0.006
	(0.85)	(1.22)
Leverage	−0.205	−0.222
	(−1.08)	(−1.25)
EarnVol	−0.010	0.076***
	(−0.25)	(2.69)
RetVol	−0.597	0.786
	(−1.54)	(1.62)
ZScore	0.004	0.012**
	(0.75)	(2.04)
NumAnalysts	−0.065***	−0.036
	(−2.61)	(−0.71)
FirmAge	−0.224**	−0.079**
	(−2.53)	(−2.06)
Call Length	−0.084	0.011
	(−0.89)	(0.09)
Firm FE	Yes	Yes
Year-Qtr FE	Yes	Yes
Observations	50,535	50,535
Adj. R^2	0.871	0.743

This table reports the results of estimating difference-in-difference models in Eq. (2) - (3) with the proportion of ESG disclosures not related to climate change, *ESG Call, excl. Climate Change* as the dependent variable. Firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.

TABLE 12
Similarity between SASB Standards and Earnings Conference Calls

	Similarity (Earnings Call, SASB Standards)					
SASB Standards	0.335***	0.287***	0.384***			
	(3.48)	(2.98)	(3.59)			
Treated×				0.426***	0.441***	0.504***
SASB Standards				(3.57)	(3.75)	(3.93)
AbsUE		3.635	5.410*		3.657	5.487*
		(1.63)	(1.78)		(1.64)	(1.80)
Size		−0.372***	−0.380***		−0.384***	−0.403***
		(−5.79)	(−5.01)		(−6.00)	(−5.38)
AbsROA		0.230	0.087		0.216	0.084
		(0.45)	(0.13)		(0.42)	(0.13)
AbsReturn		0.004	0.029		0.004	0.032
		(0.13)	(0.67)		(0.15)	(0.75)
MTB		−0.008*	−0.011*		−0.009*	−0.011**
		(−1.74)	(−1.93)		(−1.77)	(−1.97)
Leverage		−0.490**	−0.797***		−0.520**	−0.855***
		(−2.17)	(−3.09)		(−2.30)	(−3.30)
EarnVol		0.069*	0.094**		0.070*	0.094**
		(1.80)	(2.22)		(1.82)	(2.20)
RetVol		0.700*	0.994**		0.718*	1.006**
		(1.84)	(2.07)		(1.89)	(2.08)
ZScore		−0.002	−0.009		−0.001	−0.009
		(−0.25)	(−1.25)		(−0.21)	(−1.18)
NumAnalysts		−0.059	−0.041		−0.047	−0.025
		(−1.64)	(−1.05)		(−1.30)	(−0.64)
FirmAge		−0.156	−0.233*		−0.160	−0.243*
		(−1.38)	(−1.84)		(−1.43)	(−1.94)
Call Length		0.759***	0.841***		0.760***	0.846***
		(6.93)	(6.55)		(6.92)	(6.57)
ESGRating			0.054			0.060*
			(1.48)			(1.66)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year-Qtr FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	50,535	50,535	40,965	50,535	50,535	40,965
Adj. R^2	0.757	0.759	0.762	0.758	0.760	0.762

This table reports the results of estimating difference-in-difference models in Eq. (2) - (3) with *Similarity* as the dependent variable. *Similarity* measures the cosine similarity between a company's earnings conference call and SASB's descriptions of material ESG topics for the company's industry. Firm fixed effects, year-quarter fixed effects and the constant are included in each regression, but are not reported. All variables are defined in Table 2. ***, **, * indicate significance at the 1%, 5%, and 10% levels, respectively, using a two-tailed t-test. Reported T-statistics (in parentheses) are based on a clustering of standard errors at the firm level.