

Human Capital Disclosures*

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Abstract

We explore the recent landscape of quantitative human capital (HC) disclosures for publicly listed U.S. firms. Using a hand-collected sample of disclosures for 2,393 firms, we first provide detailed descriptive evidence about firms' HC disclosure in their ESG reports and 10-K filings. While only 22% of our sample publishes an ESG report, these reports contain much richer HC disclosures than do 10-Ks. Even so, an amendment to Regulation S-K that required firms to disclose more HC information had an economically meaningful effect on disclosure, although many firms seemed to shift information previously disclosed elsewhere. The increase in disclosure in 10-Ks post regulation is driven by metrics on diversity, equity, and inclusion, and employee turnover. Importantly, the amendment is associated with increased value relevance of the disclosures in the post-regulation period but only for firms disclosing financially material metrics in industries where human capital is said to be relevant to investors.

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1 Introduction

Human capital has grown increasingly vital to firms’ operating success.¹ However, firms’ disclosures related to employment and human capital (HC) practices have failed to keep pace. HC information is limited and spread across various regulated (e.g., 10-Ks and Equal Employment Opportunity (EEO) reports) and voluntary (ESG reports) venues.² As a result, there exists no systematic evidence on the HC disclosure practices of public corporations. This paper aims to fill this gap by examining the landscape of HC disclosures for a large sample of U.S. public firms. Our study has three objectives: (1) To provide descriptive evidence on firms’ HC disclosures and how they changed around the 2020 SEC amendment to Regulation S-K (Reg S-K); (2) to understand the determinants of both the decision to disclose quantitative HC information and where to disclose it (i.e., regulatory filings versus voluntary ESG reports); and (3) to assess the value relevance of these disclosures.

We begin by providing comprehensive descriptive evidence on firms’ HC disclosures. Our sample consists of 2,393 publicly traded U.S. firms that have all available data from 2017-2022, our sample period.³ For each firm, we gathered its ESG reports (if any) and its 10-K filings. We then manually parsed each document and extracted all quantitative HC-related metrics disclosed in it, along with their definitions and values. We further assigned each firm to its corresponding Sustainability Accounting Standards Board (SASB) industry and coded whether any of these metrics correspond to the industry-specific quantitative metrics recommended by the SASB methodologies.⁴

We focus our data collection on quantitative HC metrics for three reasons. First, the voluntary disclosure of a metric creates an implicit commitment to further disclose that

¹See [Zingales \(2000\)](#) and [Sun and Xiaolan \(2019\)](#).

²We use the label “ESG report” to refer to these reports as well as those that carry similar names, like “sustainability report.”

³We start from the list of the largest 3,000 listed firms in U.S. capital markets as of December 31, 2021. We then require firms to be incorporated in the United States and to have available financial data throughout our sample period (2017-2021).

⁴See [Grewal et al. \(2021\)](#), [Bochkay et al. \(2022\)](#), and [Rouen et al. \(2022\)](#) on the relevance of SASB metrics.

metric or a similar one in the future (Akerlof, 1970). Second, quantitative metrics are less likely to be boilerplate and more likely to be relevant to investors. Third, much of the regulatory debate around the 2020 SEC regulation revolved around the mandate of specific quantitative human capital metrics (e.g., O’Brien, 2017; SEC, 2020).

We start by examining firms’ ESG reports because these reports constitute the most comprehensive firm-initiated source of sustainability-related information, including on HC practices. We find that only 20% of firms in our sample published an ESG report in 2018. This rate rises steadily to 35% in 2020 before dropping to 27% in 2021. However, this average hides significant heterogeneity: The disclosure rate for S&P500 firms rose from 65% in 2018 to more than 80% in 2020, while only 8% and 25% of non-S&P500 firms published ESG reports in 2018 and 2020, respectively. We next limit our analysis to companies that published an ESG report and examine the content of this document with respect to HC disclosures. We find that almost all reports (90%) provide at least one quantitative HC metric, and more than half of those reports contain at least one industry-specific SASB metric. These rates are stable over time, with a small decrease in 2021.

We then turn to the intensive margin and examine the number of quantitative HC metrics contained in firms’ ESG reports. Overall we find that firms publish about eight unique metrics, including around two industry-specific SASB metrics per report, and that these figures are stable throughout our sample period. The averages again hide substantial heterogeneity, with firms in most sectors disclosing five HC metrics in 2018 while firms from the financials sector and the extractive and minerals sector publish more than 15 unique metrics per year.

Next we classify the metrics into nine categories to explore the nature of the information disclosed. Examining the extensive margin first, we find that around 70% of the firms with an ESG report disclose at least one metric related to diversity, equity, and inclusion (DEI). About 50% of the firms report at least one metric related to our next three categories: health and safety, operations, and turnover. Finally, between 5% and 20% of the firms in our sample with an ESG report disclose at least one metric related to our five remaining

categories: employee engagement, volunteering, unions, compensation, and education. On the intensive margin, we document several interesting patterns. For example, the number of labor relations (unions) metrics doubled during our sample period from 1.5 to three for firms in the financials and the extractive and minerals sectors. Similarly, the number of employee engagement metrics more than doubled to reach more than three unique metrics per ESG report per year in 2021 for firms in the services and financials sectors.

After examining firms' ESG reports, we turn our exploration to 10-K filings. There are two notable differences between these communication venues. First, unlike ESG reports, 10-K filings are mandatory for public firms in our sample. Hence there will be no selection at this stage. Second, in 2020, the Securities Exchange Commission (SEC) mandated principles-based HC disclosures. Effective November 2020, the amendment of Regulation S-K (Reg S-K) required public companies to describe in their 10-K filings their human capital resources and risks. In this amendment, the SEC adopted a principles-based approach to the disclosure and provided firms with latitude to determine materiality and select which, if any, metrics to disclose.

Our descriptive exploration of firms' HC disclosures reveals several interesting patterns. First, we observe that, while fewer than 1% of firms had a section or sub-section titled "Human Capital" in their 10-K filings pre regulation, this rate jumps to more than 85% post regulation. This finding suggests that firms respond to the SEC regulation by organizing their HC disclosures under a header that fits the language of the updated regulation. Second, we find that, while 40% of firms in our sample disclosed at least one quantitative metric pre regulation, this rate increases to 73% post regulation. On average, the disclosing rate is constant over the 2018-2020 (i.e., pre-regulation) period, and almost all of the increase in disclosure at this extensive margin occurs immediately after the regulatory change, with the disclosure level remaining constant in 2022. We also observe a similar pattern for SASB industry-specific quantitative HC disclosure metrics, with the disclosure rate increasing from 10% to 23%.

We next focus on the types of the HC metrics disclosed in firms' 10-K filings and use the same topic classification as for the ESG reports. Unlike our ESG report results, 10-K filings do not provide nearly as many metrics. Still, there is a significant increase in disclosures post Reg S-K, and most of that increase comes in the form of DEI and employee turnover metrics. Both categories of metrics were barely discussed pre regulation (fewer than 2% of 10-Ks), while the post-regulation disclosure rates converge to more than 30% and 20%, respectively. Our remaining six categories (employee engagement, health and safety, compensation, unions, education, and volunteering) experience a modest increase in disclosure rates post regulation.

Examining the intensive disclosure margin and conditioning on firms disclosing at least one metric in a given year, we find that firms disclose, on average, approximately one quantitative metric pre regulation. The average number of unique metrics disclosed by a firm more than doubles to 2.5 post regulation. However, when focusing on quantitative metrics determined by SASB to be financially material, we find that the average number of metrics remains stable at just above one for the entire sample period, suggesting that the entire increase in SASB-related metrics is driven by the extensive margin. This further indicates that, on average, firms are under-reporting SASB metrics (as defined by SASB), given that the average is one metric while SASB recommends an average of four HC metrics per industry. One possible interpretation is that most HC disclosure categories are not perceived as financially material by U.S. listed firms post regulation. Another is that the principles-based nature of the regulation allowed firms to withhold information, due to other frictions or concerns.

In the second part of this study, we examine the characteristics of firms' disclosure choices. We start by examining the decision to disclose an ESG report and to report at least one quantitative HC metric in that report. Our regressions reveal that larger firms and firms with higher institutional ownership are more likely to publish a voluntary report. This finding is consistent with recent studies suggesting that institutional investors are driving the demand

for ESG information while allocating capital accordingly and engaging with companies to induce social and environmental change (e.g., [Azar et al., 2021](#); [Lopez de Silanes et al., 2022](#)). We also find that the recent experience of a labor-related incident increases the probability of publishing ESG reports by 10%. However, these incidents are not associated with issuing a report that contains HC metrics. Combined, these results are consistent with the conjecture that ESG scandals drive the decision to start communicating on the topic, though without providing metrics that would serve as a commitment device ([Christensen et al., 2021](#); [Huang and Lu, 2022](#)).

Examining HC disclosure in 10-K filings, our multivariate tests reveal two interesting patterns. First, we find robust evidence of a negative correlation between firms' profitability (ROA) and the disclosure of quantitative HC metrics for both SASB and non-SASB metrics. This relation suggests the possibility that firms use their disclosure to justify the investment in their organizational capital, which is accounted for in U.S. GAAP as an expense rather than through capitalization, mechanically resulting in lower reported profitability ([Ewens et al., 2021](#)). We also find a robust positive correlation between firms' institutional ownership and the disclosure of quantitative metrics in firms' 10-K filings.

We next test whether firms' 10-K disclosure choices post regulation relate to their disclosure choices pre regulation. We find that firms disclosing HC metrics in their ESG report pre 2020 are 10% more likely to include at least one HC metric in their 10-K filings post 2020. Interestingly, this phenomenon only occurs for non-SASB metrics. Next we consider the role of firms' Equal Employment Opportunity (EEO) filings. Seven percent of the firms in our sample chose not to make their filing confidential in the year before the Reg S-K amendment. Our multivariate analyses suggest that these firms are 15% more likely to include at least one DEI-related HC metric in their 10-K filings post regulation. Given that the disclosure rate of DEI metrics post 2020 is 31%, our result indicates that many firms simply shifted publicly available metrics from their EEO filings to their 10-K filings, presumably because they had already assessed that the disclosure was a net positive for their ability to compete in various

markets. These results are also important because the shift from alternative venues to firms' 10-K filings post regulation suggests that at least part of the patterns we observe is driven by the regulation incentivizing firms to adapt their disclosures rather than simply reflecting confounding events, such as the COVID-19 pandemic and the Black Lives Matter protests (BLM).

Still, it is unclear whether firms' 10-K disclosures complement or substitute for other sorts of disclosures. Conditional on firms having an ESG report, our descriptive evidence reveals that 5% of the firms report no metrics in either their ESG report or their 10-K filings, and that only 7% of them publish at least one metric in their 10-K filings while having no such metrics in their ESG report. We also observe that 42% of the firms that report at least one metric in their ESG report disclose at least one in their 10-K filings while 46% disclose only in their ESG reports. Our univariate evidence further suggests that more profitable firms are less likely to disclose metrics in both their 10-K filings and ESG reports. We also find that larger firms are less likely to disclose metrics in their 10-K filings but more likely to report similar metrics in their ESG reports, consistent with the risk of litigation reducing the amount of information disclosed in regulatory filings (Rouen et al., 2022).

The last part of our paper examines the value relevance of firms' HC metrics disclosed in their 10-K filings.⁵ We examine the three-day absolute returns around the release date of the filing.⁶ We fail to find any correlation between the disclosure of metrics and stock returns around the filing date in the pre-regulation period. After the regulation, though, we find a robust correlation between the disclosure of metrics and stock returns. We further show that this correlation is economically and statistically significant only in the subsample of industries where SASB has identified material HC metrics. Finally, we find that the stock market reaction is significant only for HC metrics defined as material by SASB and

⁵We do not examine the value relevance of ESG reports to investors because a recent study by Burzillo et al. (2022) has already documented that, on average, those reports provide little information to investors.

⁶Given that we are interested not in whether market participants respond to good or bad news but whether they respond to new disclosures, we consider absolute returns an appropriate proxy for the response to the new disclosures (Cready and Hurtt, 2002; Doxey et al., 2021).

not for other metrics. Collectively, we interpret these combined results as evidence that quantitative HC disclosures matter to investors but only in industries where the pertinent issues are material and when firms disclose metrics defined as financially material (SASB metrics). Furthermore, the regulation seems to bring some element of comparability that facilitates investors' consumption of these disclosures.

This paper makes several contributions to the academic literature. First, it helps build a comprehensive overview of firms' HC disclosures. Despite the rapid growth in investments in employees, these investments and their attendant risks have largely been excluded from financial statements (Lev and Schwartz, 1971), leaving academics and practitioners with the difficult task of estimating the value of firms' intangible capital (e.g., Peters and Taylor, 2017; Ewens et al., 2021; Eisfeldt et al., 2022; Regier and Rouen, 2022). We hope that our comprehensive data collection will help close the gap in data availability between tangible and intangible assets.

Second, our results relate to the growing literature on HC disclosures. Recently, Demers et al. (2022), Haslag et al. (2022), and Zhang (2022) have examined long time series of firms' HC disclosures in their regulatory filings and job postings. Our study differs on two important dimensions. First, those studies use natural language processing to capture the tone, length, or quantity of HC-related information. While qualitative information might be useful, quantitative information is more likely to be relevant to stakeholders, given its comparability across firms and time. Therefore we manually collected every HC metric along with their definitions and numerical values. Second, these studies primarily focused on firms' 10-K filings, while we collected information on HC disclosures in firms 10-K filings but also in their ESG reports and EEO filings. This allows us to more comprehensively depict a firm's HC disclosures and to illuminate the dynamics between the different communication venues.

Third, our results contribute to the literature on the economics of disclosure regulation (Leuz and Wysocki, 2016). The low level of HC metrics disclosed pre regulation in 10-K filings

suggests either that these metrics are irrelevant to investors or that information frictions discouraged their disclosure.⁷ Our results suggest that the amendment of Reg S-K may have alleviated some of these frictions and led to an increase in disclosure at the extensive and intensive margins. However, a substantial fraction of firms seem to simply be shifting pre-regulation disclosures located in alternative venues (ESG reports and EEO filings) to their 10-K filings, and most firms still provide much richer information in their ESG reports. These metrics may be reported in ESG reports because firms use these reports to communicate with other relevant stakeholders (Gertner et al., 1988). Alternatively, a principles-based approach may be insufficient to alleviate all the information frictions preventing full disclosure.⁸ Our results further speak to the growing literature dedicated to ESG disclosure mandates, in particular on the “S” dimension of ESG (Christensen et al., 2021).⁹ The studies most related to ours focus on the response to either rules- or principles-based disclosure mandates.¹⁰ Our paper advances this literature by providing early evidence of the comprehensive set of quantitative HC disclosures for almost all publicly traded U.S. firms, along with evidence of their evolution around the principles-based amendment to Regulation S-K.

2 Institutional details

Human capital has become an increasingly important component of firms’ operations (Zingales, 2000; Becker, 2002). While regulators have historically required that firms provide little information about their human capital, investors have begun demanding disclosures of quantitative information about employees in the absence of regulation (e.g., HCMC, 2017). In response, firms have complied, disclosing information in three main venues that are the

⁷See Bourveau et al. (2021), Bochkay et al. (2022), and Rouen et al. (2022) for recent evidence on the role of market forces on voluntary disclosure of financial and nonfinancial information.

⁸While a rules-based approach would lead to more HC disclosure, we caution the reader that our results do not speak to the desirability of such a regulation and that a formal economic evaluation would be necessary.

⁹For studies of environmental disclosure mandates within a single country, see Chen et al. (2018), Jouvenot and Krueger (2021), Bonetti et al. (2022), and Tomar (2022).

¹⁰See Huang and Lu (2022) for rules-based disclosure mandate and Bakke et al. (2022) and She (2022) for principles-based disclosure mandates.

focus of this study: ESG reports, public EEO-1 reports, and 10-Ks.¹¹

2.1 Human capital and ESG reports

ESG reports are among the fastest voluntary disclosures in history. The first ESG report was released in 1997, and, by 2020, 86% of firms in the S&P 500 released a standalone ESG report (Rouen et al., 2022; Serafeim and Yoon, 2022). These reports are largely narrative in nature, and small-scale studies have found that firms avoid discussing negative ESG events or providing targets and performance metrics (Boiral, 2013; Hubbard, 2011). Recent research on ESG ratings highlights the challenges of relying on ESG reports to compare firms' performance. There exists significant disagreement in ESG ratings from different data vendors (Chatterji et al., 2016; Berg et al., 2022). While the disagreement is due, in part, to the subjective nature of the ratings methodologies, the raters' reliance on public information that is selectively disclosed also plays a part (Serafeim and Yoon, 2022; Berg et al., 2022).

Rouen et al. (2022) conduct one of the few large-scale studies of the content in these reports and focus on the text within them, as opposed to quantitative information. They argue that metrics across firms, even within the same industry, are often diffuse, making comparability of performance challenging. Still, to date, there have been no large-scale studies of the choice to disclose quantitative metrics within these reports in general or by focusing on a specific topic (i.e., human capital) and a series of metrics that describe the various aspects of the topic.

¹¹An alternative to publishing a standalone ESG report is to rely on a firm's corporate website to share similar non-financial information. To account for this possibility, we randomly selected 200 firms that did not publish a standalone ESG report before the 2020 SEC regulation and collected information on firms' disclosure of non-financial information on their websites. We find that 94% of firms discuss human capital on their website, but among those firms, only about 13% of them have at least one quantitative metric on their website. We conclude that firms' websites do not appear like a favored venue for firms' human capital disclosures.

2.2 Public disclosure of EEO-1 forms

A second venue for quantitative human capital disclosures is firms' EEO-1 forms. Unlike ESG reports, which are voluntary, U.S.-based firms with more than 100 employees must complete these forms and submit them confidentially to the Equal Employment Opportunity Commission. The forms contain information on the gender and ethnic makeup of the workforce at different job levels, numbers of full- and part-time employees, and salary ranges for employees based on job levels and gender and ethnic makeup.

Despite their confidential nature, firms have increasingly chosen to publicly disclose sections of these reports. From 2020 to 2021, the number of firms in the Russell 1000 releasing at least part of their EEO-1 increased from 4% to 11%.¹² Investors have also increased pressure on firms to release these forms. For example, in 2022, State Street Global Advisors stated that it would “take voting action against chairs of the Nominating Committees at S&P 500 companies that do not disclose EEO-1 reports.”¹³

2.3 Human capital disclosures in the 10-K

Prior to the 2020 amendment of Regulation S-K, there was limited disclosure regulation pertaining to firms' human capital. Since 2005, firms have been required to disclose only the total number of people employed, although there was variation in the disclosure choice, with some firms separately reporting full- and part-time employees and others reporting employees by division as well as information on union representation (SEC, 2020). Beginning in 2017, firms were also required to disclose in their proxy statements the ratio of the CEO's pay to that of the median employee. Although this disclosure was the first that required all publicly traded firms to report information about non-executive compensation, the usefulness of this measure to investors has been questioned (Rouen, 2020).

In August 2020, the SEC voted in favor of amending the required disclosures for three

¹²See the [Just Capital report](#).

¹³See the [State Street stewardship report](#).

items in firms' 10-Ks — disclosures of business, legal proceedings, and risk factors — under Regulation S-K. The new rules, which took effect on November 9, 2020, were the first significant revisions to these items in more than 30 years. The overarching goals of the updates were to modernize disclosures for investors and simplify compliance for filers while improving readability and reducing redundant and immaterial information (SEC, 2020).

While the 2020 amendment required several changes to firms' disclosure practices, the most consequential, and the one that received the most attention, was the change to Item 101(c). Item 101(c) requires firms to report narrative descriptions of their business with a focus on segments that are material to investors and for which financial information is also reported in the financial statements. The item is designed to be principles-based (as opposed to rules-based), meaning that firms have leeway in determining what is materially relevant to investors and how to disclose it.

The amendment adds as a disclosure topic under Item 101(c) “a description of the registrant’s human capital resources to the extent such disclosures would be material to an understanding of the registrant’s business...” (SEC, 2020). Since at least 2017, investors had been urging the SEC to require firms to disclose information about their human capital management practices and the risks they faced as part of a broader push for better ESG-related disclosures (e.g., Sheehan, 2017). The desire for this information came in part because some investors believed that these issues were financially material and in part because the shift to broad institutional holding of shares meant that the primary concern of these diversified investors was systematic risk (Coffee, 2021).

During the public comment period, disagreement emerged about whether a principles-based approach was preferable, with some large investors proposing required quantitative disclosures related to workforce demographics, compensation, diversity, and turnover (e.g., O'Brien, 2017). Two concerns about the principles-based approach were that firms would not disclose sufficiently without standardized metrics and that differing information disclosed by firms could result in investor confusion (O'Brien, 2017; DiNapoli et al., 2022).

Partly in response to these concerns, the final rule identified “various human capital measures and objectives that address the attraction, development, and retention of personnel as non-exclusive examples of subjects that may be material...” (SEC, 2020). In the final rule, the SEC stated that it avoided being more prescriptive because of idiosyncrasies in business models and workforce composition as well as the possibility that human capital management disclosures may evolve (SEC, 2020). Similarly, the commission rejected calls to formally define the term “human capital” because it could have different meanings in different industries and definitions might evolve (SEC, 2020).

3 Data and descriptive statistics

We build our sample starting with the largest 3,000 firms in the Compustat-CRSP universe as of December 31, 2021. We then require these firms to have available market and accounting data covering the fiscal years between 2017 to 2021. As a first step, we collect the firms’ 10-Ks filings for the entire sample period. We downloaded all the 10-Ks from the SEC EDGAR database.¹⁴

Next we develop an industry-specific coding scheme based on the SASB 2018 industry standards to categorize all human capital metrics disclosed in our sample firms’ reports. SASB defines a selection of industry-specific ESG metrics that are materially relevant to investors for each of their 77 Sustainable Industry Classification System (SICS) industries.¹⁵ We read through each industry standard and note all of SASB’s recommended quantitative HC metrics to use in our coding scheme. We then use the SICS Look-up Tool on the SASB website to assign each firm to its primary SICS industry.¹⁶

Equipped with the categorization of firms by their SICS industry, we manually parse each company’s 10-Ks filings to identify the type and measure of quantitative HC disclosures. We

¹⁴Our sample period covers the period 2017-2021 and the corresponding 10-K filing dates lie in 2018-2022.

¹⁵For example, SASB recommends the disclosure of the “percentage of restaurant employees earning minimum wage, by region” for firms in the restaurant industry, while it recommends firms in the chemicals industry disclose the “total recordable incident rate and fatality rate for [direct and contract] employees.”

¹⁶[SASB industry lookup tool](#)

do this for all available 10-Ks filed in 2018-2022. In the 10-Ks, after the 2020 regulation, the relevant human capital disclosures are contained in Item 101(c). In the pre-regulation period, the disclosures are not consistently reported in a specific section of the 10-K, although most of the disclosures are contained in “Item 1 (Business).” From these collected metrics, we manually identify which, if any, SASB metrics the companies disclose in their 10-Ks. We collect this information for all firms in industries for which the SASB identifies at least one recommended HC metric. A full list of SICs industries and whether the SASB provides at least one suggested metric for that industry are shown in Appendix 4.

We also collect data on the total number of employees, the subheading under which firms report their HC disclosures, and the name and definition of any other (non-SASB) quantitative metrics disclosed. We collect these data for the full sample, including industries for which there are no recommended SASB HC metrics. While we create a comprehensive dataset of firm-level HC disclosures, we exclude from our analysis the quantitative measure of total number of employees, since the SEC required this disclosure for all firms prior to our sample period. Additionally, we exclude two other quantitative metrics, the breakdown of employees by unionization status and the breakdown of employees by geography, because these metrics were widely disclosed prior to the regulation and showed only modest increases in the post-regulation period (Batish et al., 2021). We then assign each of our metrics to one of nine categories: DEI, operating metrics, compensation, recruitment and turnover, health and safety, labor relations and unions, employee engagement, volunteering, and employee education. We define these nine categories based off of the SASB’s broad topic categories used in its industry standards. In Appendices 1 and 2, we provide separate examples from ESG reports and 10-Ks, respectively, of quantitative disclosures for each of the nine categories and contrast them with examples of qualitative disclosures for the same categories. These examples illustrate that, compared to qualitative disclosures, quantitative ones are more informative for investors and facilitate the commitment mechanism of disclosure.¹⁷

¹⁷Qualitative discussion about risk factors are often seen as boilerplate and uninformative. In the context of COVID-19, Schoenfeld (2020) finds that firms’ stock returns drop, on average, by the same magnitude for

Having collected a comprehensive coding of firms’ quantitative HC disclosures in their 10-K filings, the next step in our data collection repeats the manual coding for all available ESG reports for our sample firms. Because the disclosure of ESG reports is voluntary, firms do not disclose an ESG report consistently every year. To collect the reports, we first identify whether the ESG reports exist by manually checking firms’ websites for them. We supplement this process by searching the Responsibility Reports database to collect reports unavailable on firms’ websites. Once we have collected all available ESG reports for the firms in our sample, we use the same industry-specific coding scheme that we did with the firms’ 10-K filings and use an identical process to code the relevant HC metrics in firms’ ESG reports. In the ESG reports, which do not follow a standardized format, like the 10-Ks do, we search for the relevant HC metrics in the data appendix section and specific sections likely to contain relevant disclosures, such as those titled “social,” “people,” and “stakeholders.”

In the last step of our data collection, we supplement our coded HC disclosure data with data collected from another source of voluntary disclosure: EEO-1 reports for the subset of firms that voluntarily disclose them. We only collect 2018 EEO-1 reports, since these serve as a proxy for pre-regulation voluntary disclosure of HC metrics and the disclosure decision in the pre-regulation period is sticky (i.e., firms that disclose this information prior to 2020 are also likely to do so from 2020 onward). One challenge associated with the collection of these reports is that firms rarely maintain past EEO-1 reports on their websites, even if they were previously disclosed. Therefore we use the Wayback Machine to browse firms’ websites and manually collect publicly disclosed EEO-1 reports.¹⁸ Note that firms sometimes disclose EEO-1 report details in their ESG reports. To ensure comprehensive collection of EEO-1 disclosures, we manually check all ESG reports to collect any EEO-1 reports disclosed there.

Our final sample of 10-Ks consists of 2,393 unique firms and 10,505 firm-year observa-

firms with and without disclosure about the risk of a global pandemic in “Item 1A” of their annual report. More generally, another recent study by [Cazier et al. \(2021\)](#) suggests that firms’ risk factor disclosures in 10-K filings are lengthy and boilerplate and primarily serve to reduce firms’ litigation risk.

¹⁸Recent studies have successfully started to rely on the Wayback Machine to track and collect firms’ historical disclosures (e.g., [Boulland et al., 2019](#); [Chen et al., 2021](#)).

tions, while the sample of the ESG reports contains 1,175 unique firms and 2,422 firm-year observations. For these firms, we collect data for our control variables from CRSP, Thomson Reuter’s 13F database, and Compustat. We additionally collect data on unemployment from the Bureau of Labor Statistics (BLS).

Summary statistics on our main variables of interest are shown in [Table 1](#). Across the sample of 10-Ks, 56% of firm-years disclose at least one quantitative metric but only 19% of firm years disclose at least one quantitative metric designated by SASB as financially material to their industry. On average firms disclose 1.01 (0.22) non-SASB (SASB) metrics in their 10-Ks, and 67% of firms in the 10-K sample are in industries where SASB offers guidance on HC disclosures. In contrast, the sample of the ESG reports shows that 88% of firm-years disclose at least one quantitative metric and 51% of firm-years disclose at least one SASB-specified metric. Firms disclose 7.35 (1.09) non-SASB (SASB) metrics on average. Appendix 3 provides detailed variable descriptions.

[Table 2](#) reports the correlation matrix for our variables of interest. Firms with higher operating expenses, as measured by COGS/Sales, are significantly more likely to disclose metrics, as are those in more concentrated industries (HHI) (specifically non-SASB metrics). Accounting performance, as measured by ROA, is significantly negatively associated with disclosing non-SASB metrics but positively associated with disclosing SASB metrics. We explore these relations in more detail in multivariate regressions, described in Section 4.

4 The human capital disclosure landscape

We begin our analysis by providing descriptive large-scale evidence of quantitative disclosures related to human capital. We focus on two venues, ESG reports and 10-Ks, because they are the main ways firms report HC metrics. While reported mostly confidentially, EEO-1 forms are a third venue of HC capital information and one that firms have increasingly made public. In a later analysis, we examine how the release of these reports relates to

characteristics of other HC disclosures.

4.1 Human capital metrics in ESG reports

Firms' ESG reports are a natural starting point for our investigation because they are the most comprehensive firm-initiated source of ESG-related information. [Figure 1](#) reports the percentage of firm-years in our sample that released a standalone ESG report. In 2018, only 20% of firms in our sample published a ESG report, but this rate increased monotonically to 35% in 2020.¹⁹ However, this average rate hides tremendous heterogeneity in the disclosure choice. For the largest firms in our sample, those in the S&P500, the disclosure rate rose from 65% in 2018 to more than 80% in 2020, a finding similar to that of [Rouen et al. \(2022\)](#). Only 8% and 25% of non-S&P500 firms in our sample published an ESG report in 2018 and 2020, respectively.

We find that this increasing disclosure pattern across time is similar for the 11 SASB sectors, although there exists variation in the overall percentage of firms disclosing within a sector. As we report in [Figure 2](#), the food and beverage (services) sector had the highest (lowest) disclosure rate in 2018, with more than 35% (fewer than 15%) of firms disclosing. The renewable resources sector experienced the greatest increase in the percentage of disclosing firms, growing from 20% in 2018 to more than 60% in 2020.

Having documented the growth in ESG reports during our sample period, we next examine time trends for the disclosure of HC metrics within these reports, examining statistics only for firms that disclosed an ESG report. [Figure 3](#) shows that ESG reports are a popular venue for disclosing this quantitative information. Throughout the sample period, approximately 90% of all reports contained at least one HC metric, and more than half of all firm-years disclosed at least one metric that SASB identified as being financially material within the firm's sector. As reported in [Figure 4](#), these patterns are similar across our 11

¹⁹We find that many of the firms that published ESG reports in 2020 had yet to release a 2021 report by September 2021, a finding that has also been documented by other academic studies ([Rouen et al., 2022](#), e.g.).

sectors, despite some initial differences: 70% of firms in the services sector reported a metric in 2018, compared to 100% for the renewable resources sector).

Given the frequency with which firms include human capital metrics, natural next questions are how many metrics are firms disclosing and what aspects of human capital are being measured in ESG reports. We examine these questions by continuing to focus on the large subset of firm-years that included at least one HC metric in their ESG reports.

Figure 5 documents that firms, on average, report slightly more than eight metrics in their reports, and the number of sector-specific SASB metrics has increased slightly, from just below two in 2018 to just above two in 2021. Figure 6, though, reveals significant heterogeneity at the sector level. The financials sector had an average of more than 15 metrics in 2018 and more than 20 in 2020, while the consumer goods and services sectors had fewer than five metrics in all years.

Turning to the aspects of human capital that are being measured, Figure 7 reveals that, in all years, at least 70% of firms reported at least one metric related to DEI, and approximately 50% of firms reported at least one metric related to our next three categories: health and safety, operations, and turnover. Between 5% and 20% of the firms in our sample with an ESG report disclosed at least one metric related to our 5 remaining categories: employee engagement, volunteering, unions, compensation, and education.

Again, there is significant sector heterogeneity in the types of metrics being disclosed, as we show in our next series of figures. Metrics related to labor relations (unions) saw significant variation across time. Figure 8 reports that the number of labor relations metrics doubled during our sample period from 1.5 to three for firms in the financials and the extractive and minerals sectors. By 2020, almost 80% of financials firms reported a DEI metric, compared to fewer than 20% in consumer goods, as reported in Figure 9. Figure 10 shows that the average number of employee engagement metrics more than doubled to 3.5 from 2018 to 2021 for the services sector, while it remained below two for the extractive and minerals sector. Similar to DEI metrics, the average number of recruitment and turnover

metrics in the financials sector increased from six in 2018 to almost 10 in 2021, as reported in [Figure 11](#), while most other sectors reported fewer than two metrics across all years. [Figure 12](#) reports the average number of health and safety metrics by industry. Perhaps unsurprisingly, the extractives and minerals sector had the most metrics on this topic, growing from 4.5 in 2018 to 5.5 in 2021. Most other industries saw little change in the average number of health and safety metrics, ranging from one to three, but the services sector saw a jump from one to almost three metrics on average from 2020 to 2021.

While these graphs are descriptive, they do provide compelling evidence that firms use their ESG reports as the primary conduits for disclosing measures of human capital, although there exists significant variation both in the quantity of disclosures and in their content.

4.2 Human capital metrics in 10-K filings

Until recently, firms received little guidance on what, if any, HC information should be disclosed in regulatory filings. That changed in 2020 when the SEC approved a mandate requiring principles-based human capital disclosures. Besides being mandated by regulators, the 10-K differs from ESG reports in our analysis because our sample period allows us to document the changes in 10-K disclosures pre and post regulation, providing insights into how firms' disclosure choices shifted. In this section, we document the frequency of HC metrics in 10-Ks, as well as the concepts that those metrics capture.

We begin by examining whether firms explicitly devote a section of their 10-K to the discussion of HC issues. [Figure 13](#) shows a dramatic change in the proportion of firms devoting a section or sub-section of the 10-K to human capital. Prior to the amendment of Reg-SK, fewer than 1% of firms had a section or sub-section titled "Human Capital" in their 10-K filings. This rate jumps to more than 85% post regulation. This finding suggests that firms responded to the regulation by organizing their HC disclosures under a header that fits the language of the updated regulation.

We next examine whether the amendment of Reg-SK corresponded with an increase in

HC metrics disclosed. As shown in [Figure 14](#), 40% of firms in our sample disclosed at least one quantitative metric pre regulation, but this rate increases to 73% post regulation. On average, the disclosing rate is constant over the 2018-2020 (i.e., pre-regulation) period, and almost all of the increase in disclosure at this extensive margin occurs immediately after the change in regulation (10-Ks filed from November 2020 to November 2021), with the disclosure level remaining constant in 2022. We also observe a similar pattern for SASB industry-specific quantitative HC disclosure metrics, with the disclosure rate increasing from 10% to 23%.

Turning to the nature of the HC metrics disclosed in firms' 10-K filings, we disaggregate these findings in a manner similar to what was done above for ESG reports in Section 4.1 to better understand the heterogeneity of the disclosures. Unlike the ESG reports, 10-K filings do not provide nearly as many HC metrics. In [Figure 15](#), we observe that the vast majority of the pre-regulation HC metrics pertain to firms' operations. That is, firms share metrics, such as the breakdown of their employees across location, segment, and contract types (full-time versus part-time). The disclosure rate for this category displays a moderate increase from 34% pre regulation to 41% post regulation. Most of the increase in HC disclosure induced by the update of Regulation S-K happens through DEI and employee turnover metrics. Both metrics were barely discussed quantitatively pre regulation (fewer than 2% of 10-Ks), while the post-regulation disclosure rates converge to more than 30% and 20%, respectively. Our remaining six categories (employee engagement, health and safety, compensation, unions, education, and volunteering) experience a modest increase in disclosure rates post regulation.

While the disclosure of DEI and employee turnover metrics sharply increased post regulation, we caution the reader not to interpret these patterns as causal evidence of the impact of the regulation itself. Instead confounding events, such as the Black Live Matters (BLM) protests and the Covid-19 pandemic, likely made those topics relevant to investors as well, inducing disclosures in firms' 10-K filings.

Next, in [Figure 16](#), we examine the percentage of firms by sector disclosing quantita-

tive metrics over time. While the financials and resource transformation sectors exhibit the greatest increase in quantitative disclosures, 10 out of the 11 sectors exhibit a similar pattern, with a steady percentage of firms reporting quantitative metrics in the pre-period, followed by a large increase immediately after the amendment. The one exception is the transportation sector, which had a high percentage of firms with quantitative information in the pre-period and a similar level in the post-period. One potential explanation for this is that this industry has among the highest union representation of all industries, and union-related disclosures could account for this pre-regulation disclosure rate.

Firms' 10-Ks are not the only venue through which firms must disclose HC information. Both the Equal Employment Opportunity Commission and the Occupational Health and Safety Administration (OSHA) require firms to report information on their workforces, either confidentially or in public filings. We next examine whether the regulation results in an increase in metrics unique to the 10-K (i.e., not reported to other government agencies) and whether firms choose to introduce information disclosed elsewhere into the 10-K. We find that the regulation impacted the reporting decision for both types of metrics. The black solid line in [Figure 17](#) shows that almost 40% of firms that disclosed at least one quantitative metric in the pre-period reported a metric that is not required to be measured elsewhere, and the number of firms disclosing unique metrics increased by 50% in the post-period to 60% of all firms. Metrics from other venues experienced a more dramatic increase, albeit from a low base. Prior to the amendment, almost no firms disclosed metrics required by other agencies (red dashed line), but, by 2022, more than 30% did so.

We next examine whether firms disclosed DEI metrics and made public their EEO-1 reports. We focus on DEI-related metrics because they most closely correspond to metrics reported in firms' EEO-1 reports. We split our sample between firms that publicly disclosed their reports in 2018 (7% of the sample) and those that consistently redacted this information from the public repository (93% of the sample).²⁰ In [Figure 18](#), we find that both

²⁰We include in the pre-period only firms that disclosed their EEO-1 reports in 2018, since both the 2019 and 2020 reports had to be submitted to the EEOC by November 2021, after the passage of the regulation.

groups of firms were reporting virtually no quantitative DEI metrics in their 10-K filings pre regulation. Interestingly the percentage of firms disclosing quantitative DEI metrics post regulation is 10 percentage points higher for the firms that were publicly reporting their EEO-1 reports. This indicates that firms are more likely to disclose when they were disclosing similar information voluntarily through another venue pre regulation, presumably because it was beneficial to them. Taken together, these graphs provide additional evidence of the impact of the amendment to Reg S-K on firms' disclosure choices, with firms increasing both unique metrics as well as those that were already disclosed elsewhere.

Having provided evidence about HC disclosures in the 10-K at the extensive margin, we conclude our descriptive exploration by turning to the intensive margin, examining the change in the number of quantitative metrics disclosed by the subset of firms that disclosed at least one quantitative metric prior to the amendment. As presented in [Figure 19](#), the average number of unique metrics disclosed by a firm doubles to 2.5 post regulation, as shown by the solid black line. However, the dashed red line reports the time series for metrics disclosed by firms that SASB deems to be material to investors. We see no change in this reporting choice, with firms reporting, on average, approximately one SASB metric in both the pre- and post-period. Next we split our sample between firms that disclosed quantitative metrics pre regulation and those that started doing so only post regulation and report their disclosure behavior in [Figure 20](#). Our results show that both groups increase the number of non-SASB metrics disclosed post regulation. However, the group disclosing pre regulation discloses, on average, 2.25 metrics in 2022, relative to only 1.75 on average for the other group in the same year. As for SASB metrics, the disclosure level is constant pre to post regulation for the early disclosers, consistent with the commitment mechanism of voluntary disclosure ([Leuz and Verrecchia, 2000](#)).

Overall this suggests that, for non-SASB metrics, the increase in disclosure post regulation happened at both the extensive and intensive margins, while it occurred exclusively at the extensive margins for SASB metrics. This also indicates that the principles-based

amendment to Reg S-K was likely unsuccessful at inducing firms to disclose all of their financially material HC metrics since the SASB methodologies recommend, on average, up to four metrics per industry.

5 The determinants of firms' HC metrics

In the second part of this study, we examine the characteristics associated with firms' disclosure choices in their ESG reports and 10-K filings. We start our determinant analyses with firms' ESG report disclosure choices and tabulate our results in [Table 3](#). In the first three columns, our dependent variable is an indicator that takes a value of one if a firm publishes an ESG report in a given year and zero otherwise. In the next three columns, our dependent variable is an indicator that takes a value of one if a firm publishes an ESG report in a given year and that report contains at least one quantitative metric related to human capital and zero otherwise. Throughout columns (1) to (6), our OLS regressions reveal that larger firms are more likely to publish a voluntary report and this report is likely to contain some HC metrics. This is consistent with market participants initially demanding nonfinancial information from the largest firms. Our regressions also reveal that firms with higher institutional ownership are more likely to publish an ESG report. This finding is consistent with recent studies suggesting that institutional investors are driving the demand for ESG information while allocating capital accordingly and engaging with companies to induce social and environmental change (e.g., [Azar et al., 2021](#); [Bourveau et al., 2022](#); [Lopez de Silanes et al., 2022](#)).²¹

We also find that the recent experience of a negative labor-related incident increases the probability of publishing a ESG reports by 10%, consistent with scandals from “bad” ESG firms driving the decision to start issuing an ESG report ([Christensen et al., 2021](#); [Huang and Lu, 2022](#)). Interestingly, such incidents are not correlated with the presence of metrics

²¹This result is also consistent with studies showing that both active and passive investors affect firms' voluntary disclosure choices (e.g., [Boone and White, 2015](#); [Bourveau and Schoenfeld, 2017](#); [Schoenfeld, 2017](#)).

in firms' ESG reports, suggesting that, while these firms responded to a scandal by communicating on the topic, they did not include relevant metrics to track their performance going forward. Using the consumer goods sector from the SASB classification as a benchmark, we find very little variation in disclosure rate across industries (see columns (3) and (6)). There are two notable exceptions. Firms in the renewable resources and the infrastructure sectors are more likely to disclose. As suggested by our univariate evidence in Section 4, there is more variation across industries when it comes to quantitative HC disclosure. Relative to the consumer goods sector, the following four sectors (out of 10) are more likely to have at least one quantitative metric in their ESG reports: extractives and minerals processing, healthcare, renewable resources, and resource transformation.

We next turn to firms' 10-K filings. Our multivariate tests, tabulated in [Table 4](#), reveal two interesting patterns. First, we find robust evidence of a negative correlation between firms' profitability (ROA) and the disclosure of quantitative HC metrics for both SASB and non-SASB metrics. This relation suggests the possibility that firms use their disclosure to justify the investment in their organizational capital, which is accounted for in U.S. GAAP as an expense rather than through capitalization, mechanically resulting in lower reported profitability ([Ewens et al., 2021](#)). Similar to our results pertaining to ESG reports, we also find a robust positive correlation between firms' institutional ownership and the disclosure of quantitative metrics in firms' 10-K filings.

We next test whether firms' 10-K disclosure choices post regulation relate to their disclosure choices pre regulation. We report our results in [Table 5](#). In column (1), we find that firms disclosing HC metrics in their ESG report pre 2020 are 10% more likely to include at least one HC metric in their 10-K filings post 2020. In column (2), this result is robust to including time and industry fixed effects. Interestingly, our results in columns (3) to (6) suggest that this phenomenon is only occurring for non-SASB metrics.

Next we consider the role of firms' Equal Employment Opportunity (EEO) filings. Seven percent of the firms in our sample chose not to make their filing confidential in the year before

the Reg S-K amendment. Our multivariate analyses suggest that these firms are 15% more likely to include at least one DEI-related HC metric in their 10-K filings post regulation. Given that the disclosure rate of DEI metrics post 2020 is 31%, our result indicates that a substantial fraction of firms in our sample simply shifted publicly available metrics from their EEO filings to their 10-K filings. This presumably happened because these firms had already assessed that disclosure was net positive to compete in various markets (e.g., capital and labor markets). These two cross-sectional results are also important because the shift from alternative venues to firms' 10-K filings post regulation suggests that at least part of the 10-K disclosure patterns described in Section 4 is driven by the regulation incentivizing firms to adapt their disclosure in filings geared toward investors rather than from confounding events, such as the COVID-19 pandemic and the Black Lives Matter protests.

Finally, we attempt to document how firms' disclosure rates of metrics differ within a firm between its ESG report and its 10-K filings. To do so, in [Table 6](#), we tabulate the proportion of firms that, conditional on disclosing both reports, disclose at least one metric in either the 10-K or ESG report, both reports, or neither. In Panel A, we document that 93% of firms that disclose both a 10-K filing and an ESG report also disclose at least one quantitative metric in at least one of these reports. Interestingly, while we document that a substantial share of firms disclose at least one quantitative metric (either SASB or non-SASB) in both their 10-K and ESG Reports (42%), the proportion for the disclosure of at least one SASB Metric in both reports is significantly lower (9%).

We further split the sample along size and performance dimensions, respectively. In Panel B, we conduct a split on firm size, separately examining firms in the S&P 500 and those not in this index. We find a consistent pattern suggesting that, in terms of joint disclosure, firm size is associated with a higher likelihood that the firm discloses at least one metric in its ESG report, consistent with the previous finding in [Table 3](#) and reinforcing the importance of firm size on firms' disclosure in their ESG reports. For example, we find that 53% of firms in the S&P 500 sample disclose at least one metric only in their ESG report, compared to

only 40% of non-S&P 500 firm doing so. Additionally, we find that firm size is associated with a lower likelihood of a firm not disclosing through either channel. We document that, while 4% of S&P 500 firms do not disclose any metrics in either report, 6% of non-S&P 500 firms do so. This trend is starker when considering DEI metrics, where only 17% of S&P 500 firms do not disclose a metric in either report, compared to 30% of non-S&P 500 firms. We document similar patterns across other categories of metrics, including turnover and health and safety metrics.

In Panel C, we repeat the same exercise but split the sample based on performance using the median ROA as a cutoff point. Firms with ROA below the median are more likely to disclose at least one metric in both reports and more likely to disclose at least one metric solely in their 10-K report. While 40% of above-median ROA firms disclose at least one metric in both the 10-K and ESG report, 46% of below-median ROA firms do so. Additionally, we find that these firms are more likely to disclose at least one metric in either report. The only category for which above-median ROA firms exhibit a higher proportionate disclosure is for those firms solely disclosing in their ESG reports. While 49% of above-median-ROA firms disclose at least one metric solely in their ESG report, only 42% of below-median-ROA firms do so. This finding is consistent with the interpretation from our multivariate analyses suggesting that poorly performing firms may use disclosure to justify the investment in their organizational capital. We also document similar trends for the most relevant types of metrics for these purposes: DEI, turnover, and operating metrics. The findings from the univariate joint disclosure results suggest that the 10-K report may be a more effective channel than the ESG report for poorly performing firms to justify their investments in organizational capital. It is also consistent with 10-K filings serving primarily as a communication tool to investors, while ESG reports might be geared toward a broader audience.

6 The value relevance of firms' HC metrics

Having described firms' HC disclosure choices in their ESG reports and 10-K filings (Section 4) and identified some determinants of these disclosure choices (Section 5), our third and last objective is to understand whether human capital metrics became more relevant to investors after the amendment to Reg S-K. To do so, we examine the market reaction to these disclosures. We concentrate on 10-K filings and do not analyze the market reaction to ESG reports because a recent study by [Burzillo et al. \(2022\)](#) failed, on average, to find a market reaction around the release of ESG reports. We examine the three-day returns (both raw and market-adjusted) around the release of the 10-K during our sample period. 10-K filings have the advantages of having an easily identifiable release date and being directed toward investors (as opposed to broader stakeholders for ESG reports). Given that the disclosed information can be good or bad news for investors and given the challenge of judging the news, we consider the absolute value of returns rather than actual returns as a way to study the magnitude of the market effect without requiring price to react in a certain direction ([Cready and Hurtt, 2002](#); [Doxey et al., 2021](#)). To calculate market-adjusted returns, we use the CRSP value-weighted index as our market return proxy.

In [Table 7](#), we tabulate our multivariate results pertaining to the decision to disclose any quantitative measures. The coefficient on *Any Quant*, an indicator equal to one if the 10-K contains a quantitative metric and 0 otherwise, is negative and insignificant in all but one specification. This suggests that, pre regulation, market participants do not perceive HC disclosure in 10-K filings as relevant. When examining the full sample in columns (1) and (2), the coefficient on *Post x Any Quant*, which represents the differential relation between quantitative disclosures and absolute returns after regulation, the coefficients are both positive and statistically significant, although the economic magnitudes are small. When focusing only the subsample of firms in industries where SASB provides guidance on HC disclosure (i.e., industries that are deemed by SASB to have financially material HC metrics), both statistical and economic significance increase. In Column (3), the results suggest that the

absolute value of the three-day market return when firms disclose metrics in the post-period is 1%. These results do not hold for the subsample of firms where SASB offers no guidance on material HC metrics. As reported in columns (5) and (6), the coefficients on the interaction terms are statistically insignificant, and the actual returns are, on average, near 0.

In [Table 8](#), we explore the market reaction to these disclosures by examining whether this reaction differs for SASB-defined metrics versus other metrics disclosed by firms.²² Columns (1) and (2) report the market reaction to non-SASB disclosures for the full sample, and the evidence is statistically inconsistent and economically small. Turning to the subsample of firms in industries with SASB guidance, we find strong evidence of a market reaction to quantitative disclosures after regulation, with absolute raw (market-adjusted) returns of 1.3% (1.1%), on average, as reported in columns (3) and (4). For firms in these industries that disclose metrics but not ones deemed material by SASB, we fail to find similar results. As reported in columns (5) and (6), the coefficients on the interaction terms are statistically insignificant. While we urge caution in interpreting these results, given the challenge of attributing market reactions around the release of the 10-K to a specific disclosure, one potential explanation for our results is as follows. The increase in quantitative disclosures as a result of the amendment of Reg S-K allowed for more comparability of human capital management and risk across firms. This increased comparability of HC information served as a decision-making tool for investors upon the release of the information. This result is potentially important for regulators, given that investors do not necessarily seem to react to financially material ESG information (e.g., SASB metrics) released outside of regulatory filings ([Christensen et al., 2017](#); [Burzillo et al., 2022](#)).

²²Studies have empirically confirmed that SASB metrics were financially material (e.g., [Grewal et al., 2021](#); [Spandel et al., 2022](#)).

7 Conclusion and discussion

Human capital has become an increasingly important component of the economy ([Zingales, 2000](#)). In response, market participants have demanded more HC information, and regulators have begun responding by increasing what firms must disclose about their human capital strategy and risk in their regulatory filings. This paper examines the recent HC disclosure landscape for a large majority of publicly traded U.S. firms. Using a hand-collected sample of *all* quantitative HC disclosures from 2017-2021, we provide comprehensive descriptive evidence on the metrics disclosed in ESG reports and 10-K filings, along with characteristics associated with these disclosure choices. We also provide evidence of the value relevance of these disclosures but only after the regulation took effect, suggesting that there is a need for a level of comparability for investors to act on this new information.

This last finding is particularly relevant given the current regulatory landscape. Despite the evidence in this paper of the potential efficacy of the Reg S-K amendment in increasing HC disclosure, evidence suggests that market participants were not satisfied with its principles-based approach. The SEC is exploring the possibility of requiring additional quantitative HC disclosures [SEC \(2021\)](#). In Appendix 5, we provide additional evidence of this post-amendment demand. Examining 656 comment letters pertaining to the SEC's new climate disclosure regulation that were received between March 2021 and February 2022, we find that 20% of these letters contained requests for disclosures related to human capital, even though the new rule was unrelated to human capital. The requests for these disclosures were driven by institutional investors and nonprofit organizations, suggesting that diverse stakeholders have interest in this information. In general, almost half of the letters discussing human capital requested more quantitative data, with a quarter of the letters specifically asking for the public release of firms' Equal Employment Opportunity (EEO-1) filings.

The goal of this paper was to provide an overview of the landscape of quantitative HC disclosures and how they have changed in response to regulation. While firms increased these disclosures in recent years, the efficacy of this increase remains unclear. We have been

careful to avoid making policy recommendations, but we believe that future research can assist regulators by examining the economic consequences of the amendment to Reg S-K as well as the potential consequences of future regulation. Given the broad umbrella of HC metrics (e.g., DEI, retention, operations), it remains important to understand what types of metrics could be useful to market participants and how they can inform decision-making.

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Figure 1: Firms Disclosing ESG Report

This figure shows the proportion of firms that disclosed an ESG report over time. *Year* refers to the year covered by the ESG report. This figure shows that around 20% of firms disclosed an ESG report in 2018, with the proportion growing to 38% in 2020.

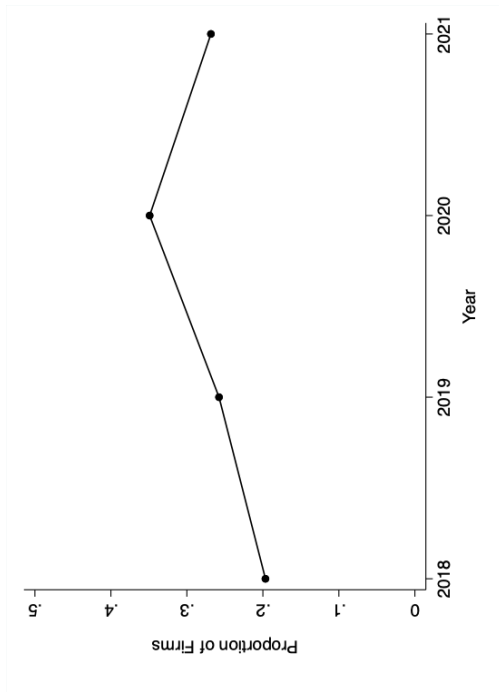


Figure 3: Firms Disclosing Metrics in ESG Report

This figure shows the proportion of firms that disclosed any quantitative metric in their ESG report and the proportion of firms disclosing a SASB recommended metric in their ESG report. *Year* refers to the year covered by the ESG Report. The definition of “Quantitative metric” is any type of numerical disclosure, with the exception of workforce unionization breakdowns and geographical breakdowns.

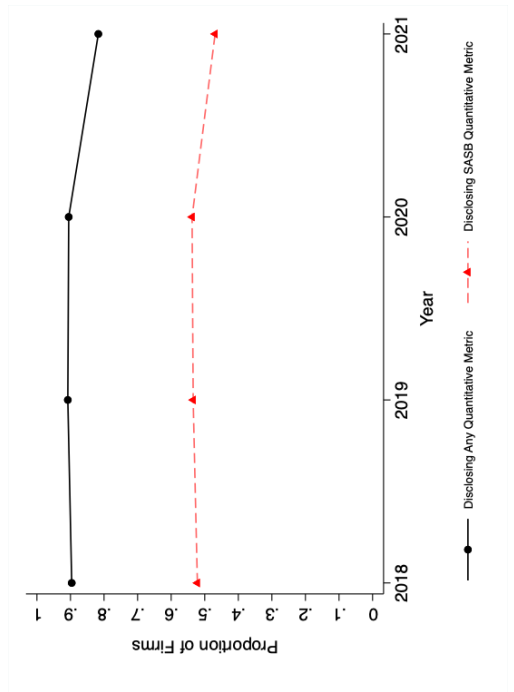


Figure 2: Firms Disclosing ESG Report (by Sector)

This figure shows the proportion of firms that disclosed an ESG report over time for each of the 11 SASB Sectors. *Year* refers to the year covered by the ESG Report.

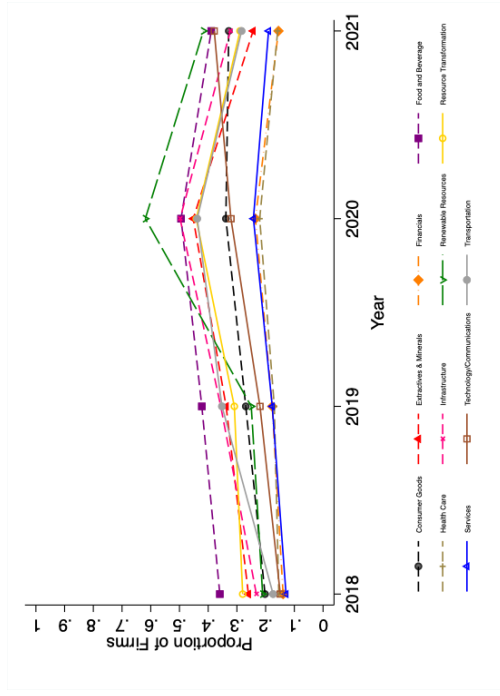


Figure 4: Firms With Metrics in ESG Report (by Sector)

This figure shows the proportion of firms that disclosed at least one quantitative metric in their ESG report and the proportion of firms disclosing a SASB recommended metric in their ESG report for each of the 11 SASB Sectors. *Year* refers to the year covered by the ESG report. The definition of “Quantitative metric” is any type of numerical disclosure, with the exception of workforce unionization breakdowns and geographical breakdowns.

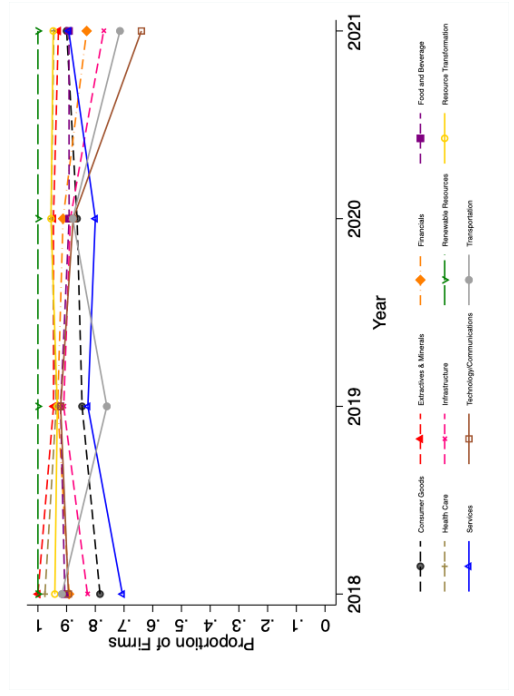


Figure 5: Number of Metrics Disclosed in ESG Report

This figure shows the average number of quantitative metrics disclosed in firms' ESG reports for the years 2018 to 2021, conditional on firms disclosing an ESG report. The solid black line maps the average number of Non-SASB metrics, whereas the red dashed line captures the average number of SASB metrics disclosed.

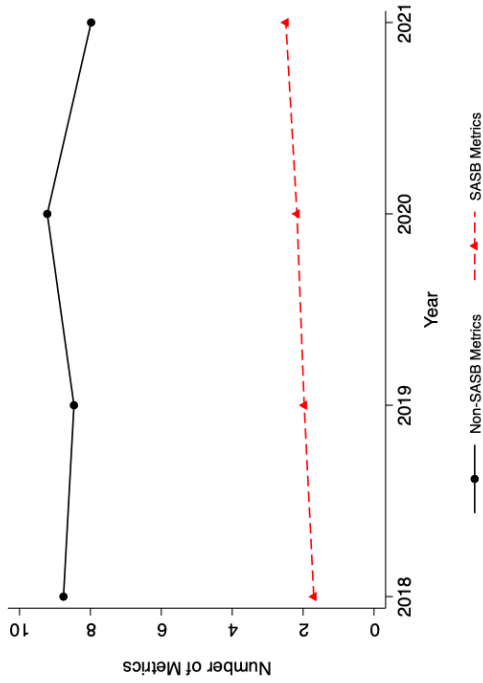


Figure 7: Firms with Metrics in ESG Report (by Topic)

This figure shows the proportion of firms disclosing at least one quantitative metric in their ESG report for the years 2018 to 2021 broken down by nine distinct topic categories.

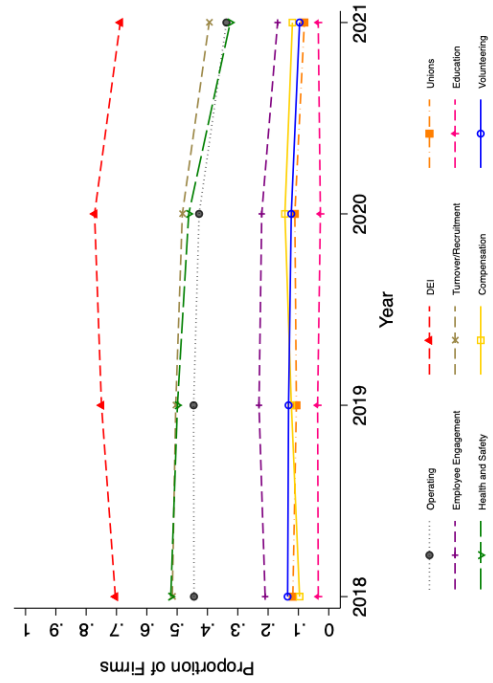


Figure 6: Number of Metrics in ESG Report (by Sector)

This figure shows the average number of quantitative metrics disclosed in firms' ESG reports for the years 2018 and 2021 for each of the 11 SASB sectors, conditional on firms disclosing an ESG report.

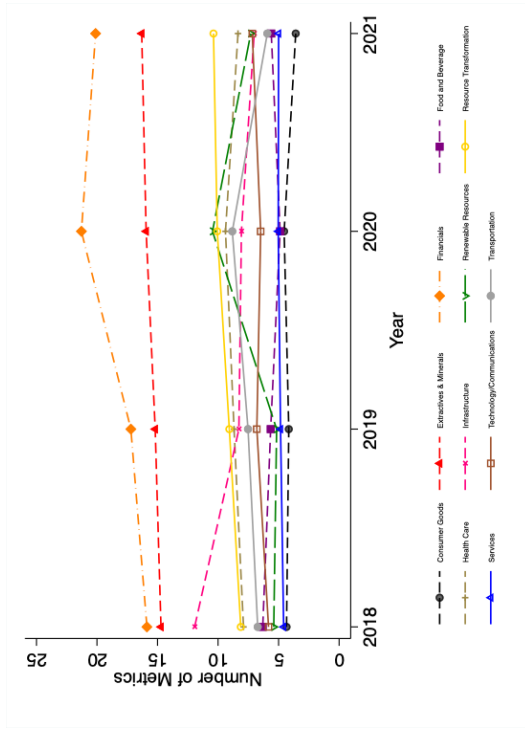


Figure 8: Number of Union Metrics in ESG Report (by Sector)

This figure shows the average number of quantitative metrics related to the firms' labor relations and practices and unions that is disclosed in firms' ESG report for the years 2018 to 2021. The average number of union/labor-relations metrics disclosed is shown separately for each of the 11 SASB sectors.

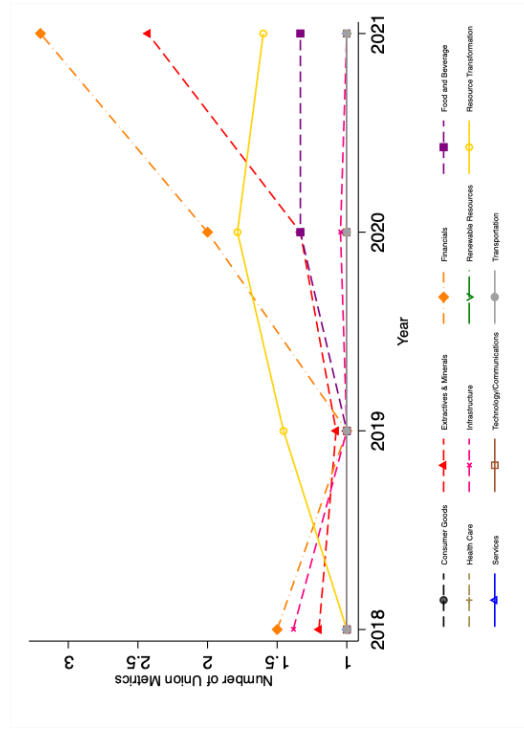


Figure 9: Number of DEI Metrics in ESG Report (by Sector)

This figure shows the average number of quantitative metrics related to Diversity, Equity & Inclusion (DEI) that is disclosed in firms' ESG report for the years 2018 to 2021. The average number of DEI metrics disclosed is shown separately for each of the 11 SASB sectors.

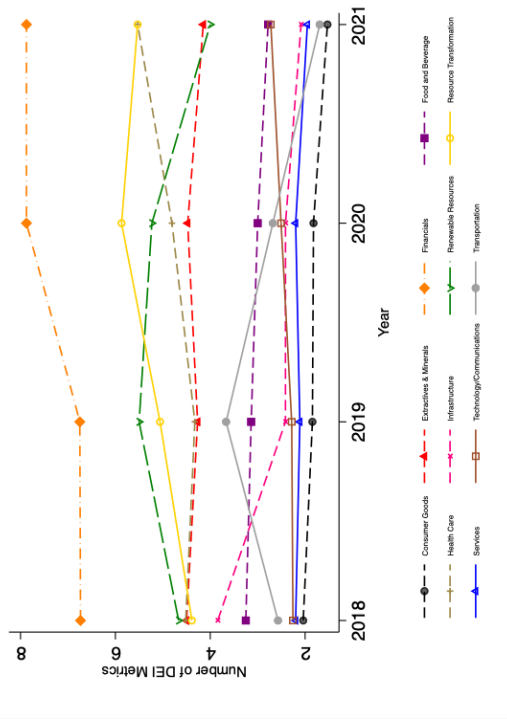


Figure 11: Number of Recruitment & Turnover Metrics in ESG Report (by Sector)

This figure shows the average number of quantitative metrics related to firms' turnover, recruitment and development practices that is disclosed in firms' ESG report for the years between 2018 and 2021. The average number of turnover, recruitment and development metrics disclosed is shown separately for each of the 11 SASB sectors.

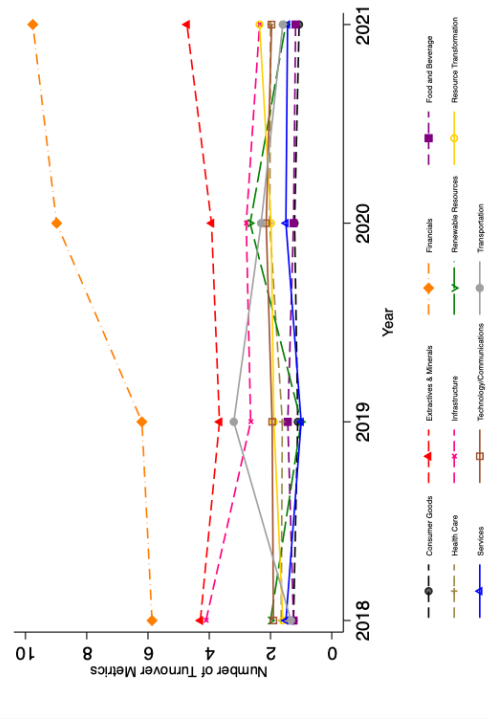


Figure 10: Number of Employee Engagement Metrics in ESG Report (by Sector)

This figure shows the average number of quantitative metrics related to firms' employee engagement metrics that is disclosed in firms' ESG report for the years 2018 to 2021. The average number of employee engagement metrics disclosed is shown separately for each of the 11 SASB sectors.

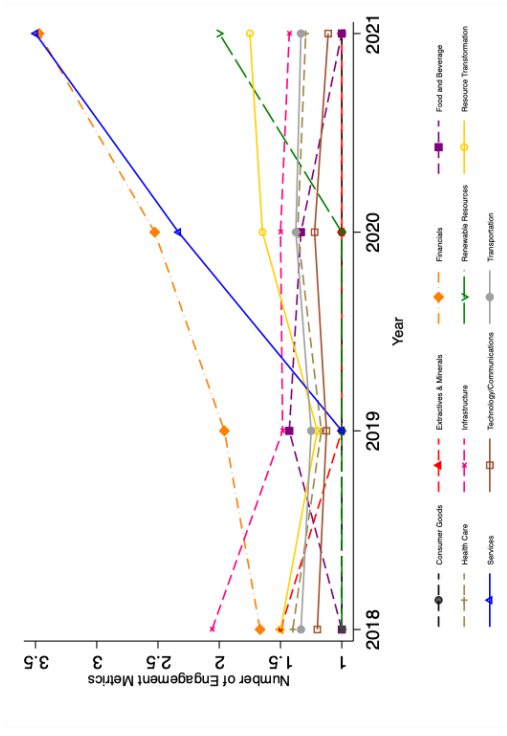


Figure 12: Number of Health & Safety Metrics in ESG Report (by Sector)

This figure shows the average number of quantitative metrics related to firms' health & safety metrics that is disclosed in firms' ESG report for the years 2018 to 2021. The average number of health & safety metrics disclosed is shown separately for each of the 11 SASB sectors.

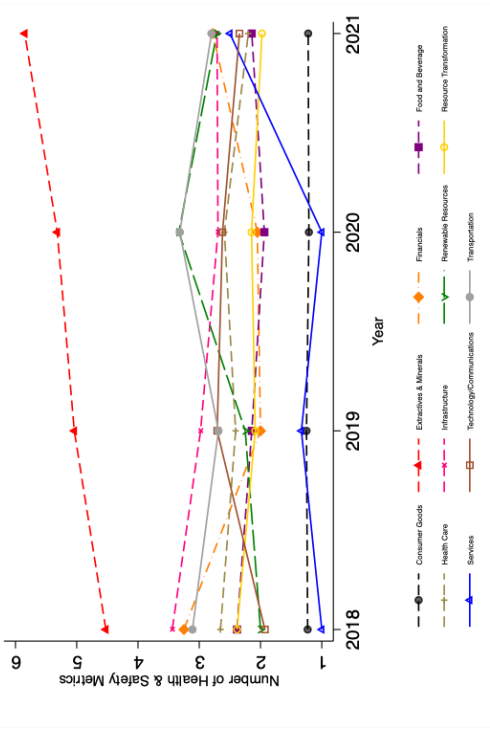


Figure 13: Firms with “Human Capital” Subheading in 10-K

This figure shows the proportion of firms that had a subsection in their 10-K report with the phrase “Human Capital.” *Year* refers to the year corresponding to the filing date of the 10-K. This figure shows that while less than 5% had a subsection with “Human Capital” in the title pre-regulation, firms switch to cater to the language of Reg S-K after the implementation of the regulation.

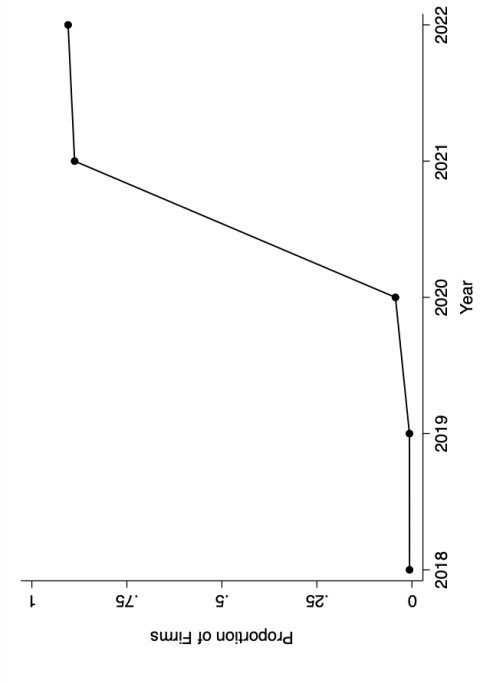


Figure 14: Firms Disclosing Metrics in 10-K

This figure shows the proportion of firms that were disclosing any quantitative metric in their 10-K and the proportion of firms disclosing a SASB-recommended metric in their 10-K. *Year* refers to the year corresponding to the filing date of the 10-K. The definition of “Quantitative metric” is any type of numerical disclosure, with the exception of workforce unionization breakdowns and geographical breakdowns.

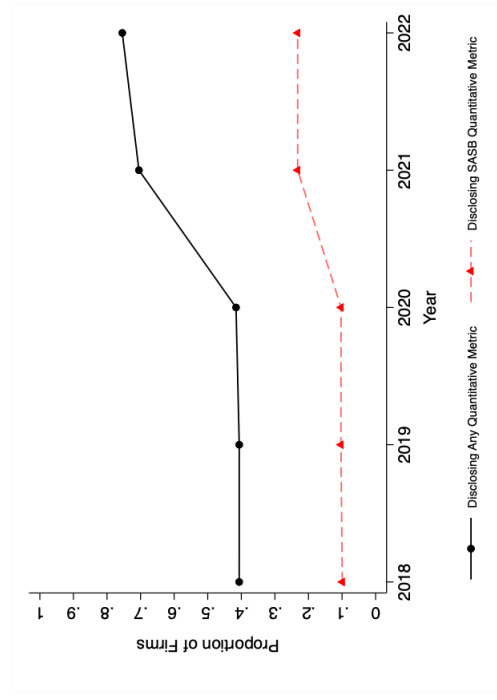


Figure 15: Firms Disclosing Metric in 10-K (by Topic)

This figure shows the proportion of firms that were disclosing at least one quantitative metric (either SASB or non-SASB) in their 10-K. The nine different topics we present are based on the categorization of metrics adopted by the SASB standards. Examples of disclosures falling under each of these categories are presented in Appendix 1 and 2

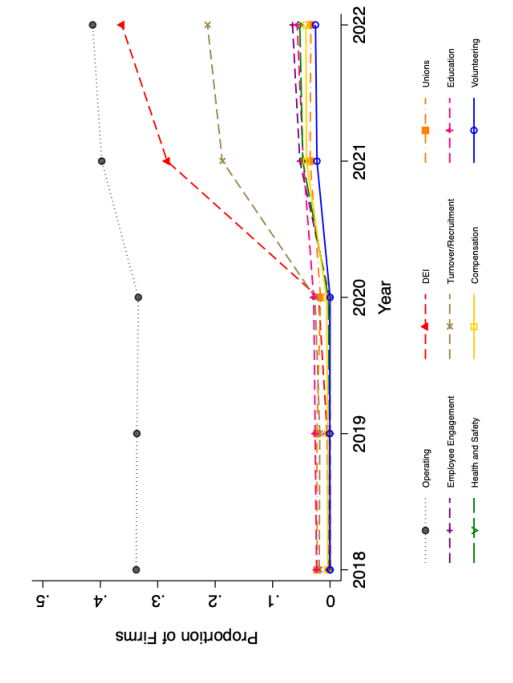


Figure 16: Firms Disclosing Metric in 10-K (by Sector)

This figure shows the proportion of firms that were disclosing at least one quantitative metric (either SASB or non-SASB) in their 10-K. The 11 sectors considered are the sectors defined by the SASB.

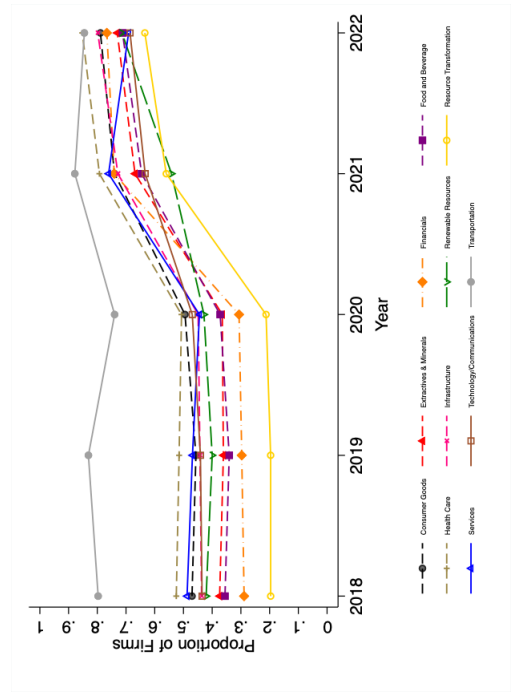


Figure 17: Firms Disclosing Unique versus Existing Metrics in 10-K

This figure shows the proportion of firms that disclosed at least one “unique” metric and the proportion of firms that disclosed at least one metric from another venue in their 10-K report. We define metrics as coming from another venue if they were required to be reported to another regulatory agency (i.e., data from EEO-1 reports and/or OSHA-mandated metrics). Metrics are considered “unique” if they were not previously required by another regulatory agency.

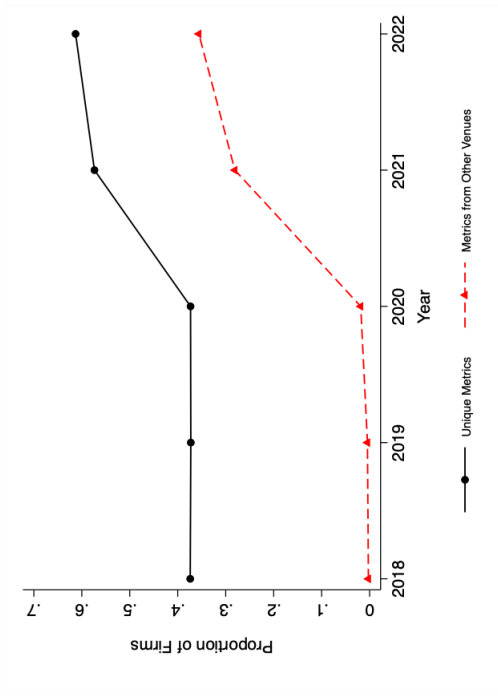


Figure 19: Number of Metrics in 10-K

This figure shows the number of quantitative human capital (HC) metrics disclosed by firms in the 10-K. This is separately broken down for both SASB recommended metrics and non-SASB metrics.

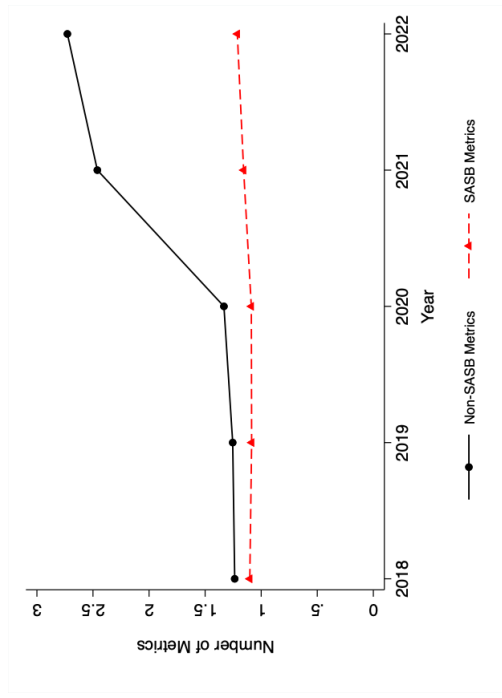


Figure 18: Firms Disclosing DEI Metric in 10-K by EEO-1 Disclosure Status

This figure shows the proportion of firms of firms that disclosed at least one DEI-related metric, based on whether they publicly released their 2018 EEO-1 report. The trends show that firms that disclosed their EEO-1 publicly pre-regulation were more likely to disclose a DEI metric.

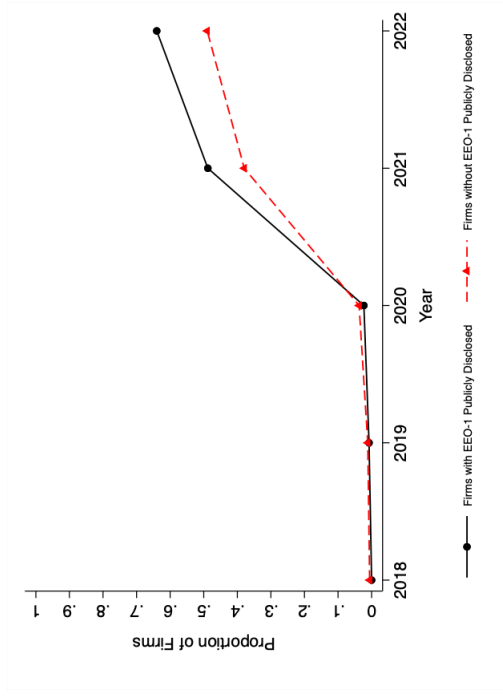


Figure 20: Number of Metrics in 10-K (by Early Disclosers)

This figure shows the number of quantitative HC metrics disclosed by firms in the 10-K, separately broken down for both SASB recommended metrics and non-SASB metrics. Additionally, we separately show the disclosure behavior of firms that disclosed at least one SASB (non-SASB) metric pre-regulation, represented by the solid lines, versus those that did not disclose any SASB (non-SASB) pre-regulation, represented by the dashed lines.

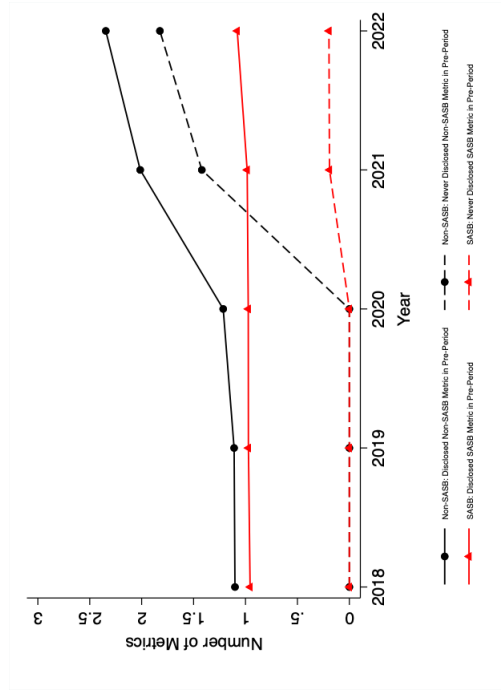


Table 1: Summary Statistics

This table reports the summary statistics for the main outcome and independent variables used in our analysis. All variables are defined in Appendix 3. Log(Sales) is the natural log of sales in millions of dollars. All continuous variables are winsorized at the 1% and 99% level.

	Obs	Mean	SD	p10	p25	p50	p75	p90
<i>Human Capital Metrics (10-K Report)</i>								
Any Quantitative Metric	10,505	0.56	0.50	0	0	1	1	1
SASB Quantitative Metric	7,001	0.19	0.39	0	0	0	0	1
Non-SASB Quantitative Metric	10,505	0.50	0.50	0	0	0	1	1
EEO-1 Disclosure	10,505	0.07	0.26	0	0	0	0	0
ESG Report Disclosure	10,505	0.22	0.42	0	0	0	0	1
No. of SASB Metrics	7,001	0.22	0.51	0	0	0	0	1
No. of Non-SASB Metrics	10,505	1.01	1.51	0	0	0	1	3
SASB HC Guidance Exists	10,505	0.67	0.47	0	0	1	1	1
DEI Metric Disclosed	10,505	0.29	0.85	0	0	0	0	1
<i>Human Capital Metrics (ESG Report)</i>								
Any Quantitative Metric	2,422	0.88	0.33	0	1	1	1	1
SASB Quantitative Metric	1,651	0.51	0.50	0	0	1	1	1
Non-SASB Quantitative Metric	2,422	0.86	0.34	0	1	1	1	1
No. of SASB Metrics	1,651	1.09	1.40	0	0	1	2	3
No. of Non-SASB Metrics	2,422	7.35	9.17	0	2	4	10	17
No. of DEI Metrics	2,422	2.79	3.65	0	0	2	4	7
<i>Financial Variables</i>								
Return on Assets	10,071	0.01	0.14	-0.12	-0.00	0.03	0.07	0.12
Market-to-Book	9,593	4.59	10.32	0.89	1.43	2.64	5.30	11.24
Log(Sales)	9,895	7.40	1.79	5.29	6.29	7.41	8.59	9.61
CapEx/Sales	9,630	0.08	0.16	0.00	0.01	0.03	0.06	0.18
COGS/Sales	9,896	0.72	1.11	0.18	0.37	0.60	0.76	0.87
Log(1 + Employees)	10,142	2.18	2.05	0.17	0.67	1.70	2.97	4.53
Institutional Ownership	8,923	0.78	0.21	0.48	0.69	0.83	0.93	0.99
<i>Macroeconomic Variables</i>								
HHI	10,055	0.07	0.08	0.01	0.02	0.04	0.07	0.17
Unemployment Rate	10,026	0.04	0.02	0.02	0.03	0.04	0.05	0.07
Geographic Regions	10,262	10.77	8.50	2.00	4.00	8.00	15.00	23.00

Table 2: Correlation Matrix

This table reports the pairwise correlations between the main outcome and independent variables used in our analysis. All variables are defined in Appendix 3. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Any Quant Metric	1.00														
(2) SASB Metric	0.39***	1.00													
(3) Non-SASB Metric	0.84***	0.03*	1.00												
(4) EEO Disc	-0.01	-0.02	-0.01	1.00											
(5) ESG Disc	-0.08***	0.01	-0.09***	0.16***	1.00										
(6) ROA	-0.11***	0.06***	-0.12***	0.08***	0.11***	1.00									
(7) MTB	0.00	0.04**	-0.02	0.05***	-0.01	-0.01	1.00								
(8) Log(Sales)	-0.04**	0.13***	-0.08***	0.28***	0.28***	0.50***	-0.05***	1.00							
(9) CapEx/Sales	0.00	-0.06***	0.03*	-0.00	0.01	-0.26***	-0.04**	-0.25***	1.00						
(10) COGS/Sales	0.11***	-0.08***	0.13***	-0.07***	-0.10***	-0.53***	-0.00	-0.47***	0.40***	1.00					
(11) Log(1 + Emp)	0.06***	0.14***	0.02	0.14***	0.11***	0.24***	0.01	0.56***	-0.17***	-0.17***	1.00				
(12) Inst. Own	0.06***	0.07***	0.04**	-0.01	0.07***	0.12***	-0.01	0.13***	-0.12***	-0.09***	0.10***	1.00			
(13) HHI	0.08***	-0.00	0.10***	-0.00	-0.01	0.11***	0.01	0.16***	-0.11***	-0.07***	0.20***	0.03*	1.00		
(14) Unempl. Rate	0.17***	0.13***	0.17***	-0.01	-0.07***	-0.06**	0.04**	0.00	-0.01	-0.00	0.10***	0.02	0.10***	1.00	
(15) Log(Geographic Regions)	-0.06***	0.07***	-0.11***	0.03	0.09***	-0.06***	0.02	0.10***	-0.11***	0.04**	0.13***	0.03*	-0.18***	-0.02	1.00

Table 3: Determinants of ESG Report Disclosure

This table reports the estimates of OLS regressions, regressing incidence of ESG reports (in Columns 1-3) and quantitative human capital disclosures in ESG reports (in Columns 4-6) on a set of key determinants. All independent variables are defined in Appendix 3. *ESG Report Exists* is an indicator equal to one if a firm publishes an ESG report in a given year, and 0 otherwise. *Any Quant Metric* is an indicator equal to one if a firm discloses at least one quantitative metric, and 0 otherwise. Standard errors are clustered at the industry level and shown in parentheses. The intercepts are included but not reported. All continuous variables are winsorized at the 1% and 99% level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

	(1)	(2)	(3)	(4)	(5)	(6)
	ESG Report Exists	ESG Report Exists	ESG Report Exists	Any Quant Metric	Any Quant Metric	Any Quant Metric
Return on Assets	0.004 (0.035)	-0.011 (0.049)	0.035 (0.060)	-0.092 (0.097)	-0.043 (0.115)	-0.084 (0.121)
Market-to-Book	0.001* (0.000)	0.001** (0.000)	0.001** (0.000)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
Log(Sales)	0.065*** (0.004)	0.067*** (0.007)	0.059*** (0.006)	0.045*** (0.009)	0.048*** (0.015)	0.040*** (0.011)
CapEx/Sales	0.188*** (0.030)	0.120** (0.056)	0.152** (0.058)	-0.055 (0.065)	-0.081 (0.090)	-0.102 (0.070)
COGS/Sales	0.003 (0.003)	0.013** (0.005)	0.005 (0.005)	0.042*** (0.015)	0.032** (0.015)	0.032** (0.015)
HHI	-0.142** (0.059)	-0.038 (0.098)	-0.142 (0.094)	-0.224* (0.121)	-0.155 (0.174)	-0.231* (0.126)
Log(1 + Employees)	-0.016*** (0.003)	0.004 (0.004)	0.004 (0.005)	-0.021** (0.009)	-0.023* (0.013)	-0.012 (0.011)
Unemployment Rate	-1.109*** (0.218)	-0.695 (0.480)	-1.300** (0.493)	-1.218*** (0.424)	-0.195 (0.884)	-0.498 (0.719)
Institutional Ownership	0.110*** (0.020)	0.086*** (0.029)	0.075** (0.030)	0.117** (0.054)	0.146** (0.070)	0.125* (0.067)
Labor Related Incident	0.111*** (0.014)	0.074*** (0.016)	0.081*** (0.017)	0.013 (0.018)	0.012 (0.024)	0.005 (0.022)
Log(Geographic Regions)	0.026*** (0.005)	0.014 (0.009)	0.024*** (0.008)	0.030*** (0.010)	0.018 (0.012)	0.021** (0.010)
Extractives and Minerals Processing			0.014 (0.048)			0.107*** (0.040)
Financials			-0.060 (0.048)			0.053 (0.042)
Food and Beverage			0.036 (0.047)			0.062 (0.048)
Health Care			0.006 (0.039)			0.119*** (0.030)
Infrastructure			0.084* (0.045)			0.052 (0.036)
Renewable Resources and Alternative Energy			0.124* (0.073)			0.237*** (0.035)
Resource Transformation			0.024 (0.049)			0.107*** (0.031)
Services			-0.061 (0.043)			0.011 (0.039)
Technology and Communications			0.003 (0.062)			0.007 (0.064)
Transportation			-0.041 (0.048)			-0.006 (0.063)
N	8,014	8,014	8,014	1,847	1,844	1,847
Adj. R-squared	0.110	0.195	0.162	0.045	0.100	0.066
Year FE	No	Yes	Yes	No	Yes	Yes
Industry FE	No	Yes		No	Yes	
Clusters	N/A	Industry	Industry	N/A	Industry	Industry

Table 4: Determinants of Quantitative HC Disclosure in 10-K

This table reports the estimates of OLS regressions, regressing indicators for quantitative human capital metrics on a set of key determinants. All independent variables are defined in Appendix 3. *Any Quant Metric* is an indicator equal to 1 if a firm discloses at least one quantitative metric, and 0 otherwise. *SASB Metric* is an indicator equal to 1 if a firm discloses at least one quantitative metric recommended by the industry's SASB standard, and 0 otherwise. *Non-SASB Metric* is an indicator equal to 1 if a firm discloses at least one quantitative metric that is not included in the relevant SASB standard, and 0 otherwise. Standard errors are clustered at the industry level and shown in parentheses. The intercepts are included but not reported. All continuous variables are winsorized at the 1% and 99% level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

	(1)	(2)	(3)	(4)	(5)	(6)
	Any Quant Metric	Any Quant Metric	SASB Metric	SASB Metric	Non-SASB Metric	Non-SASB Metric
ROA	-0.230*** (0.050)	-0.203*** (0.067)	0.009 (0.038)	-0.064* (0.033)	-0.210*** (0.051)	-0.163** (0.072)
MTB	0.001 (0.001)	0.000 (0.001)	0.001** (0.001)	0.000 (0.001)	0.000 (0.001)	0.000 (0.000)
Log(Sales)	-0.001 (0.004)	0.001 (0.009)	0.012*** (0.004)	0.008** (0.004)	-0.005 (0.004)	0.001 (0.010)
CapEx/Sales	-0.059* (0.035)	-0.123* (0.070)	-0.032 (0.021)	0.019 (0.025)	-0.045 (0.036)	-0.130* (0.073)
COGS/Sales	0.039*** (0.005)	0.022*** (0.006)	-0.007** (0.003)	-0.008* (0.005)	0.041*** (0.005)	0.025*** (0.006)
HHI	0.299*** (0.071)	0.098 (0.140)	-0.179*** (0.058)	-0.012 (0.080)	0.336*** (0.072)	0.101 (0.138)
Log(1 + Emp)	0.024*** (0.004)	0.001 (0.005)	0.019*** (0.004)	0.000 (0.004)	0.018*** (0.004)	0.001 (0.005)
Unemployment Rate	3.929*** (0.245)	-1.030 (1.179)	2.074*** (0.249)	-0.545 (0.379)	3.590*** (0.253)	-0.441 (1.136)
Inst. Own	0.133*** (0.027)	0.103*** (0.033)	0.094*** (0.022)	0.059** (0.022)	0.117*** (0.027)	0.100*** (0.035)
Log(Geographic Regions)	-0.035*** (0.006)	-0.010 (0.016)	0.020*** (0.007)	0.023 (0.016)	-0.055*** (0.006)	-0.025* (0.013)
N	8,014	8,014	5,255	5,255	8,014	8,014
Adj. R-squared	0.061	0.224	0.044	0.465	0.055	0.207
Year FE	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes
Clusters	N/A	Industry	N/A	Industry	N/A	Industry

Table 5: Determinants of Post-Regulation Quantitative Human Capital Disclosure in 10-K

This table reports the estimates of OLS regressions, regressing indicators for quantitative human capital metrics on a set of key determinants. Additionally, all determinants included in this table also contain an interaction with the variable Post. This facilitates comparison of the determinants' effects pre-regulation and post-regulation. *Any Quant Metric* is an indicator equal to 1 if a firm discloses at least one quantitative metric, and 0 otherwise. *SASB Metric* is an indicator equal to 1 if a firm discloses at least one quantitative metric recommended by the industry's SASB standard, and 0 otherwise. *Non-SASB Metric* is an indicator equal to 1 if a firm discloses at least one quantitative metric that is not included in the relevant SASB standard, and 0 otherwise. Standard errors are clustered at the industry level and shown in parentheses. The intercepts are included but not reported. All continuous variables are winsorized at the 1% and 99% level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Any Quant Metric	Any Quant Metric	SASB Metric	SASB Metric	Non-SASB Metric	Non-SASB Metric	Any DEI Metric	Any DEI Metric
Post × Pre-Reg ESG Report	0.095*** (0.023)	0.098*** (0.030)	0.015 (0.027)	0.025 (0.022)	0.100*** (0.024)	0.096*** (0.030)		
Post × Pre-Reg EEO Disc							0.150*** (0.035)	0.143*** (0.044)
Post	0.111 (0.078)	0.134 (0.225)	-0.191** (0.079)	0.005 (0.126)	0.104 (0.078)	0.106 (0.236)	0.069 (0.052)	0.103 (0.127)
ROA	-0.210*** (0.068)	-0.178* (0.090)	0.058 (0.038)	-0.035 (0.023)	-0.212*** (0.068)	-0.150 (0.093)	0.003 (0.008)	0.037 (0.023)
Log(Sales)	-0.019*** (0.007)	-0.007 (0.016)	-0.003 (0.005)	0.009 (0.007)	-0.019*** (0.007)	-0.011 (0.016)	0.000 (0.001)	0.010* (0.006)
COGS/Sales	0.045*** (0.007)	0.031*** (0.009)	-0.005 (0.004)	0.005** (0.002)	0.045*** (0.007)	0.029*** (0.010)	0.003 (0.002)	0.004 (0.004)
HHI	0.658*** (0.101)	0.329** (0.163)	-0.042 (0.070)	0.152** (0.060)	0.712*** (0.100)	0.313* (0.177)	-0.053*** (0.012)	0.061 (0.098)
Unemployment Rate	2.054*** (0.674)	1.223 (1.434)	0.480 (0.516)	-0.769 (0.877)	1.286* (0.667)	2.569* (1.399)	0.283** (0.131)	2.111* (1.231)
Inst. Own	0.110*** (0.033)	0.054 (0.047)	0.045* (0.024)	-0.016 (0.021)	0.083** (0.033)	0.051 (0.048)	0.005 (0.004)	-0.007 (0.013)
Log(1 + Emp)	0.033*** (0.009)	-0.000 (0.021)	0.033*** (0.006)	-0.007 (0.009)	0.015* (0.008)	0.000 (0.020)	0.004*** (0.001)	-0.005 (0.008)
Log(Geographic Regions)	-0.017** (0.008)	0.000 (0.022)	0.013* (0.007)	0.018 (0.014)	-0.032*** (0.008)	-0.011 (0.021)	-0.003* (0.002)	0.009 (0.006)
N	8,014	8,014	5,065	5,065	8,014	8,014	8,014	8,014
Adj. R-squared	0.133	0.238	0.060	0.482	0.131	0.219	0.276	0.302
Post × Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes	No	Yes
Industry FE	No	Yes	No	Yes	No	Yes	No	Yes
Clusters	N/A	Industry	N/A	Industry	N/A	Industry	N/A	Industry

Table 6: Univariate Joint Disclosure Tests

This table reports the tabulation of the joint disclosure rates between two disclosure channels for human capital disclosures that we consider in this paper: firms' 10-K reports and their ESG reports. Each panel tabulates the proportion of firms disclosing at least one quantitative metric solely in the 10-K report, those disclosing at least one quantitative metric solely in the ESG report, those disclosing at least one quantitative metric in both the ESG and 10-K report, and those disclosing no quantitative metric in either of the reports. Panel A shows the proportion of firms disclosing at least one quantitative metric in their 10-K and the proportion of firms disclosing at least one quantitative metric in their ESG report. Additionally, the table also tabulates the proportions separately for SASB metrics and non-SASB Metrics. In Panel B, we tabulate the proportion of firms disclosing at least one quantitative metric between these two disclosure channels separately for S&P 500 and Non-S&P 500 firms - a rough proxy for firm size. We separately tabulate these proportions for DEI, Turnover and Health & Safety Metrics. In Panel C, we tabulate the proportion of firms disclosing at least one quantitative metric between these two disclosure channels separately for above- and below-median ROA firms. We also do so separately for DEI, Turnover and Operating metrics.

Panel A: Joint Disclosure of Quantitative Metrics

Any Quant Metric in 10-K	Any Quant Metric in ESG Report	
	Yes	No
Yes	42.44%	6.92%
No	45.70%	4.94%
SASB Metric in 10-K	SASB Metric in ESG Report	
	Yes	No
Yes	9.17%	11.83%
No	44.39%	34.62%
Non-SASB Metric in 10-K	Non-SASB Metric in ESG Report	
	Yes	No
Yes	35.74%	6.79%
No	50.90%	6.57%

Panel B: Joint Disclosure of Quantitative Metrics Split by Size (S&P500 vs. Non-S&P 500)

S&P 500 Firms			Non S&P 500 Firms		
Quant Metric in 10-K	Quant Metric in ESG Report		Quant Metric in 10-K	Quant Metric in ESG Report	
	Yes	No		Yes	No
	39.85%	2.93%		44.60%	10.24%
Yes	39.85%	2.93%	Yes	44.60%	10.24%
No	53.16%	4.06%	No	39.48%	5.67%
DEI Metric in 10-K	DEI Metric in ESG Report		DEI Metric in 10-K	DEI Metric in ESG Report	
	Yes	No		Yes	No
	6.80%	1.51%		9.14%	3.15%
Yes	6.80%	1.51%	Yes	9.14%	3.15%
No	74.32%	17.37%	No	57.60%	30.10%
Turnover Metric in 10-K	Turnover Metric in ESG Report		Turnover Metric in 10-K	Turnover Metric in ESG Report	
	Yes	No		Yes	No
	3.59%	2.27%		4.49%	4.73%
Yes	3.59%	2.27%	Yes	4.49%	4.73%
No	53.64%	40.51%	No	33.88%	56.90%
Safety Metric in 10-K	Safety Metric in ESG Report		Safety Metric in 10-K	Safety Metric in ESG Report	
	Yes	No		Yes	No
	0.66%	0.47%		2.13%	0.87%
Yes	0.66%	0.47%	Yes	2.13%	0.87%
No	49.48%	49.39%	No	35.86%	61.15%

Panel C: Joint Disclosure of Quantitative Metrics Split by Performance (Above & Below Median ROA)

Above-Median ROA			Below-Median ROA		
Quant Metric in 10-K	Quant Metric in ESG Report		Quant Metric in 10-K	Quant Metric in ESG Report	
	Yes	No		Yes	No
	39.62%	5.95%		45.62%	8.34%
Yes	39.62%	5.95%	Yes	45.62%	8.34%
No	48.93%	5.50%	No	41.71%	4.33%
DEI Metric in 10-K	DEI Metric in ESG Report		DEI Metric in 10-K	DEI Metric in ESG Report	
	Yes	No		Yes	No
	6.18%	1.76%		10.45%	3.38%
Yes	6.18%	1.76%	Yes	10.45%	3.38%
No	67.18%	24.89%	No	63.15%	23.02%
Turnover Metric in 10-K	Turnover Metric in ESG Report		Turnover Metric in 10-K	Turnover Metric in ESG Report	
	Yes	No		Yes	No
	2.90%	3.21%		5.70%	4.12%
Yes	2.90%	3.21%	Yes	5.70%	4.12%
No	42.67%	51.22%	No	43.61%	46.57%
Operating Metric in 10-K	Operating Metric in ESG Report		Operating Metric in 10-K	Operating Metric in ESG Report	
	Yes	No		Yes	No
	12.82%	17.10%		14.04%	21.33%
Yes	12.82%	17.10%	Yes	14.04%	21.33%
No	28.55%	41.53%	No	26.29%	38.33%

Table 7: Market Returns Around Disclosure of Any Quantitative Metric

Table 6 reports the estimates of OLS regressions, regressing measures of absolute returns on an indicator equal to 1 if firm discloses at least one quantitative metric in their 10-K report, and 0 otherwise. $Abs(Returns)$ is the absolute value of the firm's three-day raw return around the filing of their 10-K. $Abs(Market-Adjusted Returns)$ is the absolute value of the firm's three-day returns less the market returns for that period. Absolute returns are used as the dependent variable in order to gauge the magnitude of the effect of the disclosure of quantitative metrics on firms' returns, without the effect of the direction of the news disclosed. Columns (1) and (2) report the results for the full sample. Columns (3) and (4) report the results only for firms in industries where the SASB provides at least one suggested human capital metric in their industry standard. Columns (5) and (6) report the results for firms in industries for which the SASB does not suggest any human capital metrics. All specifications contain Industry-level Fixed Effects. Standard errors are clustered at the industry level and shown in parentheses. The intercepts are included but not reported. All continuous variables are winsorized at the 1% and 99% level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

	(1)	(2)	(3)	(4)	(5)	(6)
	Abs(Returns)	Abs(Market-Adjusted Returns)	Abs(Returns)	Abs(Market-Adjusted Returns)	Abs(Returns)	Abs(Market-Adjusted Returns)
Post	0.001 (0.002)	0.004** (0.002)	0.002 (0.003)	0.004 (0.002)	-0.001 (0.004)	0.004 (0.003)
Any Quant	-0.003** (0.002)	-0.002 (0.002)	-0.003 (0.002)	-0.002 (0.002)	-0.003 (0.002)	-0.002 (0.002)
Post × Any Quant	0.007*** (0.002)	0.005** (0.002)	0.011*** (0.003)	0.008** (0.003)	0.002 (0.003)	0.000 (0.003)
ROA	-0.053*** (0.009)	-0.053*** (0.009)	-0.048*** (0.011)	-0.049*** (0.011)	-0.070*** (0.014)	-0.070*** (0.010)
MTB	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Log(Sales)	-0.006*** (0.001)	-0.006*** (0.001)	-0.007*** (0.001)	-0.006*** (0.001)	-0.006*** (0.002)	-0.006*** (0.001)
CapEx/Sales	0.003 (0.007)	0.002 (0.007)	0.001 (0.007)	-0.001 (0.007)	0.004 (0.018)	0.009 (0.016)
COGS/Sales	-0.001** (0.001)	-0.002*** (0.001)	-0.002** (0.001)	-0.002** (0.001)	0.003 (0.004)	0.002 (0.004)
HHI	0.012 (0.024)	0.007 (0.020)	0.002 (0.026)	-0.003 (0.021)	0.043 (0.048)	0.038 (0.042)
Log(1 + Emp)	0.000 (0.001)	0.000 (0.001)	-0.000 (0.001)	-0.001 (0.001)	0.002* (0.001)	0.001 (0.001)
Unemployment Rate	-0.226*** (0.069)	-0.108* (0.062)	-0.286*** (0.086)	-0.144* (0.080)	-0.083 (0.110)	-0.026 (0.091)
Inst. Own	-0.006 (0.005)	-0.005 (0.004)	-0.004 (0.006)	-0.004 (0.006)	-0.009 (0.007)	-0.006 (0.006)
Sample	Full	Full	SASB HC Guidance Exists	SASB HC Guidance Exists	No SASB HC Guidance	No SASB HC Guidance
N	7,492	7,492	4,612	4,612	2,880	2,880
Adj. R-squared	0.122	0.138	0.111	0.119	0.121	0.148
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Clusters	Industry	Industry	Industry	Industry	Industry	Industry

Table 8: Market Returns Around Disclosure of SASB Metric

Table 7 reports the estimates of OLS regressions, regressing measures of absolute returns on separate indicators for whether the firm discloses at least one SASB metric (Non-SASB metric) in their 10-K report. The outcome variables are the same as described in Table 6. All specifications contain industry-level fixed effects. Columns (1) and (2) report the market returns to the disclosure of non-SASB metrics for the full sample. Columns (3) - (6) report the market returns to the disclosure of SASB and Non-SASB Metrics for firms in industries with SASB HC guidance. Standard errors are clustered at the industry level and shown in parentheses. The intercepts are included but not reported. All continuous variables are winsorized at the 1% and 99% level. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively

	(1) Abs(Returns)	(2) Abs(Market-Adjusted Returns)	(3) Abs(Returns)	(4) Abs(Market-Adjusted Returns)	(5) Abs(Returns)	(6) Abs(Market-Adjusted Returns)
Post	0.004 (0.003)	0.006*** (0.002)	0.007** (0.003)	0.008*** (0.003)	0.006 (0.004)	0.007** (0.003)
Non-SASB Disc	-0.002 (0.001)	-0.001 (0.002)			-0.001 (0.002)	-0.001 (0.002)
Post × Non-SASB Disc	0.004* (0.002)	0.003 (0.002)			0.005 (0.003)	0.004 (0.003)
SASB Disc			-0.009*** (0.003)	-0.008*** (0.002)		
Post × SASB Disc			0.015** (0.006)	0.011** (0.005)		
ROA	-0.053*** (0.009)	-0.053*** (0.009)	-0.048*** (0.011)	-0.048*** (0.010)	-0.048*** (0.011)	-0.048*** (0.010)
MTB	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Log(Sales)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)	-0.006*** (0.001)
CapEx/Sales	0.003 (0.007)	0.003 (0.007)	0.002 (0.007)	-0.001 (0.007)	0.002 (0.007)	-0.001 (0.007)
COGS/Sales	-0.001** (0.001)	-0.002*** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)	-0.002** (0.001)
HHI	0.011 (0.024)	0.007 (0.020)	0.000 (0.026)	-0.005 (0.021)	0.001 (0.026)	-0.004 (0.021)
Log(1 + Emp)	0.000 (0.001)	0.000 (0.001)	-0.000 (0.001)	-0.001 (0.001)	-0.000 (0.001)	-0.000 (0.001)
Unemployment Rate	-0.225*** (0.069)	-0.108* (0.062)	-0.291*** (0.085)	-0.149* (0.080)	-0.284*** (0.086)	-0.143* (0.079)
Inst. Own	-0.006 (0.005)	-0.005 (0.004)	-0.004 (0.006)	-0.004 (0.006)	-0.003 (0.006)	-0.004 (0.006)
Sample	Full	Full	SASB HC Guidance Exists	SASB HC Guidance Exists	SASB HC Guidance Exists	SASB HC Guidance Exists
N	7,492	7,492	4,612	4,612	4,612	4,612
Adj. R-squared	0.122	0.137	0.111	0.119	0.109	0.118
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Clusters	Industry	Industry	Industry	Industry	Industry	Industry

Appendix 1 Examples of Disclosures in ESG Reports

Category: Operating

Quantitative disclosure: Repligen Corporation, Health Care - Medical Equipment & Supplies, 2020:



Qualitative disclosure: PerkinElmer, Health Care -Medical Equipment & Supplies, 2020: *Similarly, our work to help improve lives begins with the environment we create for our own people. Whether on the manufacturing floor, in the lab, out in the field with customers or within the walls of our offices, each of our 13,000 employees plays a unique role in helping us achieve our goals.*

Category: Compensation

Quantitative disclosure: Popular Inc, Financials –Commercial Banks, 2020: *In 2020, efforts were concentrated on implementing a system that will enable maintaining consistent and equitable rewards and promoting transparency. Popular sets its minimum wage based on the cost of living in each of its regions, among a number of other factors. Federal Minimum wage: \$7.25. Popular’s Minimum-Wage per Region: \$18-NY/NJ...\$16-SFL...\$13-VI...\$11-PR*

Qualitative disclosure: Renasant Corporation, Financials –Commercial Banks, 2020: *Our compensation programs are designed to be market-competitive and internally equitable to attract, retain, motivate and reward a high-performance workforce. 100% of our workforce is based in the U.S., where our comprehensive benefits package for all full-time employees, and eligible dependents, includes:*

- Medical, dental, and vision healthcare plans
- FSA Medical and Dependent Care
- Group Life Insurance/ADD/LTD
- Voluntary Life Insurance - Term and Whole Life
- Supplemental Disability Plans
- Renasant Bank 401(k) – with employer matching contribution
- Profit sharing plan
- Employee Assistance Program – Available to all employees and immediate family members
- Tobacco Cessation Program
- Family Medical Leave
- Paid Time Off – vacation, sick leave, bank holidays,bonus days
- Employee Holiday Savings Plan
- Renasant Mortgage Lending – fee waiver
- Employee discounts/fee waivers for select banking products – for both full-time and part-time employees

Eligible part-time employees are also offered paid time off and may participate in the Renasant Bank 401(k) plan.

Category: Recruitment & Turnover

Quantitative disclosure: First BanCorp, Financials –Commercial Banks, 2021: *The annual employee performance review includes a self-assessment by each employee, complemented by an evaluation of competencies and annual objectives assessment performed by the supervisor. In 2021, more than 2,500 employees participated in the PMP...Every year, approximately 100 new supervisors and managers receive this training... Over 60% of our existing leaders have participated in these programs, accounting for over 20,000 training hours since the programs were launched in 2014. . . Through our FBU platform, we offer more than 7,000 training opportunities through in-person or virtual classes. In 2020, due to the COVID-19 pandemic, we transitioned over 70 trainings to virtual and online modalities, allowing employees to continue to learn while working remotely. Overall, in 2021, we delivered more than 119,000 hours of training to over 3,600 employees across our three regions to support their continued education.*

Qualitative disclosure: Tri State, Financials –Commercial Banks, 2021: *Tri-State’s employees are our most valuable resource and through our diversity, equity and inclusion initiative, we strive to promote a collaborative, inclusive, creative, and diverse workforce that embodies the cooperative spirit. We design our compensation, retirement benefits, and health and welfare programs accordingly, to attract, develop, motivate, and retain a diverse and inclusive staff. Our workforce is continuously evolving and adapting to industry changes, and Tri-State strives to empower our employees to do their jobs efficiently, safely and in accordance with our association values. One way we do this is by supporting employee growth by offering training and development opportunities that encourage life-long learning through on-the-job training, tuition reimbursement, apprenticeships, and summer internships.*

Category: Health & Safety

Quantitative disclosure: MSC Industrial Supply Co., Resource Transformation – Industrial Machinery Goods, 2020: *MSC’s OSHA Incident Rate for 2017 was 1.49, nearly half of the distribution industry average of 2.9. Our incident rates have consistently remained below industry average, with a 1.66 rating in 2018, and a 1.09 rating in 2019. MSC’s Lost Time Case Rate, which measures the number of cases involving lost workdays per 100 full-time associates, was 0.72 in 2017, below the industry average of 0.9. Our Lost Time Case Rate continued to trend downward in fiscal 2018 with a rate of .69, and again in fiscal 2019 with a rate of .31... A 1.0 measure reflects an average safety record, with scores below that level better with 0.45 being the best possible score. MSC’s EMR improved from 0.99 in 2015 to 0.85 in 2017. Our EMR in 2018 was .97 and was 1.12 in 2019. In 2019, we reported 59 injuries among our 6,900-plus associates and over 10.8 million hours worked. In 2018, we had 93 injuries with 6,400-plus associates and 11.2 million hours worked. In 2017, we had 83 injuries among 6,500-plus+ associates with over 11.1 million hours worked. . . . Since fiscal 2016, MSC’s preventable accident rate has declined from 3.41 accidents (per million miles driven) to 2.62 in fiscal 2018, a 23 percent decline. MSC had one motor vehicle accident (MVA) fatality in 2019, our first reported fatality in decades.*

Qualitative disclosure: Federal Signal Corporation, Resource Transformation – Industrial Machinery Goods, 2020 *When it comes to employee safety, we are laser focused on continuous improvement and the reduction of incident frequency. We have an ambitious goal of zero workplace injuries. In 2019, ten of our businesses had a Total Case Incident Rate below the average for their Standard Industrial Classification peer group. . . Many of our businesses have safety committees, consisting of employees from various disciplines, that conduct safety audits, assist in safety training, and safety improvement initiatives. In 2019, we reviewed and improved our incident response plans to better ensure we have trained first aid response teams who are knowledgeable and available to address any health or safety related incidents. At one business, this team was instrumental in providing lifesaving triage for a non-work related incident. In 2019, our Safety Council introduced a new Workplace Hazard Reduction program to accelerate our progress towards zero workplace accidents by:*

- *Identifying and implementing innovative changes to reduce exposure to hazards in the workplace*
- *Sharing safety improvement ideas across all businesses*
- *Recognizing the top company-wide three to five safety improvements*

The top improvements of 2019 were identified by our Safety Council and recognized with awards. In 2020, we set a target for each of our businesses to identify, implement, and submit at least two facility and/or process improvements per quarter. In 2018, Vactor was awarded the Iowa-Illinois Safety Council’s 2018 President’s Hazard Control Award for specific hazard control projects and for improving the safety culture of the business.

Category: Labour Union & Relations

Quantitative disclosure: SBA Communications Corporation, Engineering & Construction Services, 2020: *We are supportive and respectful of our team members’ choice and ability to exercise their legal right of freedom of association. As such, 11% of our global workforce is represented by labor unions and covered by collective bargaining agreements.*

Qualitative disclosure: EMCOR Group, Inc., Engineering & Construction Services, 2020: *Workers must be allowed to exercise freedom of association and receive the full benefit of applicable collective bargaining agreements.*

Category: Employee Engagement

Quantitative disclosure: Unisys, Technology and Communications - Software IT Services, 2021: *Every year we measure associate engagement and develop action plans to improve in key areas. This year 83% of our associates participated in the survey, revealing that 72% of associates are actively engaged.*

Quantitative disclosure: NetScout Systems, Inc., Technology and Communications - Software IT Services, 2021: *In 2021 we launched an unprecedented employee engagement program called Netscout Without Borders to further alignment with our mission. As part of Netscout Without Borders, our employees participated in a series of town halls with the CEO and in-depth focus groups. As a follow on, employees will participate in enhanced development programs and a robust employee engagement survey plan. Netscout is also bolstering its employee development and engagement efforts to create consistent, transparent talent processes for all employees that includes the following elements:*

- *Inclusive employee engagement – to explore the full employee experience*

and lifecycle, to help ensure all employees are encouraged and comfortable being their unique selves.

- Assessment – to identify the core, key leadership skills at Netscout and to objectively gauge performance of current and potential leaders.

Category: Volunteering

Quantitative disclosure: Ventas, Infrastructure – Real Estate, 2021: *150 Employees participated in virtual charity events. . . Employees and their families wrote and created more than 1,500 cards, which were packaged and delivered to residents for the holidays. . . Ventas encourages our employees to give back to their communities and we are proud to be able to financially support organizations that are meaningful to them through our Employee Charitable Fund. Over the last year, Ventas has donated dozens of local and national non-profit organizations our employees are passionate about, fulfilling more than 90% of eligible requests.*

Qualitative disclosure: LXP Industrial Trust, Infrastructure – Real Estate, 2021: *LXP recognizes the importance of our role in the local communities where our employees live and work and where LXP operates. In 2021, we conducted a virtual food drive in support of the North Texas Food Bank, allowing employees to give back to one of our local communities. LXP provides its employees with paid time off to donate their time and talents for community causes. LXP looks forward to resuming group in-person volunteer opportunities as a company in 2022.*

Category: Diversity, Equity & Inclusion

Quantitative disclosure: Cadence, Technology and Communications - Software & IT Services, 2021: *Based on these efforts, the proportion of women at Cadence has increased in each of the last eight years. In 2021, 25% of all new hires were women and 28% of our early career and intern hires were women. . . With a perfect score of 100, we were included as part of their Corporate Equality Index, which is the national benchmarking tool on corporate policies and practices pertinent to lesbian, gay, bisexual, transgender and queer employees. . .*

Gender (Global)	Overall	Technical	Non-Technical	Management
Women	23%	20%	46%	17%

Ethnicity (US)	Overall	Technical	Non-Technical	Management
Asian & Indian	54%	58%	39%	53%
Black or African American	1%	1%	2%	1%
Hispanic and Latinx	3%	2%	5%	2%
Other*	1%	1%	2%	1%
Undisclosed	6%	6%	5%	7%
White	35%	33%	45%	38%

Qualitative disclosure: Mongoddb Inc, Technology and Communications - Software & IT Services, 2021: *MongoDB is committed to building a culture that embraces the power of differences. We understand that knowledge and empathy come from listening to and learning from diverse perspectives. This philosophy extends to our employees, users, customers, and communities. . . MongoDB is a place where individuals of all backgrounds can build their careers and thrive. We have established key partnerships to expand talent sourcing, mentoring, and development. And we continually review our systems and processes for fairness and equity. . . As signatories to the Corporate Parity Pledge, we've committed to interviewing at least one qualified female candidate for every open role at the vice president level and above as well as for every additional directorship on our Board of Directors. MongoDB is committed to pay equity. We benchmark using a third party tool and set pay ranges based on market data and consider factors such as an employee's role and experience, job location, and performance. . . Our commitment to diversity and inclusion is unwavering. We will continue to set goals, dedicate resources, evaluate processes, and optimize when we identify areas of opportunity. At MongoDB, we want everyone to do their best work and feel comfortable doing it.*

Category: Education and Skills

Quantitative disclosure: Moderna, Inc., Health Care - Biotechnology and Pharmaceuticals, 2021: *47% of employees hold Ph.D., Doctorate, M.D., J.D., or Master's degrees*

Qualitative disclosure: Charles River Laboratories International Inc., Health Care - Biotechnology and Pharmaceuticals, 2021: *We pride ourselves on acting as trusted advisors, leveraging our scientific expertise to support our clients, and accelerating drug research and development. We recruit top talent by offering competitive benefits, continuing education opportunities, and roadmaps for career development. We work with universities across the world to give scientists and researchers the opportunity to kick-start a career in transforming the drug discovery pipeline.*

Appendix 2 Examples of Disclosures in 10-K Filings

Category: Operating

Quantitative disclosure: Poshmark, Inc., Consumer Goods - E-commerce, December 31, 2021: *As of December 31, 2021, we had 750 full-time employees of which 248 were in research and development, 88 were in marketing, 333 were in operations and support, and 81 were in general and administrative.*

Qualitative disclosure: a.k.a. Brands Holding Corp, Consumer Goods - E-commerce, December 31, 2021: *As of December 31, 2021, across a.k.a. Brands, we had more than 1,100 full-time employees. The majority of our workforce is located in Australia, with the remaining employees located throughout the United States. On a limited basis, we may use temporary personnel to supplement our workforce as business needs arise.*

Category: Compensation

Quantitative disclosure: Tompkins Financial Corporation, Financials - Commercial Banks, December 31, 2021: *The Company maintains a Profit Sharing plan for all employees who meet minimum service requirements. As of December 31, 2021, 73% of all employees received a profit sharing contribution during 2021. We also offer incentive and/or equity compensation plans or programs to employees at many levels of our Company and, as of December 31, 2021, 59% of all employees had an opportunity to earn supplemental compensation reflective of their position and overall contributions towards the Company's strategic objectives.*

Qualitative disclosure: Fulton Financial Corporation, Financials - Commercial Banks, December 31, 2021: *The Corporation invests in its workforce by offering competitive salaries, incentives, and benefits that are part of the Corporation's pay for performance culture. This is implemented through a number of incentive programs that are tailored to drive performance in the business units as well as at the corporate level.*

Category: Recruitment & Turnover

Quantitative disclosure: United Rentals, Inc., Resource Transformation- Industrial Machinery & Goods, December 31, 2021: *To evaluate our employee experience and retention efforts, we monitor a number of employee measures, such as employee retention, internal promotions and referrals. For example, total employee turnover, which represents voluntary and involuntary terminations during the year divided by average headcount during the year, was 15.4 percent, 11.9 percent and 14.4 percent for 2021, 2020 and 2019, respectively. . . Additionally, when we asked employees how likely they are to continue with the Company beyond 6 months, the average response was 9.2 out of 10, which was consistent with the average response in 2020. . . In 2021, our employees enhanced their skills through approximately 460,000 hours of training, including safety training, sales and leadership training and equipment-related training from our suppliers.*

Qualitative disclosure: Dover Corporation, Resource Transformation- Industrial Machinery & Goods, December 31, 2021: *We recognize that attracting, developing and retaining skilled talent and promoting a diverse and inclusive culture are essential to maintaining our leadership positions in the markets we serve. While our operating companies are the hubs of these activities — an effective model that puts ownership in the businesses and cultures that are the source of opportunities for employees — we are increasingly leveraging the corporate center to drive talent recruitment and development and consistent human capital management practices across our businesses. This center-led focus is enabling us to make development opportunities available across our enterprise which promotes employee advancement, engagement and retention. We offer employees resources to continuously improve their skills and performance with the goal of further cultivating the diverse, entrepreneurial talent inside our global businesses to fill key positions. We seek people who are proactive and dedicated, demonstrate an ownership mindset and share our commitment to the pursuit of operational excellence. We continue to make significant investments in talent development and recognize that the growth and development of our employees is essential for our continued success.*

Category: Health & Safety

Quantitative disclosure: Carrier Global Corporation, Resource Transformation- Electrical & Electronic Equipment, December 31, 2021: *For 2021, our total recordable incident rate ("TRIR") based upon the number of injuries per 200,000 hours worked for our employees in the U.S. was 0.35 and our lost time incident rate ("LTIR") was 0.11.*

Qualitative disclosure: Advanced Energy Industries, Inc., Resource Transformation- Electrical & Electronic Equipment, December 31, 2021: *We provide regular health and safety training in both on-site format and through our virtual training tool that assigns training requirements based on job profiles and site-specific requirements. Our Environmental, Health and Safety organization is a global team responsible for health and safety related to on-site operations, including hazard and risk identification. Workplace safety is also addressed in operations meetings and monthly business reviews. We are also committed to the standards of the Responsible Business Alliance Code of Conduct, which promotes labor, health and safety, environmental and ethics best practices.*

Category: Labour Relations & Unions

Quantitative disclosure: International Paper Company, Resource Transformation- Containers & Packaging, December 31, 2021: *Of our U.S. employees, approximately 21,700 are hourly, with unions representing approximately 13,500 employees. Approximately 10,200 of this number are represented by the United Steelworkers union ("USW").*

Qualitative disclosure: O-I Glass, Inc., Resource Transformation- Containers & Packaging, December 31, 2021: *A significant portion of the Company's employees in the Americas are hourly workers covered by collective bargaining agreements. In Europe, a large number of the Company's employees are employed in countries in which employment laws provide greater bargaining or other rights to employees than the laws of the U.S. Such employment rights require the Company to work collaboratively with the legal representatives of the employees to effect any*

changes to labor arrangements. The Company considers its employee relations to be good and does not anticipate any material work stoppages in the near term.

Category: Employee Engagement

Quantitative disclosure: Apartment Income REIT Corp., Infrastructure - Real Estate, December 31, 2021: *The teammate engagement score consists of the average of the responses to the questions that comprise the engagement index, on a scale of 1 to 5, for all teammates who complete the survey during the year. AIR's overall teammate engagement score from the 2021 Annual Lifecycle Surveys was 4.35, compared to the target of 4.30. With respect to our on-site goal, our primary objective is to maintain a highly engaged, stable workforce at our communities, enhanced by innovations in efficiency, all of which further our strategic objective of maximizing NOI margins. Our on-site teammate engagement score was 4.57, up from 4.50 in 2020.*

Quantitative disclosure: EPR Properties, Infrastructure - Real Estate, December 31, 2021: *We use Gallup to measure employee engagement through a survey administered annually. This helps us to understand the overall level of engagement of our associates. By focusing on engagement we gather valuable information needed to engage and retain the most talented associates.*

Category: Volunteering

Quantitative disclosure: The Carlyle Group Inc., Inc., Financials - Asset Management and Custody Activities, December 31, 2021: *In 2021, more than 180 Carlyle employees gave over 300 philanthropic gifts, which we matched. These gifts supported over 100 nonprofit organizations globally.*

Qualitative disclosure: Innovative Industrial Properties, Inc., Financials - Asset Management and Custody Activities, December 31, 2021: *We also coordinate periodic team and individual community giving activities (both in terms of hands-on volunteering and continued financial contributions), soliciting input from our employees regarding charitable organizations and community activities that they would like to support.*

Category: Diversity, Equity & Inclusion

Quantitative disclosure: PDC Energy, Inc., Extractives & Mineral Processing - Oil and Gas - Exploration and Production, December 31, 2021: *Approximately 27% of our employees are women and 21% are members of a minority group, as defined by the U.S. Equal Employment Opportunity Commission, as of December 31, 2021. As of the same date, 32% of our executives are women and 17% members of a minority group. Since the beginning of 2021, we have expanded the diversity of our board of directors by adding three new diverse members with a unique set of backgrounds.*

Qualitative disclosure: EOG Resources, Inc., Extractives & Mineral Processing - Oil and Gas - Exploration and Production, December 31, 2021: *EOG believes gender, racial, ethnic and cultural diversity, and diversity in background and experience, leads to diversity of thought, which is valued by EOG. As part of its effort to build and maintain a diverse and inclusive*

workplace, EOG focuses on creating a collaborative culture that fosters inclusion at all levels of the company and reflects the diversity of thought of its employees. EOG also takes steps to raise employee awareness, provide leadership and offer training to help advance diversity and inclusion within EOG. Further, as reflected in its Code of Business Conduct and Ethics for Directors, Officers and Employees, EOG is committed to providing equal opportunity in all aspects of employment and to hiring, evaluating and promoting employees based on skills and performance.

Category: Education and Skills

Quantitative disclosure: MannKind Corporation, Health Care - Biotechnology and Pharmaceuticals, December 31, 2021: *Seventeen of these employees had a Ph.D. degree and/or M.D. degree and were engaged in activities relating to research and development, manufacturing, quality assurance or business development.*

Qualitative disclosure: Atara Biotherapeutics, Inc., Health Care - Biotechnology and Pharmaceuticals, December 31, 2021: *We believe that the success of our business will depend, in part, on our ability to attract and retain qualified personnel.*

Appendix 3 Variable Definitions

Variable	Definition	Source
<i>Any Quant Metric</i>	An indicator for whether the firm discloses at least one quantitative metric	10-K
<i>SASB Metric</i>	An indicator for whether the first discloses at least one quantitative metric recommended by the industry's SASB standard	10-K
<i>Non SASB Metric</i>	An indicator for whether the first discloses at least one quantitative metric that is not included in the relevant SASB standard	10-K
<i>EEO Disc</i>	An indicator variable that takes on the value of one if the firm publicly discloses their 2018 EEO-1 report	Corporate Websites, ESG Reports
<i>ESG Report Disc</i>	An indicator variable that takes on a value of one if the firm publicly discloses an ESG report in at least one of the pre-regulation periods	Corporate Websites, Responsibility Reports
<i>SASB Guidance Exists</i>	An indicator variable that takes on a value of one if the firm belongs to an industry where SASB provides at least one recommended human capital metric in their industry standard	SASB 2018 Industry Standards
<i>Abs(Returns)</i>	The absolute value of the firm's 3-day raw returns around the filing of their 10-K	CRSP
<i>Abs(Market-Adjusted Returns)</i>	The absolute value of the firm's 3-day returns less the market returns for that period	CRSP
<i>ROA</i>	Net income before extraordinary items divided by total assets	Compustat
<i>MTB</i>	Market capitalization divided by total assets	Compustat
<i>Log(Sales)</i>	Log of Sales	Compustat
<i>CapEx/Sales</i>	Capital expenditures divided by sales	Compustat
<i>COGS/Sales</i>	Cost of goods sold divided by sales	Compustat
<i>Institutional Ownership</i>	Percentage of outstanding shares held by institutional investors	Compustat
<i>HHI</i>	Sum of squared market shares of all firms in a given industry (where industry is determined by two-digit sic codes)	Thomson Reuters 13F
<i>Unemployment Rate</i>	Annual unemployment rate over time	Compustat
<i>Log(Employees)</i>	Log of number of employees	Bureau of Labor Statistics
<i>Log(Geographic Regions)</i>	Log of the number of unique countries mentioned in a firm's 10-K	10-K
<i>Labour Related Incident</i>	An indicator variable that takes on a value of one if the firm had at least one labor-related incident based on the categories in Rep Risk	10-K Rep Risk

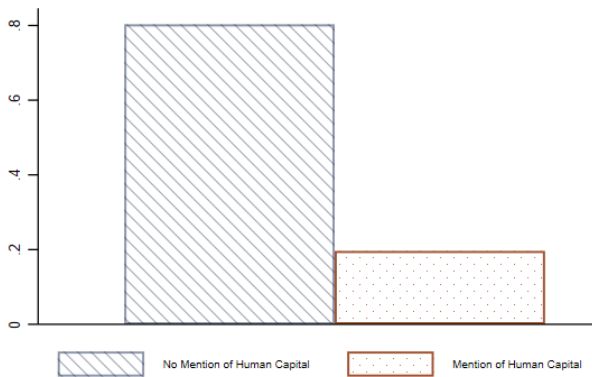
Appendix 4 Incidence of SASB prescribed metrics for SICS industries

SASB Sector	SASB Industry	At least one SASB HC metric?
Consumer Goods	Apparel, Accessories & Footwear	Yes
Consumer Goods	Appliance Manufacturing	No
Consumer Goods	Building Products and Furnishings	No
Consumer Goods	E-commerce	Yes
Consumer Goods	Household and Personal Products	No
Consumer Goods	Multiline and Specialty Retailers and Distributors	Yes
Consumer Goods	Toys and Sporting Goods	Yes
Extractives & Minerals Processing	Coal Operations	Yes
Extractives & Minerals Processing	Construction Materials	Yes
Extractives & Minerals Processing	Iron and Steel Production	Yes
Extractives & Minerals Processing	Metals and Mining	Yes
Extractives & Minerals Processing	Oil and Gas - Exploration and Production	Yes
Extractives & Minerals Processing	Oil and Gas - Midstream	Yes
Extractives & Minerals Processing	Oil and Gas - Refining and Marketing	Yes
Extractives & Minerals Processing	Oil and Gas - Services	Yes
Financials	Asset Management and Custody Activities	Yes
Financials	Commercial Banks	No
Financials	Consumer Finance	Yes
Financials	Insurance	No
Financials	Investment Banking and Brokerage	Yes
Financials	Mortgage Finance	Yes
Financials	Security and Commodity Exchanges	No
Food & Beverage	Agricultural Products	Yes
Food & Beverage	Alcoholic Beverages	No
Food & Beverage	Food Retailers and Distributors	Yes
Food & Beverage	Meat, Poultry and Dairy	Yes
Food & Beverage	Non Alcoholic Beverages	No
Food & Beverage	Processed Foods	No
Food & Beverage	Restaurants	Yes
Food & Beverage	Tobacco	No
Health Care	Biotechnology and Pharmaceuticals	Yes
Health Care	Drug Retailers	Yes
Health Care	Health Care Delivery	Yes
Health Care	Health Care Distributors	Yes
Health Care	Managed Care	Yes
Health Care	Medical Equipment and Supplies	No
Infrastructure	Electric Utilities	Yes
Infrastructure	Engineering & Construction Services	Yes
Infrastructure	Gas Utilities	No
Infrastructure	Home Builders	Yes
Infrastructure	Real Estate	No

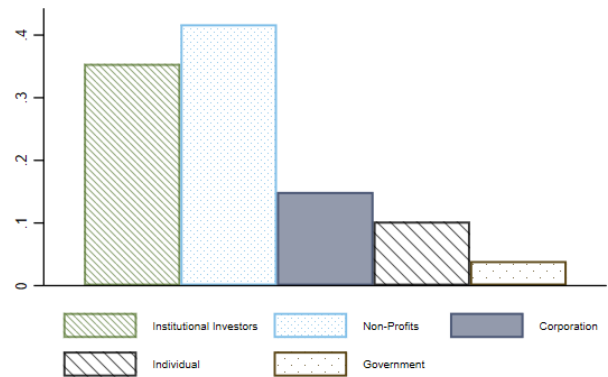
Infrastructure	Real Estate Services	No
Infrastructure	Waste Management	Yes
Infrastructure	Water Utilities & Services	No
Renewable Resources & Alternative Energy	Biofuels	Yes
Renewable Resources & Alternative Energy	Forestry Management	No
Renewable Resources & Alternative Energy	Fuel Cells	Yes
Renewable Resources & Alternative Energy	Pulp & Paper Products	No
Renewable Resources & Alternative Energy	Solar Technology & Project Developers	No
Renewable Resources & Alternative Energy	Wind Technology & Project Developers	Yes
Resource Transformation	Aerospace & Defense	No
Resource Transformation	Chemicals	Yes
Resource Transformation	Containers & Packaging	No
Resource Transformation	Electrical & Electronic Equipment	No
Resource Transformation	Industrial Machinery & Goods	Yes
Services	Advertising & Marketing	Yes
Services	Casinos & Gaming	Yes
Services	Education	Yes
Services	Hotels & Lodging	Yes
Services	Leisure Facilities	Yes
Services	Media & Entertainment	Yes
Services	Professional & Commercial Services	Yes
Technology & Communications	Electronic Manufacturing Services & Original Design Manufacturing	Yes
Technology & Communications	Hardware	Yes
Technology & Communications	Internet Media & services	Yes
Technology & Communications	Semiconductors	Yes
Technology & Communications	Software & IT Services	Yes
Technology & Communications	Telecommunication Services	No
Transportation	Air Freight & Logistics	Yes
Transportation	Airlines	Yes
Transportation	Auto Parts	No
Transportation	Automobiles	Yes
Transportation	Car Rental & Leasing	No
Transportation	Cruise Lines	Yes
Transportation	Marine Transportation	Yes
Transportation	Rail Transportation	Yes
Transportation	Road Transportation	Yes

Appendix 5 Description of Comment Letters

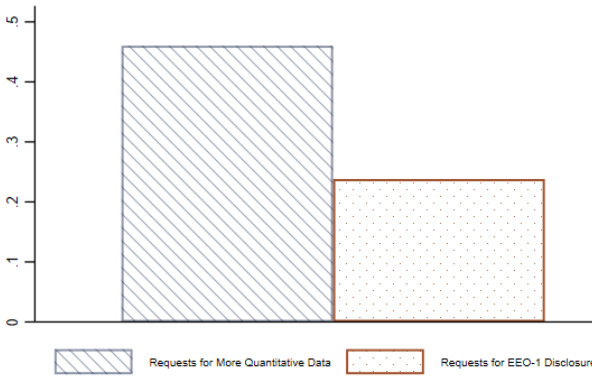
This figure shows a summary of the comment letters received by the SEC from their call for public comment for opinions on environmental disclosure. Panel A shows the proportion of comment letters received that mentioned human capital, even though the call for public comment was specifically targeted towards environmental disclosures. Panel B shows the different sources of the letters for the subset of letters that mentioned human capital. Panel C shows the proportion of human capital letters that requested more quantitative data and/or mentioned wanting firms to publicly disclose their EEO-1 report. Panel D shows the breakdown of human capital letters by subject category.



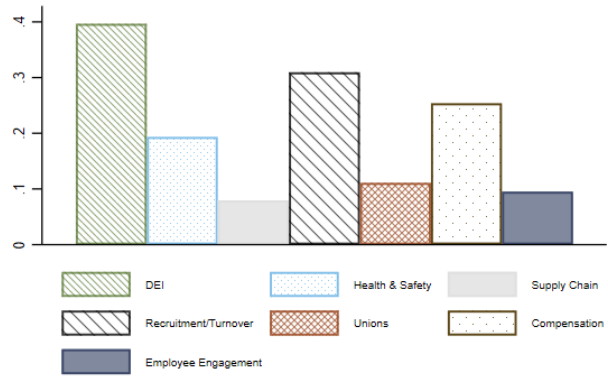
PANEL A: Proportion of Comment Letters Mentioning Human Capital



PANEL B: Proportion of Comment Letters by Writer Type



PANEL C: Proportion of Comment Letters by Specific Requests



PANEL D: Proportion of Comment Letters by Topic