Is a Picture Worth a Thousand Words?

Image Usage in CSR Reports

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Abstract

Prior research identifies images as a tool for corporate impression management. We collect a novel dataset on widescale image usage in Corporate Social Responsibility (CSR) reports using automated methods. We examine (1) associations between CSR report image usage and motivations for impression management, (2) changes in CSR report image usage after controversial events, and (3) market valuation of firms using excessive images. We hypothesize and find that socially problematic industries exhibit higher image usage than others. Firms who voluntarily commit to higher disclosure standards tend to use fewer images, while firms with less extensive textual disclosures in their CSR reports tend to use more images. Tellingly, firms with poorer ratings of CSR performance use more images in CSR reports, and firms increase image usage (albeit weakly) after controversial events. We find no evidence that investors overvalue firms with excessive image usage. Overall, the evidence is consistent with companies using images in CSR reports strategically to enhance stakeholder perception of CSR engagement and performance; such strategic usage does not impact equity valuation.

October 2020

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I. Introduction

Every glossy company report presents images along with words. Yet, we know little about how and why companies use images or what impact images have on capital market audiences. According to experimental and small-scale studies, report creators often strategically use images to give readers a more positive perception of the contents than warranted (Beattie and Jones, 2008; Bolino et al., 2008). Such perception enhancement has been referred to as impression management (Elsbach and Sutton, 1992).

Corporate Social Responsibility (CSR) reports are a likely arena for impression management due to the stakeholder orientation of these reports, the lack of regulation over their contents, and the often-qualitative nature of their information (Neu et al., 1998; Hooghiemstra, 2000; Moneva et al., 2006; Bansal and Kistruck, 2006; Dhaliwal et al., 2011; Jones, 2011; Boiral, 2013). In this paper, we examine image usage as a possible method of impression management in CSR reports. We seek to (1) document how prevalently firms use images in CSR reports on a wide scale for the first time, (2) test whether image usage in CSR reports is linked to motivations for impression management such as social disapproval, poor CSR performance, and controversial events, and (3) explore whether equity valuation is related to CSR report image usage.

The experimental psychology literature gave rise to testable hypotheses on visual impression management, but data collection remains a major challenge in testing these hypotheses in large samples of corporate disclosures. Most archival studies have been qualitative, in which researchers employ content analysis and assign perceived characteristics to images (Bolino et al., 2008). Some studies involve quantifying the characteristics of graphs or charts, which still requires manual recording (Beattie and Jones, 2008). Hand-collected data is difficult and time-consuming for other researchers to replicate. While understanding qualitative characteristics is valuable, our

knowledge of how companies use images strategically and how this behavior affects report audiences is severely incomplete without widening the sample selection and developing quantitative comparisons. Numerous researchers have called for expanding data cross-sectionally and longitudinally (Elsbach and Sutton, 1992; Bolino et al., 2008; Beattie and Jones, 2008). To advance knowledge of visual impression management, we use computerized methods to count images in CSR reports. (Please see Appendix I for common examples of CSR report images.) The resulting dataset contains 2,712 firm-year observations, covering 532 unique U.S. public companies who published stand-alone CSR reports over the 14-year period between 2005 and 2018. To our knowledge, this is the largest dataset of image usage in corporate reports yet compiled.

We include both what we term as aesthetic images (e.g., photographs) and data-visualizing images (e.g., graphs) in our definition of images. Even though data-visualizing images could casually be perceived as neutral and informative, prior literature has overwhelmingly observed impression management in data-visualizing images. Common methods include highlighting selective information or distorting graph scales to make performance appear more favorable (Bolino et al., 2008; Beattie and Jones, 2008). Since both types of images can potentially contribute to visual impression management, distinguishing between them would not change our hypotheses. Nevertheless, we randomly choose 200 CSR reports from the sample and report on their incidence of aesthetic vs. non-aesthetic images in Appendix II. We find the correlation between the number of aesthetic images per page and the number of total images per page to be extremely high at 0.87. We proceed to use the sum of all images in our main analysis.

We formulate two standardized measures of image usage. Our first measure is the number of images divided by the number of pages in each report (IMAGES_PER_PAGE). This measure

captures relative image usage across companies. However, the amount of text better reflects the amount of information transmitted than the number of pages. Our second measure is the number of images divided by the units of 1,000 words in each report (IMAGES_TO_TEXT). We use both measures in all tests. The first pattern we observe, graphed in Figure 1, is that image usage in CSR reports has grown over time. While the average of IMAGES_PER_PAGE grows slowly, the average of IMAGES_TO_TEXT exhibits a sharp upwards trend. This trend confirms our motivation that rigorous examination of the incentives behind and impact of image usage in CSR reports is relevant and timely.

After documenting CSR report image usage, we examine whether it is associated with motivations for visual impression management identified in prior literature. We observe higher image usage in socially problematic industries that supply undesirable habits or generate controversial externalities, as well as business-to-consumer industries. These industry characteristics appear to hold stronger explanatory power for CSR report image usage than firm financial characteristics.

Continuing to firm characteristics, we find that firms who do not commit to the Global Reporting Initiative (GRI), which "represent global best practice for reporting on a range of [ESG] impacts" (GRI, 2020), tend to exhibit higher image usage in CSR reports. Consistently, firms with less extensive textual disclosure content in CSR reports (as measured by counting the presence of disclosures on various environmental, social, and governance topics from Bloomberg) also exhibit higher image usage.

Moving to actual CSR performance, we find that firms with poorer CSR performance (as measured by ESG scores from Refinitiv[1]) tend to exhibit higher image usage in CSR reports. We

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[1] Refinitiv is formerly named Thomson Reuters Financial & Risk. These scores are the same as the Thomson Reuters ESG scores in previous literature (Thomson Reuters, 2018).

substantiate these levels association tests with changes association tests. We focus on increases in the ESG Controversies Score and increases in the number of underlying controversies as two measures of poor CSR performance. We find some evidence that image usage increases with worsening CSR performance and modest evidence that image usage decreases with improving CSR performance.

Putting these results together, we find that the firms who are (1) in greater need of legitimacy, (2) less forthcoming about their CSR activities, and (3) rated more poorly on their actual CSR performance are more likely to use images extensively in CSR reports. These collective findings paint a consistent picture of image usage being motivated by impression management concerns.

We complete our analysis on visual impression management behavior by assessing its impact on shareholder valuation. Whether visual impression management affects not only perception but also decision-making is a fundamental yet unanswered question in the literature (Beattie and Jones, 2008; Diouf and Boiral, 2017). We construct portfolios that long (short) firms with low (high) image usage compared to industry peers and examine cumulative abnormal returns over the year after report publication. The portfolio returns are insignificant from zero in the overall sample and various subsamples, suggesting that equity investors are not susceptible to visual impression management in CSR reports on any large scale.

This study gathers archival evidence to engage in the societal conversation on accountability in CSR reporting. "Greenwashing", the practice of falsifying or exaggerating the organization's CSR engagement and performance, is a growing concern for stakeholders (Gingrich et al., 2019; Reilly, 2020). To the extent that stakeholder perception affects decisions, visual impression management can affect the efficient allocation of resources and the alignment of

invested resources with investor values (Chatterji et al., 2009). It has implications for regulators interested in whether and how much to regulate "greenwashing" as well.[2] We are cautiously optimistic that while visual impression management is widespread, it does not mislead equity investors. This paper also contributes to the literature on CSR reporting by documenting an instance of heterogeneity in CSR reporting as well as examining its determinants and consequences. More so than many other report features, image usage is specific to reporting and distinguishable from underlying activities, a challenge in the literature identified by Christensen et al. (2019).

In addition, this paper contributes to the literature on impression management. Firstly, we provide evidence on organizational impression management behavior that can be replicated or extended using automated methods. Secondly, we widen the sample collection for visual impression management, thus generalizing the results to more organizations, more readers, and longer time periods. Thirdly, we examine the consequences of organizational impression management for equity markets, which are under-explored due to the limitations inherent in prevailingly qualitative methods (Beattie and Jones, 2008; Hopwood, 2009). Fourthly, we contribute a visual perspective to the corporate impression management literature, where archival studies have been dominated by textual or numerical impression management as reviewed in Merkl-Davies and Brennan (2007). Our results confirm, challenge, generalize, and extend the results from prior experimental and small-scale studies on organizational impression management.

Finally, this paper contributes to the wider literature on mandatory and voluntary corporate disclosure, which has mostly focused on numerical or linguistic characteristics. Established topics

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[2] The European Union has recently created legislation that requires funds claiming they engage in socially responsible investing to justify that claim, and the funds in turn have asked for more comparable and substantiated information from firms (Reilly, 2020).

include the linguistic complexity of filings (Li, 2008), the walking down of management guidance (Bartov et al., 2002), the tone of conference calls (Huang et al., 2014), and the salience of non-GAAP earnings (Bowen et al., 2005), among others. In comparison, there is a lack of systematic and quantitative evidence on the use of images in corporate disclosures. The one exception is Bird and Karolyi (2016), which includes the number of graphics in 8-K filings in its comparison of disclosure behavior for firms just above and just below the Russell 1000 index threshold. They find that firms just under the Russell 1000 threshold file 8-Ks with longer text, more graphics, and more exhibits. We are unable to infer from the paper whether Bird and Karolyi (2016)'s procedure for collecting images is manual or automated. Regardless, image usage in mandatory filings with clear guidance from the Securities and Exchange Commission is likely to be different from image usage in voluntary reports with little regulatory oversight and massive firm discretion. In Bird and Karolyi (2016)'s sample, the median number of graphics per filing is close to 0 while the 75% percentile value is 1. In contrast, firms exhibit much more variation in CSR report image usage. By focusing on the CSR setting where visual cues are likely to be used by firms and to impact audiences, this study contributes to understanding the role that images play in corporate disclosures. In addition, we introduce new methods to document images that we hope will inform and inspire future research.

The rest of the paper is organized as follows. Section II summarizes prior literature and develops our hypotheses. Section III explains our image-counting method and describes our sample data. Section IV presents the results to hypothesis testing. Section V concludes.

II. Literature Review and Hypothesis Development

The prediction that impression management appears in corporate communications arises from the intersection of two organizational theories: legitimacy theory and stakeholder theory. In

legitimacy theory, organizations need to show that the value system "associated with or implied by their activities" is congruent with "the norms of acceptable behavior in the larger social system" (Dowling and Pfeffer, 1975. Lack of legitimacy leads to "legal, economic, and other social sanctions", including the reallocation of resources (Dowling and Pfeffer, 1975). Who has power to grant or deny legitimacy to corporations? While Jensen and Meckling (1976) assigns primacy to shareholders, stakeholder theory also considers the company's customers, suppliers, employees, surrounding communities, governments, and others impacted by its activities (Freeman 1984; Donaldson and Preston, 1995). Each corporation needs its stakeholders to confer legitimacy on and provide resources for its operations and existence. One way to build and defend the company's legitimacy is "through communication", using "symbols to identify the organization with legitimate social institutions or practices" (Dowling and Pfeffer, 1975). Any symbolic identification in corporate communications that aims to mislead stakeholders' perception of the firm would be a form of impression management.

Many corporate disclosure studies have examined impression management in numerical or textual forms.[3] More recently, researchers have turned to "visual rhetoric", i.e. the use of images, in business communications (Graves et al., 1996; Courtis, 2004). Psychological research accumulating since the 1960s has found images to be more powerful than text (Paivio, 1991). Images are the first things human eyes pay attention to on the page; people choose to read news articles with images more often than articles without images (Knobloch et al., 2003). Images are easier to recall than words in many situations (Paivio, 1969; Zillmann et al., 1999). Moreover, where images and text give opposite impressions, audience perception becomes biased in the direction of the images (Zillmann et al., 1999). Could visual impression management in corporate

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[3] Please see Dechow et al. (2010) and Loughran and McDonald (2016) for reviews of the earnings management and textual analysis literature, respectively.

reports have as strong an impact on readers as numbers and words?

The one type of corporate communication whose image usage has been extensively documented is the annual report. Penrose (2008) and Beattie and Jones (2008) comprehensively review related studies. [4] The collective findings suggest that companies use images strategically in annual reports to enhance stakeholder perception of their products, operations, credibility, and performance. However, this stream of literature shares the same limitations as the CSR-specific visual impression management literature: the main data-collecting process is hand collection and the main methodology is content analysis. [5] This stream of literature also has limitations unique to its subject. The information in the annual reports, centered around Form 10-K, is relatively constrained in format and content. The expected audience for annual reports is relatively focused on financial information. However, these limitations highlight an opportunity for studies on other types of reports to contribute to the literature.

Impression management should be more observable and impactful in CSR reports than in annual reports for at least two reasons, the first relating to the difficulties inherent in verifying CSR disclosures.[6] McWilliams and Siegel (2001) define CSR as "actions that *appear* to further some social good, beyond the interests of the firm and that which is required by law" (p.117; emphasis

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[4] Major findings include: Using images is a widespread and dominant trend in annual reports (Graves et al., 1996; Hancock, 2003). Companies use photographs to promote an idealized image of their products, operations, or performance (Graves et al., 1996; Benschop and Meihuizen, 2002). Companies select graphs to highlight positive performance as well as distort graphs to make good news look more favorable or make bad news look less severe (Taylor and Anderson, 1986; Beattie and Jones, 1992; Beattie and Jones, 2000a; Godfrey et al., 2003). While it is extremely difficult to disentangle the impact of image usage in annual reports from the impact of information released around annual report release dates, Muino and Trombetta (2009) find that graph bias is associated with lower cost of capital.

[5] Even though measuring graph distortion following the methods of Tufte (1983), Steinbart (1989), or Mather et al. (2005) is quantitative and replicable, the process still requires hand collection as a prerequisite. Curiously, some of the earliest studies feature the widest samples: Steinbart (1989) with 319 U.S. reports from 319 firms in 1 year, and Beattie and Jones (2000b) with 263 reports from 50 firms across 6 countries.

[6] CSR reports began as social or environmental sections in the annual report. Stand-alone CSR reports gained momentum in the early 2000s and the trend grew till at least 2013 (KPMG, 2013). Now there is a trend toward re-integration that will offer opportunities for future research (KPMG 2015, 2017). In this paper we focus on stand-alone CSR reports due to their prevalence at the time of our analysis.

added). CSR includes but is not limited to social, environmental, and sustainable concerns. CSR reports communicate firms' CSR activities, performance, and commitment. Expressed commitment can contribute to organizational legitimacy even though it is unverifiable (Dowling and Pfeffer, 1975). Bansal and Clelland (2004) find that the expression of unverifiable CSR commitment in firm press releases reduces the impact of negative media reports on stock price volatility. Hopwood (2009) recounts that the British telecommunications multinational, BT Group, won the 2008 United Kingdom Awards for Sustainability Reporting for vague reasons like "strategy", "target(s)", and "the future".[7] Furthermore, many aspects of CSR activities and performance are more difficult to quantify than financial performance. Even CSR activities that manifest in observable outputs are not necessarily quantifiable in monetary terms, and a diversity of measurements prevail (Kitzmueller and Shimshack, 2012). CSR reporting also deals often with long-term prospects and intangible constructs (e.g., customer goodwill and employee loyalty), which are inherently more difficult to quantify (Christensen et al., 2019).

A second factor that could drive impression management in CSR reports is the greater diversity of users of these reports, compared to traditional financial reports. Christensen et al. (2019) point out that the users of CSR reporting may include groups that are relatively unsophisticated when it comes to reading financial reports (e.g., consumers and activists).

Thus, impression management may unduly influence stakeholders, informing their perception alongside disclosure content and quality. Figure 2 diagrams the role impression management plays in mediating between CSR performance and stakeholder perception. As CSR reports reach a wide stakeholder audience, many commentators have questioned whether their purpose is to release information or to engage in public relations and create an idealized image of

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[7] Other short-listed candidates ironically included British American Tobacco, British Petroleum, and Royal Dutch Shell.

the firm (Hooghiemstra, 2000; Frankental, 2001; Bolino et al., 2008; Hopwood, 2009; Milne and Grubnic, 2011; Hrasky, 2012; Cho et al., 2012; Boiral, 2013).

If firms convincingly appear to have higher CSR performance than they do, they enjoy the benefits stakeholders accord to higher performance. One major benefit is that CSR performance can enhance firm value.[8] For example, corporate charitable contributions can increase future revenue, especially for firms that sell directly to consumers (Lev et al., 2010). Better CSR performance could contribute to better financial performance (Al-Tuwaijri et al., 2004; Flammer, 2015a). Positive CSR performance offers market benefits as well: lower idiosyncratic risk (Bansal and Clelland, 2004), lower litigation risk (Koh et al., 2014), lower cost of equity capital (Dhaliwal et al., 2011), and lower cost of debt capital (Cooper and Uzun, 2015). It acts as insurance against value decline in firm-specific negative events (Godfrey et al., 2009; Minor and Morgan, 2011) and during financial crises (Lins et al., 2017). Negative CSR performance—possibly leading to civil and criminal penalties, fines, lawsuits, and customer boycotts—represents risk that may be priced (Neu et al., 1998).

Experimental research has found visual impression management effective in enhancing stakeholder perception of CSR performance and commitment. Cho et al. (2009) identify a main mechanism: media richness. "Graphics and other images" constitute "higher levels of media richness than text alone due to the use of multiple cues" (Cho et al. 2009, p.937). They create a CSR web site for a fictional company and vary only the levels of media richness they show participants. In participant surveys, they find that CSR disclosures with higher levels of media

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[8] Jensen (2002) points out that the firm's objective to maximize long-term market value obviously cannot be achieved without considering the interests of important stakeholders such as customers, employees, etc. Thus, CSR is not irreconcilable with Jensen and Meckling (1976)'s theory of the firm. It can be an instrument of "enlightened value maximization" (Jensen, 2002). McWilliams et al. (2006) summarize empirical findings and theoretical insights that CSR provides competitive advantage.

richness score higher on trust and audience perception of CSR commitment and performance. Bansal and Kistruck (2006) conduct open-ended questionnaires on perceptions of the sustainability web pages of Shell Singapore, which has more images, and Shell Australia, which has more text and numbers. They find that half the respondents form a higher opinion of Shell Singapore's sustainability commitment and the other half of Shell Australia's. Because their results show that images, numbers, and text may affect different audiences, Bansal and Kistruck (2006) suggest that companies use a mix of all three mediums in communications. Elliott et al. (2017) find that in sustainability reports, highlighting images or highlighting text affect willingness to invest differently depending on (1) the fit between the presentation choice and the subject's abstractness and (2) the numeracy level of the reader.

Most archival studies on CSR impression management are case studies, single-industry studies, or other small-sample studies.[9] Jones (2011) and Cho et al. (2012) find the same strategic selection and distortion of CSR report graphs to enhance perception as Beattie and Jones (2008) summarize in annual report graphs. Garcia-Sanchez and Araujo-Bernardo (2019) manually identify the size, informativeness, and colors of the images in 105 CSR reports issued by 35 large Spanish firms. They observe that industry is a strong predictor for color choice, and that companies use graphs for strategic as well as informative purposes. Existing studies leave many unanswered questions as to the prevalence of the behavior, the generalizability of the results, and the strength of the impact. We attempt to synthesize and extend the visual impression management literature with the following hypotheses.

First, we test for any relationship between CSR report image usage and textual content quality in the CSR report. Theoretically, there is no necessary association. Companies can use as

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[9] Please see McWilliams et al. (2006) and Merkl-Davies and Brennan (2007) for further reviews and discussions.

many or as few images as they like while issuing high-quality or low-quality reports. On the other hand, if companies use visual impression management as a less costly alternative to improving textual content quality, image usage may be negatively associated with textual content quality. We use the Environmental, Social, and Governance (ESG) Disclosure Score from Bloomberg (a count-based measure that captures how many ESG items tracked by Bloomberg each issuer provides disclosure on) to measure how extensive and substantive the textual disclosures in the CSR report are. We formulate this hypothesis in the null:

Hypothesis 1. All else equal, CSR report image usage has no association with CSR report textual content quality.

Next, we explore whether industries with higher motivation for impression management use more images in CSR reports. Social legitimacy is an important factor. The sin industries in Hong and Kacperczyk (2009), dirty industries in Dupire and M'Zali (2018), and controversial industries with emerging environmental, social, or ethical issues in Cai et al. (2012) need to take more legitimizing actions (Hooghiemstra, 2000). We explain which specific industries fall into each classification in Section III.

Industry competition is another factor. Competition makes CSR more important as a source of differentiation; otherwise, consumers and investors can easily find replacements (Flammer, 2015b; Dupire and M'Zali, 2018). Flammer 2015(b) finds that after a tariff reduction increases competition, domestic companies increase CSR activity. At the same time, competition can make spending resources on CSR more costly (Dupire and M'Zali, 2018). Dupire and M'Zali (2018) find a negative relationship between environmental performance and competition in polluting industries. Another reason CSR activity can be negatively associated with competition is that some CSR activities create public goods rather than solely benefitting the initiator, as modeled by

Bagnoli and Watts (2003). We posit that firms in competitive industries have higher motivation to use impression management, either as a complement to or substitute for CSR engagement.

The third industry factor we examine is sensitivity to consumer perception. Bagnoli and Watts (2003) model that CSR engagement increases with customer willingness to pay a premium for CSR-related differentiation. Such willingness is usually found in individual consumers. Lev et al. (2010) find that in business-to-consumer (B2C) industries, future revenues are more sensitive to corporate philanthropy than in other industries. Flammer 2015(b) finds that after trade tariff reduction increases competition, B2C industries increase CSR activity more so than other industries.

Hypothesis 2. All else equal, firms operating in sin, dirty, controversial, competitive, or B2C industries exhibit higher image usage in CSR reports.

Next, we turn to firm-level characteristics and events that could heighten the need for impression management. We consider firms following GRI Sustainability Reporting Standards to have fewer opportunities to employ visual impression management. GRI is an independent global organization that produces sustainability reporting standards to make reports around the world more comparable and effective (Global Reporting Initiative, 2020). In continual development since 1997, the standards contain not only principles but also topic-specific standards. Schadewitz and Niskala (2010) and Reverte (2012) find GRI adoption to have positive associations with higher firm valuation and lower cost of capital, respectively. Anecdotally, we observe that GRI reports appear text-heavy to meet these requirements while keeping page numbers reasonable. Even though Moneva et al. (2006) and Boiral (2013) caution that firms who adopt GRI Standards are not constantly compliant, we posit that GRI standards constrain firms in report content and presentation.

Hypothesis 3(a). All else equal, firms that commit to GRI Standards exhibit lower image usage in CSR reports.

Additionally, we hypothesize that firms with poorer CSR performance have higher motivation for visual impression management. Impression management fills the gap between actual CSR performance and the stakeholder perception the firm desires. We use three Refinitiv (Thomson Reuters) ESG scores, defined in Section III, to proxy for CSR performance.

Hypothesis 3(b). All else equal, companies with poorer CSR performance exhibit higher image usage in CSR reports.

We postulate that controversial events change firm motivations and opportunities for impression management. On one hand, negative events increase the motivation to use impression management as a substitute for CSR performance. On the other hand, negative events decrease the opportunity for impression management with the additional wariness, scrutiny, and monitoring they draw. For visual impression management, we expect the motivational effect to be high and the opportunity effect to be low.

Hypothesis 3(c). All else equal, controversial events are associated with an increase in CSR report image usage.

Finally, we consider the impact of visual impression management in CSR reports on a major stakeholder—equity investors. Jensen (2002) points out that in the "enlightened value maximization" framework, equity valuation is still a major determinant of total market valuation. Both positive and negative CSR performance may be value relevant. With the recent wave of interest in socially responsible investing (SRI), increasing numbers of investors wish to align their personal values with their investments (Chatterji et al., 2009). For example, BlackRock decided recently to divest its investments in fossil fuel companies and incorporate socially responsible

criteria into securities selection (McKibben, 2020). These CSR considerations combine to affect the demand for and price of shares.

Whether visual impression management in CSR reports affects shareholder valuation is an empirical question. On the one hand, experiments and surveys show that presentation affects trust and perception (Zillmann et al., 1999; Bansal and Kistruck, 2006; Cho et al., 2009; Elliott et al., 2017). On the other hand, equity investors may be less susceptible to visual impression management than usual experiment participants (psychology or business school students) due to superior quantitative skills, experience, or training. We form portfolios that long (short) firms with low (high) CSR report image usage and calculate one-year-ahead cumulative abnormal returns, positing that low (high) image usage compared to industry peers is less (more) likely to reflect impression management. We should observe positive portfolio returns if the following conditions are present: (1) firms use visual impression management to enhance stakeholder perception of CSR performance, (2) CSR performance is value-relevant, (3) investors are susceptible to visual impression management of CSR performance, and (4) return reversals occur as more information arrives. We formulate this hypothesis in the null:

Hypothesis 4. All else equal, portfolios that long (short) firms with low (high) image usage do not exhibit abnormal returns that are significantly different from zero.

III. Data and Descriptive Statistics

We manually download corporate social responsibility (CSR) reports published by U.S. public companies between 2005 and 2018 from the Sustainability Disclosure Database (SDD). Although the SDD is owned by the GRI, it provides both GRI and non-GRI reports. We manually collect the fiscal year covered by each report from its first page or contents to match the report to the relevant third-party scores. If a firm is present in the SSD but has missing CSR reports in isolated years, we conduct additional searches through Google and Corporate Register, gathering

a total of 3,423 CSR reports in our initial sample. We also manually collect the publication time (month and year) of each report from Corporate Register.

All the CSR reports were released in Adobe PDF format. We convert the PDF files into Microsoft Word documents using two different types of conversion software. In rare cases when conversion fails with both types of software, we eliminate the reports from the sample. Next, we convert each Word file into a ZIP folder using Python. Finally, we use Python to count the number of images above 20KB in size in each report's ZIP folder. We exclude images below 20KB in size because they are likely to be design elements (e.g., lines, logos, and banners), which would only add noise to our measures of image usage. To our knowledge, we are the first to apply these methods in business research.

In order to assess CSR performance, we obtain three Refinitiv (Thomson Reuters) CSR performance scores from Datastream: the ESG Score (SCORE_ESG), the ESG Combined Score (SCORE_COMBINED), and the ESG Controversy Score (SCORE_CONTROVERSIES). We explain the differences among the three scores at the end of this section. We use increases in SCORE_CONTROVERSIES and increases in the number of controversies to identify negative CSR-related events. [10]

We obtain SCORE_TEXTUAL from Bloomberg, firm financial data from Compustat, stock price data from CRSP, analyst following data from I/B/E/S, institutional ownership data from Thomson Reuters 13-F, and financial press release data from Capital IQ. We use the Fama and French (1997) classification of industry groups and the Hoberg and Phillips (2016) measure

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[10] We download the three ESG scores and the number of controversies as monthly data points. According to the Refinitiv methodology (Refinitive, 2019), these data points should remain the same throughout the fiscal year, which we observe in most cases. Rarely, when we observe changes during the year, we use the weighted average of the monthly data points that fall within each fiscal year.

of industry competitiveness. [11] We exclude observations missing financial information or SCORE_TEXTUAL. The final sample consists of 2,712 firm-year observations.

Table 1 Panel A presents the descriptive statistics. (Please see Appendix III for full variable definitions.) Image usage appears in every one of the sample reports. The median IMAGES_PER_PAGE (IMAGES_TO_TEXT) is 1 (3) and there is variation among the observations, as evidenced by the percentile distributions and standard deviations. Across the sample, image usage is slightly skewed to the left. Table 1 Panel B shows average image usage by industry, following the Fama-French 12 Industry Classification. The Consumer Non-Durables industry group exhibits the highest average IMAGES_PER_PAGE and IMAGE_TEXT_RATIO by a large margin. This is preliminarily consistent with our hypothesis regarding B2C industries being sensitive to consumer perception. Nearly every industry group is well-represented in the sample.

Table 2 presents the pairwise correlations between variables. The correlation between our two image usage measures is high at 0.71 and significant at the 0.1 level. Although we expect image usage to show high persistence, the correlation between the current year's and last year's IMAGES_PER_PAGE (IMAGES_TO_TEXT) is only 0.48 (0.53). [12]

In Table 3, we classify observations into groups by impression management motivations and opportunities and compare the group means. We define sin industries (SIN_IND=1) following Hong and Kacperczyk (2009) as comprised of alcohol, tobacco, and gaming. We define dirty industries (DIRTY_IND=1) following Dupire and M'Zali (2018) as comprised of manufacturing,

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[11] Downloaded from https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/Data_Library/det_12_ind_port.html and http://hobergphillips.tuck.dartmouth.edu/industryconcen.htm, respectively.

[12] In untabulated analyses, after controlling for textual content quality, firm characteristics, industry fixed effects, and year fixed effects, lagged image usage is still significantly positively associated with current image usage at the 1% level. The coefficient is 0.4341 and 0.4765 for IMAGES_PER_PAGE and IMAGES_TO_TEXT, respectively.

mining, and chemicals. We define controversial industries (CONTROVERSIAL_IND=1) as industries with emerging CSR issues following Cai et al. (2012). Cai et al. (2012)'s definition of controversial industries includes sin industries. Since we examine sin industries separately, we include in our definition of controversial industries only the non-sin industries in Cai et al. (2012)'s definition: weapons, oil, cement, and biotech. We define competitive industries (COMPETITIVE_IND=1) following Hoberg and Phillips (2016). Hoberg and Phillips (2016) perform textual analysis on product descriptions in 10-K filings to measure product differentiation; lower product differentiation means higher industry competitiveness. We define B2C industries (B2C_IND=1) as comprised of consumer goods and finance following Lev et al. (2010). GRI is an indicator variable equal to 1 if the report declares it follows the GRI Sustainability Reporting Standards and 0 otherwise.

Table 3 Panels A to F document univariate comparisons according to the above distinctions. Consistent with expectation, firms from sin industries, dirty industries, and B2C industries have significantly higher average IMAGES_PER_PAGE and IMAGES_TO_TEXT than the opposite groups. GRI-based reports also have significantly lower IMAGES_PER_PAGE and IMAGES_TO_TEXT. Opposite to expectation, controversial industries and competitive industries exhibit lower image usage than the opposite groups.

Table 3 Panels G to I document univariate comparisons between groups classified by the presence or magnitude of the three Refinitiv ESG scores. SCORE_ESG, SCORE_CONTROVERSIES, and SCORE_ COMBINED are percentile scores reflecting a company's relative CSR performance among its peers (Refinitiv, 2019).[13] Firstly, Refinitiv collects 178 ESG measures from publicly available company reports and classifies them into 10

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[13] Environmental and social categories use the Thomson Reuters Business Classifications (TRBC) Industry Groups as peer groups. Governance categories use firms with headquarters in the same country as peer groups.

categories. A weighted average of performance in the 10 categories produces SCORE_ESG. Thus, SCORE_ESG is based on firm-provided sources. Secondly, Refinitiv compares global media reports of each firm's exposure to ESG controversies against those of peer firms to create the ESG Controversies Score. We define SCORE_CONTROVERSIES as 100 – Refinitiv ESG Controversies Score so that higher SCORE_CONTROVERSIES intuitively reflects poorer CSR performance. SCORE_CONTROVERSIES is based on media-provided sources. Thirdly, Refinitiv combines the evaluation of firm-reported information in SCORE_ESG with the evaluation of media-reported information in SCORE_CONTROVERSIES to produce SCORE_COMBINED. Note that SCORE_COMBINED is not simply a linear combination of SCORE_ESG and SCORE_CONTROVERSIES. In our sample, the correlation between SCORE_COMBINED and SCORE_ESG is 0.32 and the correlation between SCORE_COMBINED and SCORE_CONTROVERSIES is -0.80.

The majority of our sample observations have Refinitiv ESG scores, while 16.89% do not. The observations with missing ESG scores have significantly higher average IMAGES_TO_TEXT but insignificantly different average IMAGES_PER_PAGE. Next, we compare image usage in firms whose scores fall above and below the sample median in each fiscal year. Observations with above-median SCORE_COMBINED do not have significantly different image usage compared to those with below-median SCORE_COMBINED, on average. However, breaking SCORE_COMBINED into its component parts, observations with below-median SCORE_ESG and below-median SCORE_CONTROVERSIES exhibit higher image usage at the same time. Note that the correlation between SCORE_COMBINED and SCORE_ESG appears in the opposite direction as the correlation between SCORE_COMBINED and SCORE_CONTROVERSIES, while the correlation between image usage and SCORE_ESG

appears in same direction as the correlation between image usage and SCORE_CONTROVERSIES. These conflicting correlations between image usage and the underlying components of SCORE_COMBINED could explain how the correlation between image usage and SCORE_COMBINED becomes nullified.

The univariate comparisons in Table 3 are descriptive only. In Section IV, we conduct hypothesis testing using multivariate regression.

IV. Tests and Results

4.1 CSR Report Image Usage and Textual Content Quality

We use the Bloomberg ESG Disclosure Score to proxy for the content and quality of textual disclosure in CSR reports, which we label SCORE_TEXTUAL. Bloomberg maintains a list of the topics it deems important to CSR reporting. The score is created by counting the number of such topics disclosed in each CSR report and standardizing it to a scale of 0-100. When examining the relation between textual content quality and image usage, we control for advertising expense (ADVT) and research and development expense (RD) as two essential CSR-relevant controls following the suggestion of McWilliams and Siegel (2001). Advertising expense could be related to firms' motivation and effort to bring CSR initiatives to the attention of consumers[14]. Research and development expense could be related to firms' use of resources in CSR activity.

We further control for these financial characteristics: log transformed market capitalization (MKTCAP); log transformed firm age (AGE); book-to-market (BTM); leverage (LEV); capital expenditures (CAPX); return on assets (ROA); sales revenues (SALES); and year-on-year growth in revenues (SALESGROWTH). Dowling and Pfeffer (1975) hypothesize that larger firms "tend

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[14] However, advertising expense is not a mandatory line item in the 10-K. We set it to 0 if it is not disclosed separately, following Lev et al. (2010). Around 41.74% of our sample observations report non-zero advertising expense in Compustat, compared to 30.60% of Lev et al. (2010)'s sample observations.

to engage more heavily in legitimating behavior" because they are more visible. Capital expenditures may be related to emissions or pollution and the need for impression management. We refrain from making directional predictions for relationships between other firm characteristics and image usage due to a lack of theoretical insight and empirical evidence on such characteristics' relationships to impression management. We proxy for the firm's liquidity and information environment with share turnover (TURNOVER), institutional ownership (INSTHOLDINGS), and analyst following (ANALYSTS). We proxy for the intensity of the firm's voluntary disclosure practices with the number of press releases the firm publishes throughout the year (NPR).

We test Hypotheses 1 using the following model:

Image Usage$_{i,t}$ = α + β_1SCORE_TEXTUAL$_{i,t}$ + β_2MKTCAP$_{i,t}$ + β_3AGE$_{i,t}$ + β_4BTM$_{i,t}$ +

β_5LEV$_{i,t}$ + β_6ADVT + β_7RD$_{i,t}$ + β_8CAPX$_{i,t}$ + β_9ROA$_{i,t}$ + β_{10}SALES$_{i,t}$ + β_{11}SALESGROWTH$_{i,t}$ +

β_{12}TURNOVER$_{i,t}$ + β_{13}INSTHOLDINGS$_{i,t}$ + β_{14}ANALYSTS$_{i,t}$ + β_{15}NPR$_{i,t}$ + Fixed Effects + ε

(Where Image Usage$_{i,t}$ = IMAGES_PER_PAGE$_{i,t}$ or IMAGES_TO_TEXT$_{i,t}$)   (1)

Table 4 presents the Ordinary Least Squares (OLS) estimation results for Model (1). Standard errors are clustered by firm throughout this study. The coefficient on SCORE_TEXTUAL is negative and significant at the 1% level in all specifications. In fact, it grows larger in magnitude when we add industry fixed effects in Specifications (3) & (4) to the year fixed effects in Specifications (1) & (2). This negative association confirms our priors from extant literature that images are indeed a tool for impression management in CSR reports.

With a few exceptions, financial characteristics hold low explanatory power for CSR report image usage. Advertising expense is significantly positively associated with IMAGES_TO_TEXT only when the regression does not include industry fixed effects. Surprisingly, RD, MKTCAP, AGE, and NPR are not significantly associated with either of the image usage measures after

controlling for industry fixed effects. Leverage is positively associated with image usage at the 5%
significance level. TURNOVER is negatively associated with image usage at the 1% level.
INSTHOLDINGS is significantly positively associated with IMAGES_TO_TEXT but not
significantly associated with IMAGES_PER_PAGE. The mild positive association between image
usage and institutional ownership is consistent with Bird and Karolyi (2016)'s finding that
companies with higher institutional ownership use more images in 8-K filings.

4.2 CSR Report Image Usage and Industry, Firm Characteristics

Next, we use the independent variables in Model (1) as control variables and add other
variables of interest. We test Hypothesis 2 using the following model:

Image Usage$_{i,t}$ = α + β$_1$Industry Group$_{i,t}$ + β$_2$SCORE_TEXTUAL$_{i,t}$ + Firm Controls$_{i,t}$ +

Year Fixed Effects + ε

(Where Industry Group$_{i,t}$ = SIN_IND$_{i,t}$, DIRTY_IND$_{i,t}$, CONTROVERSIAL_IND$_{i,t}$,

B2C_IND$_{i,t}$, or COMPETITIVE_IND$_{i,t}$.)   (2)

Industry fixed effects are excluded.

In Table 5 Columns (1)-(6), five out of six coefficients on SIN_IND, DIRTY_IND, and
CONTROVERSIAL_IND are positive and significant, indicating that firms from these industries
use more images. This result is consistent with such industries having stronger motivations for
impression management. In Columns (7) and (8), the coefficients on B2C are insignificant after
controlling for firm financial characteristics. Since advertising and CSR as a form of public
relations may be especially conflated for B2C industries, we rerun the regression while excluding
ADVT from the list of controls.[15] In that case (untabulated), the coefficients on B2C are positive

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[15] Research on corporate philanthropy like Lev et al. (2010) has found advertising to be positively associated with
corporate contributions to charities. However, it is difficult to determine when CSR is a complement or a substitute
for advertising, and to estimate causal links between advertising changes and CSR changes.

and significant. Yet, the correlation between B2C and ADVT is 0.33 across the entire sample and 0.30 for the subsample of firms reporting advertising as a separate line item, alleviating concerns that B2C and ADVT could be multicollinear. Overall, the univariate result that B2C industries exhibit higher image usage is not robust to multivariate regression.

Contrary to predictions, the coefficients on COMPETITIVE_IND are negative and significant at the 10% level in Table 5 Columns (9) & (10). However, comparing the multivariate coefficients in Table 5 to the univariate associations in Table 3, the negative association between COMPETITIVE_IND and image usage becomes weaker in significance in Table 5, while the association between CONTROVERSIAL_IND and image usage changes signs and significance. These differences highlight the importance of controlling for textual content quality and other firm characteristics in examining CSR report image usage.

Turning to firm characteristics, we replace Industry Group$_{i,t}$ in Model (2) with GRI$_{i,t}$ and add industry fixed effects. In Table 5 Columns (11) & (12), the coefficients on GRI are significantly negative, indicating that GRI reports on average exhibit lower image usage than non-GRI reports, consistent with our expectation that GRI standards constrain impression management.

4.3 CSR Report Image Usage and CSR Performance

In Table 6, we replace Industry Group$_{i,t}$ in Model (2) with poor CSR performance as proxied by low SCORE_COMBINED, low SCORE_ESG, or high SCORE_CONTROVERSIES. We define high (low) as being above (below) median of yearly observations in Panel A and as belonging in the top (bottom) tercile of yearly observations in Panel B. We find that in both panels, IMAGES_PER_PAGE is significantly positively associated with low SCORE_ESG at the 5% and 10% level. For example, firms with below-median ESG scores use on average 0.0670 more images per page than firms with above-median ESG scores, which translates into 3.71 more images for an

average 55.40-page CSR report. We find that IMAGES_TO_TEXT is positively associated with low SCORE_COMBINED and low SCORE_ESG at the 5% or 10% level. Firms with below-median ESG scores use on average 0.2468 more images per thousand words than firms with above-median ESG scores, which means 4.63 more images for an average 18.75 thousand words CSR report. We find no evidence that either image measure is associated with high SCORE_CONTROVERSIES. Taken together, the results suggest that image usage is significantly associated with overall CSR performance: firms with relatively poor performance in the CSR arena, as graded by Refinitiv, tend to use more images in their CSR reports.

In Table 7, we divide each of the three ESG scores into yearly quartiles to explore if score quartiles differ in their association with image usage. In Panel A, we find that the significantly negative association between SCORE_COMBINED and image usage is concentrated in the bottom quartile of SCORE_COMBINED: the worst-performing firms use 0.05 (0.28) more IMAGES_PER_PAGE (IMAGES_TO_TEXT) than the rest of the firms, which translates into about 11% (13%) of the standard deviation of these constructs. In Panel B, we observe a significantly negative relationship between SCORE_ESG and image usage across all quartiles. The bottom quartile of SCORE_ESG exhibits the heaviest image usage (particularly IMAGES_TO_TEXT), the two middle quartiles a little less, and the top quartile the least. In Panel C, we observe no association between any quartile of SCORE_CONTROVERSIES and image usage. Overall, Table 7 shows that associations between image usage and comprehensive CSR performance is not necessarily linear, with the worst-performing firms using considerably more images.

Note that we control for CSR report textual content quality throughout the regressions in Table 6 and Table 7. The coefficient on SCORE_TEXTUAL stays significantly negative after

adding other significant variables. This result has two implications, in light of the finding in Al-Tuwaijri et al. (2004) that firms with better environmental performance tend to have more extensive, more quantifiable environmental disclosures. Firstly, it strengthens our findings on the negative association between CSR report image usage and CSR textual content quality. Secondly, it shows that the relationship between poor CSR performance and visual impression management is incremental to the relationship between poor CSR performance and low textual content quality.

4.4 Changes in CSR Report Image Usage around Controversial Events

We consider the possibility that we do not find significant associations between image usage levels and SCORE_CONTROVERSIES levels in Table 7 because the static level of the score does not accurately capture CSR performance. It is possible that image usage is more sensitive to score changes. Moreover, if image usage is motivated at least in part by impression management, we would expect image usage to increase following negative CSR-related events faced by the firm. In our next set of tests, we complement the cross-sectional association tests in Tables 6-7 with a dynamic examination of how image usage changes around negative CSR events.

We create an indicator variable, INCREASE_SCORE_CONTROVERSIES, which is equal to 1 if the score increases and 0 otherwise. There are 794 observations of increases, 14 observations of no changes, and 758 observations of decreases. In essence, we are comparing the increased-score population against the decreased-score population. We calculate ΔImage Usage$_{i,t}$ = Image Usage$_{i,t}$ – Image Usage$_{i,t-1}$ and fit the following model:

ΔImage Usage$_{i,t}$ = α + β_1INCREASE_SCORE_CONTROVERSIES$_{i,t}$ + $\beta_2\Delta$SCORE_ESG$_{i,t}$ + $\beta_3\Delta$SCORE_TEXTUAL$_{i,t}$ + Firm Controls$_{i,t}$ + Industry Fixed Effects$_i$ + Year Fixed Effects$_t$ + ε (3)

We examine not only the direction but also the magnitude of the score change by replacing INCREASE_SCORE_CONTROVERSIES with ΔSCORE_CONTROVERSIES$_{i,t}$ in Model (3).

We control for changes in SCORE_ESG in case there are concurrent non-controversy-related changes in CSR performance. We also control for changes in SCORE_TEXTUAL.

Table 8 reports the results. Columns (1) & (2) show that the coefficients on INCREASE_SCORE_CONTROVERSIES are significantly positive, though stronger in significance for IMAGES_TO_TEXT than for IMAGES_PER_PAGE. Overall, an increase in SCORE_CONTROVERSIES leads to an increase in CSR report image usage in the amount of 0.0487 images per page (10% of standard deviation) or 0.3650 images per thousand words (17% of standard deviation).[16] The relative timing makes it unlikely for causation to occur in the reverse direction; SCORE_CONTROVERSIES relies on media reports published before fiscal year end while our sample CSR reports are published on average 6-7 months after fiscal year end. Columns (3) & (4) show that changes in IMAGES_TO_TEXT are positively associated with changes in SCORE_CONTROVERSIES at the 10% level, while changes in IMAGES_PER_PAGE are not. Taken together, the results suggest that firms with increasing controversies scores increase CSR report image usage more so than firms with decreasing controversies scores, consistent with our expectation. However, image usage does not increase monotonically with the controversies score.

We probe deeper into the relationship between CSR report image usage and controversies by decomposing SCORE_CONTROVERSIES, which is a percentile score, into the number and types of underlying controversies. We classify the Refinitiv controversy categories intuitively into those more likely to increase motivation for CSR report impression management (NUM_CONTROVERSIES_CSR) and those less likely to do so (NUM_CONTROVERSIES_NON_CSR). We include in NUM_CONTROVERSIES_CSR the

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[16] Note that the global media reports on controversies are published before the end of the fiscal year while the CSR report is published after the end of the fiscal year, so we do not expect CSR report image usage to affect SCORE_CONTROVERSIES.

following ten categories: business ethics, critical countries, public health, child labor, human rights, consumer health and safety, environmental, diversity and opportunity, employee health and safety, and wages or working conditions.[17] We also calculate NUM_CONTROVERSIES_TOTAL as the sum of CSR and non-CSR controversies. The untabulated results show only weak associations between (1) image usage levels and controversy number levels and (2) image usage changes and controversy numbers changes, whether the controversies are more likely to increase motivation for CSR report impression management or not.[18]

4.5 CSR Report Image Usage and Market Valuation

To test Hypothesis 4, we must take into consideration the fact that there is no regulated timeline for voluntary disclosures. Firms in our sample publish CSR reports on average 6-7 months after fiscal year end, often with fluctuations in timing from period to period. To better align the timing of market-wide events and prevent them from confounding returns, we consider only

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[17] We count in NUM_CONTROVERSIES_NON_CSR the thirteen following categories: anti-competition, intellectual property, tax fraud, management compensation, consumer, privacy, product access, responsible marketing, responsible R&D, accounting, insider dealings, shareholder rights, and management departures.

[18] We rerun the cross-sectional tests from Table 6 and the changes tests from Table 8 after decomposing the controversies as described above. We find no significant association between image usage and the number of CSR, non-CSR, or total controversies. Firms with nonzero CSR controversies use more IMAGES_PER_PAGE on average than firms with zero CSR controversies, but not more IMAGES_TO_TEXT.

We also test whether changes in image usage are associated with increases and decreases to NUM_CONTROVERSIES_CSR. We have 356 observations of increases (INCREASE_NUM_CSR=1), 410 of decreases (DECREASE_NUM_CSR=1), and 800 with no change. Unlike ΔSCORE_CONTROVERSIES, this data distribution enables us to examine directional changes separately, as increases and decreases may have asymmetrical impact on motivations for impression management. We interact the increase and decrease indicator variables with past controversy numbers and past image usage as well. The existing number of controversies could change the incremental impact of additional controversies, while the existing level of image usage could constrain incremental image usage. Controlling for past controversy numbers, we find that firms with controversy increases do not exhibit different image usage while firms with controversy decreases reduce IMAGES_PER_PAGE, compared to firms with zero controversy changes. Yet firms with higher numbers of controversies in the previous year decrease IMAGES_PER_PAGE less. After adding lagged image usage and related interactions, we observe instead that firms with controversy increases tend to increase their average IMAGES_PER_PAGE. However, this image usage increase is weaker for firms with high IMAGES_PER_PAGE in the previous year. We then define top (bottom) quartile controversy number increases (decreases) in the industry that year as big increases (decreases). We find no evidence that big increases are associated with image usage changes, but weak evidence that controversy decreases are associated with decreases in IMAGES_TO_TEXT. Lastly, we regress the number of controversy changes as a continuous measure instead of an indicator variable on changes in image usage and do not find significant associations between the two changes.

December year end firms for valuation analysis. Thus, we retain 73.89% of all sample observations. Also, because firms release CSR reports at different times, not all peer group CSR reports will be available at the time of any one firm's CSR report publication. To avoid defining excessive image usage based on unavailable information, we rely on last year's median or percentile industry image usage rather than the current year's.

We define the first specification of high (low) image usage as being above (below) last year's Fama-French industry group median image usage. We define the second specification of high (low) image usage as being above last year's Fama-French industry group 75th percentile value (below last year's Fama-French industry group 25th percentile value). We form a trading strategy that longs (shorts) firms with low (high) image usage[19]. We then aggregate monthly abnormal returns for each portfolio over the twelve-month period beginning with the month after CSR report publication. We calculate Cumulative Abnormal Returns (CAR) as the excess of realized returns over Fama-French Three-Factor expected returns (estimated as $RF_t + \beta MktRF_t + s(SMB_t) + h(HML_t)$, where RF_t is the one-month T-bill return, $MktRF_t$ is the excess value-weighted market return from the WRDS Fama-French database, SMB_t is the return on factor-mimicking portfolio for firm size, and HML_t is the return on factor-mimicking portfolio for book-to-market). We estimate β using monthly stock returns in the 36 months before fiscal year end, requiring at least six observations for estimation. We report the magnitude and significance of portfolio returns in Table 9. In Panel A, our trading strategy does not yield nonzero portfolio

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[19] This research design relies on a few implicit assumptions. We assume that the Fama-French Three Factor Model adequately predicts expected returns. We assume that without impression management, CSR performance would be valued appropriately at report release; investors would not consistently over-value or under-value CSR performance and create future return reversals for other reasons. CSR performance and financial performance should be fully incorporated into current prices. Without impression management related misvaluation, past CSR report image usage should not predict future returns or future return reversals, on average. We are also assuming that if visual impression management affects valuation, enough new information about CSR performance will become available within a year of report publication to reverse the effects of unduly enhanced perceptions.

returns with the exception that the weak evidence of long (short) firms with below (above) median IMAGE_TO_TEXT has a slightly negative return. We are unable to reject Hypothesis 4.

Next, we partition the sample to explore the possible disparate impact of visual impression management in subsamples. First, we consider the credibility of CSR. In problematic (sin, dirty, and controversial) industries, CSR may appear hypocritical to audiences and fail to improve stakeholder perception (Koh et al., 2014). Cho et al. (2009) hypothesize similarly, but find that the positive association between media richness, trust, and CSR perception is no different for environmentally sensitive firms than for unrelated firms. We investigate whether CSR report visual impression management has higher impact on valuation for firms in non-problematic industries in Table 9 Panel B. We do not find that investors overvalue firms with high image usage in problematic or non-problematic industries.

Second, we consider the susceptibility of investors to visual impression management. Frederickson and Miller (2004) and Elliott (2006) find that numerical impression management in presenting pro forma earnings affects analysts less than nonprofessional investors. Elliott et al. (2017) find that the impact of visual presentation is higher for readers with lower numeracy. Furthermore, sophisticated market participants likely have access to XBRL-tagged information that bypasses company-produced reports. XBRL tags are not required for CSR reports but both the GRI and the Sustainability Accounting Standards Board have published XBRL guidance. We examine whether CSR report visual impression management has higher impact on valuation for firms with low institutional ownership and low analyst following in Table 9 Panels C and D, respectively. In Panel C, we surprisingly observe significantly negative portfolio returns in the low institutional ownership subsample. We split the low institutional ownership portfolios into the component high and low image usage groups, and find that the result is driven exclusively by the

low image usage firms (untabulated). The high image usage group does not exhibit significantly different from zero portfolio returns. In Panel D, we do not find that investors overvalue firms with high image usage whether the firm has high or low analyst following.

Hong and Kacperczyk (2009) find that sin industries have significantly lower institutional ownership and lower analyst following, so that any results related to institutional ownership or analyst following could be attributable to industry membership instead. Note that we avoid between-industry comparisons of institutional ownership and analyst following. Instead, we designate high or low institutional ownership and analyst following within industries. Our low institutional ownership and low analyst following portfolios are comprised of firms in problematic as well as non-problematic industries. Furthermore, because institutional ownership and analyst following is positively correlated, we check and confirm that the overlap between portfolio firms in the institutional ownership and analyst following subsamples is lower than 50% in all formed portfolios.

Together, the results suggest that visual impression management in CSR reports does not increase equity valuation. We conclude that experimental results on the effect of visual impression management on perception and decision-making do not generalize empirically to equity investors at large. This could be because investors are not fooled by visual impression management. This could be because investors do not pay attention to CSR reports (Leinaweaver, 2015; Kramer, 2020). Preliminarily, the fact that portfolio returns are not positive for firms with high/low institutional ownership or high/low analyst following suggests that the latter explanation is more likely. However, we caution that this interpretation is inconclusive. We hope to further disentangle these explanations in future research.

V. Conclusion

In this paper, we systematically and quantitatively document CSR report image usage across a large sample of firms from 2005 to 2018 and explore its relationship with industry and firm characteristics. Our findings are consistent with companies strategically using images in CSR reports to enhance stakeholder perception. We observe a strong and robust negative relationship between image usage and the quantity of meaningful textual disclosure in CSR reports: the firms that disclose fewer topics on the CSR reports tend to use more images. We observe higher image usage in sin industries, dirty industries, controversial industries, and non-GRI reports, which have more motivations or opportunities for impression management. We find strong evidence that image usage is associated with poor CSR performance as expressed in firm-reported sources and modest evidence that it is associated with media-reported controversies. However, we do not find large-scale equity misvaluation attributable to visual impression management.

Several aspects of our research could be extended in future investigations. One, the three peer-adjusted Refinitiv (Thomson Reuters) ESG scores are difficult for researchers to replicate, and so their relationship to other proxies becomes difficult to predict. We have attempted to use decomposed measures of media-reported controversies but these only capture the "number" of controversies; some events could be more severe and impactful than others. Two, the relationship between visual impression management and CSR performance can be examined along additional dimensions of CSR performance. We agree with Dupire and M'Zali (2018) that strengths and weaknesses are multidimensional and do not necessarily compensate for one another. Three, we observe net lower image usage in competitive industries, even though competitive industries have motivations for and against visual impression management in CSR reports. How do the empirical forces related to industry competition influence CSR report image usage, severally and jointly?

Four, future research could explore whether rationality or inattention causes the equity market's lack of reaction to visual impression management. Five, there are multiple audiences for CSR reports, and our preliminary tests on the effects of visual impression management could be extended to other stakeholders beyond equity investors.

More broadly, we face a trade-off between generalizability and nuance in our research design and data collection. Our computerized method of documenting image usage is objective across researchers and stable over time; that is its advantage. Its disadvantage is that it foregoes some of the nuances available to qualitative methods and small-scale studies. We are still waiting for the day when we can easily use artificial intelligence to identify color usage, document graph selectivity, or calculate graph distortion. Nevertheless, this study contributes new methodology, data, and evidence to an emerging topic that lacks archival studies with longitudinal coverage and cross-sectional variation.

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Appendix I. Examples of Image Usage in CSR Reports

Exhibit 1. Images Related to People

Top Left: CEO; Bottom Left: Global Sustainability Director; Right: Employee

Source: Whirlpool Corporation 2017 Sustainability Report

Exhibit 2. Images Related to Products

Top Left: Product Exterior; Bottom Left: Product Interior; Bottom Right: Product Award

Source: Whirlpool Corporation 2017 Sustainability Report

Exhibit 3. Images Related to Initiatives

Top Left: Windmills; Top Right: Energy-Efficient Headquarters Building; Bottom Left: Corporate Philanthropy; Bottom Right: Employee Volunteer Activities

Source: Whirlpool Corporation 2017 Sustainability Report

Exhibit 4. Images Related to Data Visualization
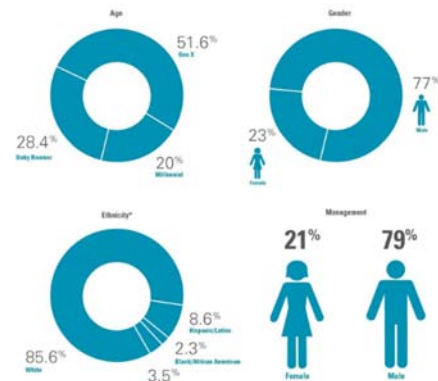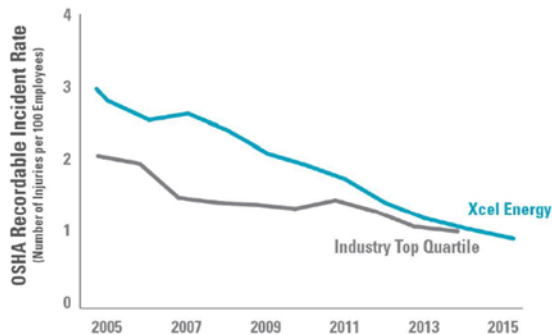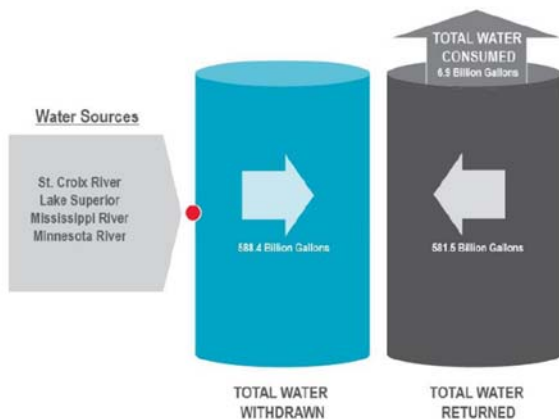
Top Left: Graph Depicting Workplace Injury Trend Compared to Industry Top Quartile; Top Right: Charts Depicting Personnel Characteristic Distributions; Bottom: Diagram Depicting Water Supply Consumption in One Operating Region

Source: Xcel Energy Corporation 2015 Corporate Responsibility Report

Exhibit 5. Marginally Related Images

Above: Beaker with small plant growing out of layer of soil inside

Source: Accenture Corporate Citizenship Report 2017

Appendix II. Refined Classification of Images

We randomly select 200 CSR reports and classify the 10,596 images they contain into aesthetic and non-aesthetic images to refine our documentation of image usage in CSR reports. We introduce the classification method, document the classification distribution, and evaluate classification effectiveness below. To our knowledge, this is the first attempt to use automated methods instead of content analysis to classify image types in business research.

1. Classification Method

In our search for classification methods, we have found that it is easier for automated algorithms to directly detect aesthetic images than data-visualizing images. Here we use the FasterRCNN+InceptionResNetV2 network, which is trained on Open Images V4 to recognize 600 categories of photographic objects. The model reports up to 100 detected objects in one single image. Each object is listed with its detected category (e.g., human) and a detection score ranging from 0 to 1, indicating the confidence of the detection. We accept detections with confidence thresholds over 0.5 in this classification effort. We classify an image as aesthetic if it contains at least one detected object meeting the required confidence threshold.

The categories detected in our random sample include human, building, bicycle, boat, animal, computer, coffee table, coffee cup, envelope, glove, helmet, etc. We manually verify that small illustrations of objects, which are commonly used in data visualizations, are not detected as objects and therefore do not confound classification. However, large illustrations of people and landscapes are detected as containing objects. We accept these detections, given that we would classify them as aesthetic images manually too.

We classify any image that contains no detected objects meeting the required confidence threshold as Other. Other Images include graphs, charts, maps, among other data visualizations, but is noisier than Aesthetic Images due to its being a residual classification.

2. Output

Classification of Examined Images
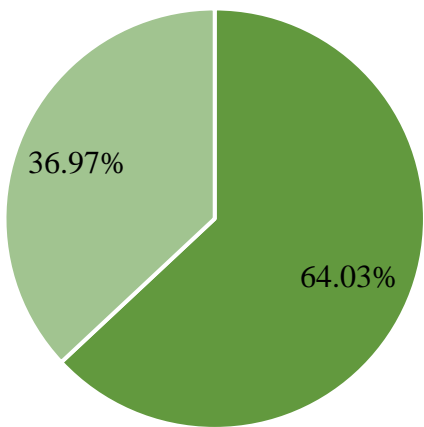
Aesthetic Images	6,679
Other Images	3,917
Total	10,596

3. Relation to Main Image Measures

We document extremely high correlation between AESTHETIC_IMAGES_PER_PAGE (AESTHETIC_IMAGES_TO_TEXT) and IMAGES_PER_PAGE (IMAGES_TO_TEXT) of 0.87 (0.91). Therefore, any study focusing on aesthetic images as tools for impression management is likely to find the same results as those we find using total images. OTHER_IMAGES_PER_PAGE and OTHER_IMAGES_TO_TEXT are still highly correlated with IMAGES_PER_PAGE and IMAGES_TO_TEXT at 0.63 and 0.60, respectively. Further research comparing the usage of aesthetic images against that of non-aesthetic images may reveal subtly different motivations. However, the noise in the residual category will need to be considered.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) AESTHETIC_IMAGES_PER_PAGE	1.00					
(2) OTHER_IMAGES_PER_PAGE	0.17*	1.00				
(3) IMAGES_PER_PAGE	**0.87***	**0.63***	1.00			
(4) AESTHETIC_IMAGES_TO_TEXT	0.78*	-0.02	0.61*	1.00		
(5) OTHER_IMAGES_TO_TEXT	0.06	0.80*	0.45*	0.22*	1.00	
(6) IMAGES_TO_TEXT	0.67*	0.32*	0.69*	**0.91***	**0.60***	1.00

* shows significance at the 0.1 level

4. False Detection Issues

We randomly select 100 aesthetic images and 100 other images from the automatically classified sample to review by hand. The approximate rate of false detection is roughly on par for the two types: 13% for aesthetic images and 12% for other images. For example, some maps are detected as objects, while bar graphs are detected as candles.

Appendix III. Variable Definitions

Variable	Definition
ADVT	Advertising expenses / total assets beginning balance. Missing advertising expenses in Compustat are set to 0.
AGE	Logarithm of firm age. Firm age is measured as the number of years the firm is on CRSP database.
ANALYSTS	Average number of analysts following during the fiscal year. Equals to 0 if no analyst following data is found in I/B/E/S Summary.
B2C_IND	Equals 1 if the company relies heavily on individual customers. We follow the classification of Lev et al. (2010)
BTM	Book value of equity / market value of equity.
CAPX	Capital expenditures / total assets beginning balance.
CAR	$CAR = \sum_{t=1}^{12} R_t - ER_t$, where expected return is estimated using the Fama French Three Factor Model.
COMPETITIVE_IND	Equals 1 if the company is in industries with higher than median competition among all firms in the data provided by Hoberg and Phillips (2016) in the year.
CONTROVERSIAL_IND	Equals 1 if the company is in industries with emerging issues such as weapon, biological-technology, cement, and oil industries. We follow the industry classification of Cai et al. (2012).
DIRTY_IND	Equals 1 if the company is in "dirty industries". We follow the definition of dirty industry by Dupire and M'Zali (2016).
GRI	A dummy variable that equals to 1 if a company declares to follow Global Reporting Initiative standards in preparing the CSR reports, 0 otherwise.
IMAGES	Number of unique images no smaller than 20KB in a CSR report.

IMAGES_PER_PAGE	Number of unique images scaled by number of pages. Images that are smaller than 20KB are eliminated.
IMAGES_TO_TEXT	Number of unique images scaled by number of words, further divided by 1,000. Images that are smaller than 20KB are eliminated.
INSTHOLDINGS	Percentage of shares owned by institutional investors.
LEV	(Long term debt + debt in current liabilities) / total assets beginning balance.
MKTCAP	Natural logarithm of market capitalization.
NPR	Number of firm press releases during the fiscal year.
NUM _CONTROVERSIES _CSR	Number of highly CSR-related controversies, including business ethics controversies, critical countries controversies, public health controversies, child labor controversies, human rights controversies, controversies consumer health & safety, environmental controversies, diversity and opportunity controversies, employee health & safety controversies, wages or working condition controversies.
NUM _CONTROVERSIES _NON_CSR	Number of less CSR-related controversies, including anti-competition controversy, intellectual property controversies, tax fraud controversies, management compensation controversies count, consumer controversies, controversies privacy, controversies product access, controversies responsible marketing, controversies responsible R&D, accounting controversies count, insider dealings controversies count, shareholder rights controversies count, and management departures.
NUM_CONTROVERSIES _TOTAL	Number of all controversies reported in Refinitiv (Thomson Reuters)
PAGES	Number of pages in a CSR report.
RD	R&D expenditures / total assets beginning balance. Missing R&D expenditures in Compustat are assumed to be 0.
ROA	Income before extraordinary items / beginning of year total assets.

SALES	Net sales / beginning of year total assets.
SALESGROWTH	Sales growth is calculated as $Sales_t$ / $Sales_{t-1}$ - 1.
SCORE_COMBINED	Refinitive (Thomson Reuters) ESG Combined Score of fiscal year t.
SCORE_CONTROVERSIES	100 - Refinitive (Thomson Reuters) ESG Controversies Score of fiscal year t.
SCORE_ESG	Refinitive (Thomson Reuters) ESG Score of fiscal year t.
SCORE_TEXTUAL	ESG Disclosure Score from Bloomberg, created by counting the number of topics disclosed in each CSR report from a predetermined important topic list by Bloomberg and standardizing the number to a scale of 0-100.
SIN_IND	Equals 1 if the company is operates in alcohol, tobacco, and gambling industries, and 0 otherwise, following Hong and Kacperczyk (2009).
TURNOVER	Average daily trading turnover in fiscal year t, where daily turnover = (vol/(1000*shrout)) * 100.
WORDS (in thousands)	Number of words in a CSR report divided by 1,000.

Figure 1. 2005-2018 Average Image Usage in CSR Reports
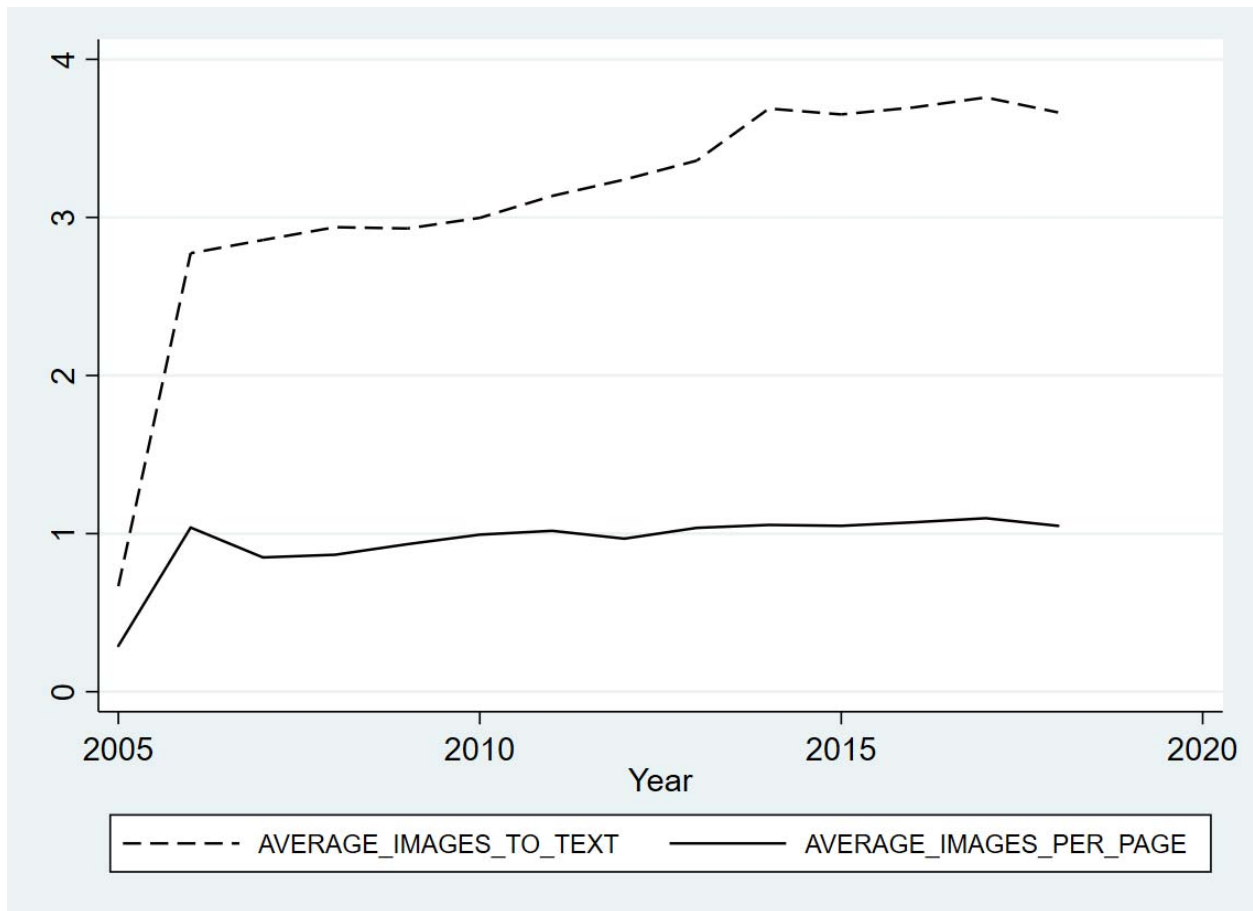
Figure 1. 2005-2018 Average Image Usage in CSR Reports

Figure 2. Impression Management Enhances Stakeholder Perception of Corporation
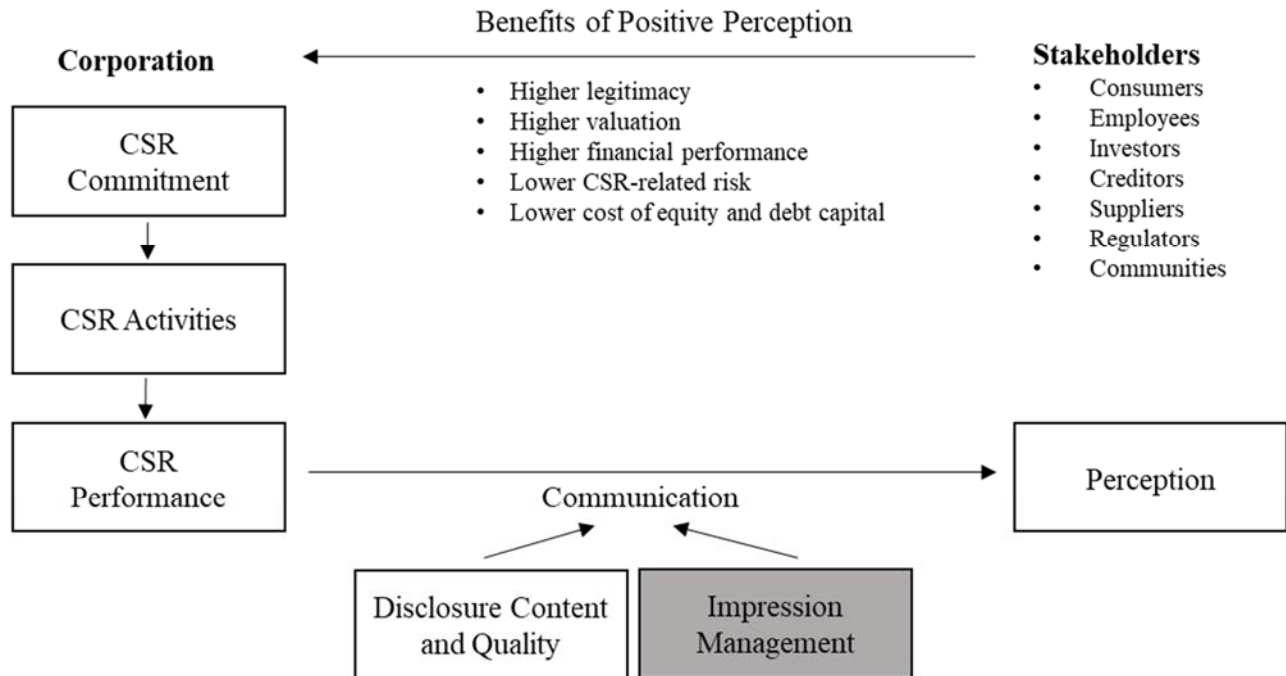
Figure 2. Impression Management Enhances Stakeholder Perception of Corporation

Table 1. Descriptive Statistics

This table presents the statistical distribution of the main variables in the study. Please see Appendix I for variable definitions. Panel A presents summary statistics. All continuous variables are winsorized at 1% and 99%, except for INSTHOLDINGS, which is winsorized to a maximum of 1 following suggestions in the Wharton Research Data Services (WRDS, 2020). Panel B presents the means of the two image usage measures by industry, grouped by the Fama-French 12-Industry Classification.

Panel A. Summary Statistics

	N	Mean	Standard Deviation	Min	P25	Median	P75	Max
(1) IMAGES	2,712	50.56	36.16	1.00	25.00	43.00	66.00	193.00
(2) PAGES	2,712	55.40	39.49	4.00	27.00	45.50	74.00	199.00
(3) WORDS (in thousands)	2,712	18.75	14.96	1.24	7.82	14.87	25.19	77.32
(4) IMAGES_PER_PAGE	2,712	1.03	0.47	0.08	0.74	1.00	1.26	2.73
(5) IMAGES_TO_TEXT	2,712	3.46	2.13	0.23	2.09	3.01	4.30	12.65
(6) MKTCAP	2,712	9.65	1.38	5.98	8.76	9.63	10.57	12.68
(7) AGE	2,712	3.45	0.79	0.82	2.98	3.65	4.01	4.51
(8) BTM	2,712	0.44	0.32	-0.20	0.22	0.38	0.59	1.65
(9) LEV	2,712	0.30	0.18	0.00	0.17	0.28	0.40	0.94
(10) ADVT	2,712	0.01	0.02	0.00	0.00	0.00	0.01	0.11
(11) RD	2,712	0.02	0.04	0.00	0.00	0.00	0.02	0.20
(12) CAPX	2,712	0.05	0.04	0.00	0.02	0.04	0.06	0.20
(13) ROA	2,712	0.06	0.07	-0.19	0.02	0.05	0.09	0.24
(14) SALES	2,712	0.87	0.71	0.04	0.38	0.71	1.15	3.67
(15) SALESGROWTH	2,712	0.04	0.15	-0.39	-0.03	0.03	0.10	0.66
(16) TURNOVER	2,712	0.98	0.66	0.26	0.57	0.79	1.16	4.04
(17) INSTHOLDINGS	2,712	0.71	0.26	0.00	0.65	0.78	0.87	1.06
(18) ANALYSTS	2,712	17.11	7.84	1.33	11.88	16.83	21.92	38.75
(19) NPR	2,712	14.07	4.26	0.00	12.00	14.00	16.00	29.00
(20) GRI	2,712	0.66	0.47	0.00	0.00	1.00	1.00	1.00
(21) SCORE_TEXTUAL	2,712	39.42	12.53	14.05	30.17	39.67	48.25	68.86
(22) SCORE_COMBINED	2,254	52.88	15.75	26.44	40.17	48.20	66.39	88.03
(23) SCORE_ESG	2,254	69.60	12.42	33.39	61.56	70.89	78.63	92.21
(24) SCORE_CONTROVERSIES	2,254	67.30	25.50	31.25	41.86	76.15	92.93	99.66

Panel B. Industry Means of CSR Report Image Usage

Industry	N	Mean IMAGES_PER_PAGE	Mean IMAGES_TO_TEXT
1 Consumer Non-Durables	228	1.25	4.00
2 Consumer Durables	74	1.09	3.73
3 Manufacturing	289	1.03	3.50
4 Oil, Gas, and Coal Extraction and Products	157	1.00	3.05
5 Chemicals and Allied Products	183	1.14	3.88
6 Business Equipment	366	0.89	3.05
7 Telephone and Television Transmission	51	1.03	3.81
8 Utilities	237	1.00	3.10
9 Wholesale, Retail, and Some Services (Laundries, Repair Shops)	233	1.06	3.86
10 Healthcare, Medical Equipment, and Drugs	196	1.02	3.34
11 Finance	367	0.96	3.37
12 Other	331	1.05	3.47
Total	2,712	1.03	3.46

Table 2. Pairwise Correlations

This table presents Pearson's pairwise correlations of the main variables in the study. Statistical significance at the 0.1 level is denoted by *.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
(1) IMAGES_PER_PAGE	1.00																						
(2) IMAGES_TO_TEXT	0.71*	1.00																					
(3) IMAGES_PER_PAGE$_{t-1}$	0.48*	0.39*	1.00																				
(4) IMAGES_TO_TEXT$_{t-1}$	0.37*	0.53*	0.72*	1.00																			
(5) SCORE_TEXTUAL	-0.16*	-0.27*	-0.15*	-0.23*	1.00																		
(6) MKTCAP	-0.12*	-0.15*	-0.10*	-0.15*	0.36*	1.00																	
(7) AGE	-0.05*	-0.12*	-0.03	-0.10*	0.24*	0.31*	1.00																
(8) BTM	-0.05*	-0.06*	-0.09*	-0.09*	0.01	-0.14*	-0.03	1.00															
(9) LEV	0.10*	0.10*	0.11*	0.12*	-0.05*	-0.07*	-0.05*	-0.20*	1.00														
(10) ADVT	0.04*	0.03*	0.09*	0.08*	0.03	0.07*	0.11*	-0.22*	-0.00	1.00													
(11) RD	-0.08*	-0.05*	-0.10*	-0.06*	0.10*	0.07*	-0.07*	-0.27*	-0.15*	-0.01	1.00												
(12) CAPX	0.03	0.00	0.04*	0.00	0.11*	-0.01	0.10*	-0.04*	0.07*	0.06*	-0.11*	1.00											
(13) ROA	0.00	-0.01	0.01	0.01	0.04*	0.33*	0.07*	-0.39*	-0.14*	0.24*	0.19*	0.12*	1.00										
(14) SALES	0.07*	0.10*	0.11*	0.12*	-0.17*	-0.14*	0.03	-0.26*	-0.17*	0.25*	-0.02	0.15*	0.29*	1.00									
(15) SALESGROWTH	0.01	0.04*	0.03	0.06*	-0.10*	0.07*	-0.12*	-0.08*	0.08*	0.01	0.09*	0.09*	0.27*	0.11*	1.00								
(16) TURNOVER	-0.04*	-0.03	-0.01	-0.02	-0.10*	-0.34*	-0.16*	0.16*	0.04*	0.03	0.06*	0.12*	-0.16*	0.10*	0.04*	1.00							
(17) INSTHOLDINGS	0.06*	0.12*	0.06*	0.12*	-0.10*	-0.12*	-0.02	-0.07*	-0.05*	-0.01	0.01	-0.01	0.07*	0.09*	0.01	0.03	1.00						
(18) ANALYSTS	-0.10*	-0.10*	-0.11*	-0.13*	0.24*	0.58*	0.15*	-0.08*	-0.21*	0.10*	0.18*	0.09*	0.22*	0.00	0.04*	0.03	0.04*	1.00					
(19) NPR	-0.08*	-0.14*	-0.08*	-0.13*	0.25*	0.46*	0.22*	0.03	-0.09*	0.02	0.05*	0.02	0.10*	-0.09*	-0.04*	-0.13*	-0.21*	0.23*	1.00				
(20) GRI	-0.17*	-0.25*	-0.14*	-0.17*	0.46*	0.08*	0.09*	0.01	-0.03*	0.03*	0.08*	0.02	0.00	-0.06*	-0.00	0.02	-0.07*	0.03	0.14*	1.00			
(21) SCORE _ESG_COMBINED	-0.02	-0.02	0.02	0.00	0.10*	-0.18*	-0.00	-0.09*	-0.01	-0.05*	0.07*	-0.04*	0.05*	0.04*	-0.01	-0.07*	0.14*	-0.13*	-0.11*	0.07*	1.00		
(22) SCORE _ESG	-0.19*	-0.25*	-0.20*	-0.25*	0.45*	0.46*	0.28*	-0.03	-0.12*	0.09*	0.09*	-0.01	0.08*	0.01	-0.05*	-0.17*	-0.08*	0.28*	0.29*	0.27*	0.32*	1.00	
(23) SCORE _CONTROVERSIES	-0.09*	-0.12*	-0.12*	-0.13*	0.17*	0.45*	0.17*	0.08*	-0.05*	0.09*	-0.03	0.01	-0.03	-0.06*	-0.02	-0.02	-0.19*	0.29*	0.26*	0.10*	-0.80*	0.27*	1.00

Table 3. Univariate Tests of Group Means

We divide the sample into two groups by each criterion below and perform t-tests on the group means.

In Panel A, SIN_IND is an indicator variable equal to 1 if the firm operates in the alcohol, tobacco, or gambling industry and 0 otherwise. In Panel B, DIRTY_IND is an indicator variable equal to 1 if the firm operates in the manufacturing, mining, or chemicals industry and 0 otherwise. In Panel C, CONTROVERSIAL_IND is an indicator variable equal to 1 if the firm operates in the weapons, oil, cement, or biotech industry and 0 otherwise. In Panel D, B2C_IND is an indicator variable equal to 1 if the firm operates in the consumer goods or finance industry and 0 otherwise. In Panel E, COMPETITIVE_IND is an indicator variable equal to 1 if the firm's competition measure is above the median among all firms within each fiscal year in the data provided by Hoberg and Phillips (2016), and 0 otherwise. In Panel F, GRI is an indicator variable equal to 1 if the CSR report follows GRI Sustainability Reporting Standards, and 0 otherwise.

In Panels G, H, and I, we first compare CSR report image usage in observations that have matched ESG scores from Refinitiv (Thomson Reuters) against observations that do not. Then we focus on the observations that have scores and divide them into two groups by magnitude. For each of the 3 ESG scores (SCORE_COMBINED, SCORE_ESG, and SCORE_CONTROVERSIES), we classify an observation as having a high (low) score if it is above (below) the sample median within each fiscal year.

Panel A. T-Test of Mean Image Usage between Sin and Non-Sin Industries

	Mean (SIN_IND=1) N=66	Mean (SIN_IND=0) N=2,646	Diff.
IMAGES_PER_PAGE	1.2630	1.0235	0.2395***
IMAGES_TO_TEXT	4.3473	3.4332	0.9141***

Panel B. T-Test of Mean Image Usage between Dirty and Non-Dirty Industries

	Mean (DIRTY_IND=1) N=1,250	Mean (DIRTY_IND=0) N=1,462	Diff.
IMAGES_PER_PAGE	1.0668	0.9972	0.0696***
IMAGES_TO_TEXT	3.5136	3.4058	0.1078

Panel C. T-Test of Mean Image Usage between Controversial and Non-Controversial Industries

	Mean (CONTROVERSIAL _IND=1) N= 286	Mean (CONTROVERSIAL _IND=0) N= 2,426	Diff.
IMAGES_PER_PAGE	1.0030	1.0324	-0.0294
IMAGES_TO_TEXT	3.0961	3.4978	-0.4017***

Panel D. T-Test of Mean Image Usage between B2C and Non-B2C Industries

	Mean (B2C_IND=1) N= 1,296	Mean (B2C_IND=0) N= 1,416	Diff.
IMAGES_PER_PAGE	1.0645	0.9971	0.0675***
IMAGES_TO_TEXT	3.6575	3.2706	0.3869***

Panel E. T-Test of Mean Image Usage between Competitive and Non-Competitive Industries

	Mean (COMPETITIVE _IND=1) N=1,185	Mean (COMPETITIVE _IND=0) N=1,452	Diff.
IMAGES_PER_PAGE	0.9919	1.0593	-0.0673***
IMAGES_TO_TEXT	3.3342	3.5694	-0.2353***

Panel F. T-Test of Mean Image Usage between GRI and Non-GRI reports

	Mean (GRI=1) N=1,803	Mean (GRI=0) N= 909	Diff.
IMAGES_PER_PAGE	0.9708	1.1453	-0.1744***
IMAGES_TO_TEXT	3.0778	4.2045	-1.1266***

Panel G. T-Test of Mean Image Usage - ESG Combined Score

	Mean (HAVE_SCORE _COMBINED) N= 2,254	Mean (NO_SCORE _COMBINED) N= 458	Diff.	Mean (LOW_SCORE _COMBINED) N= 1,129	Mean (HIGH_SCORE _COMBINED) N= 1,125	Diff.
IMAGES_PER_PAGE	1.0275	1.0383	-0.0108	1.0283	1.0266	0.0017
IMAGES_TO_TEXT	3.4199	3.6307	-0.2108*	3.4709	3.3686	0.1023

Panel H. T-Test of Mean Image Usage - ESG Score

	Mean (HAVE_SCORE _ESG) N= 2,254	Mean (NO_SCORE _ESG) N= 458	Diff.	Mean (LOW_SCORE _ESG) N= 1,129	Mean (HIGH_SCORE _ESG) N= 1,125	Diff.
IMAGES_PER_PAGE	1.0275	1.0383	-0.0108	1.1027	0.9520	0.1507***
IMAGES_TO_TEXT	3.4199	3.6307	-0.2108*	3.8209	3.0174	0.8036***

Panel I. T-Test of Mean Image Usage - ESG Controversies Score

	Mean (HAVE_SCORE _CONTRO-VERSIES) N= 2,254	Mean (NO_SCORE _CONTRO-VERSIES) N= 458	Diff.	Mean (LOW_SCORE _CONTRO-VERSIES) N= 1,143	Mean (HIGH_SCORE _CONTRO-VERSIES) N= 1,111	Diff.
IMAGES_PER_PAGE	1.0275	1.0383	-0.0108	1.0550	0.9992	0.0558***
IMAGES_TO_TEXT	3.4199	3.6307	-0.2108*	3.6268	3.2070	0.4198***

Table 4. CSR Report Image Usage and Firm Characteristics

This table reports estimation of the OLS regression $Image\ Usage_{i,t} = \alpha + \beta_1 SCORE\_TEXTUAL_{i,t} + \beta_2 MKTCAP_{i,t} + \beta_3 AGE_{i,t} + \beta_4 BTM_{i,t} + \beta_5 LEV_{i,t} + \beta_6 ADVT_{i,t} + \beta_7 RD_{i,t} + \beta_8 CAPX_{i,t} + \beta_9 ROA_{i,t} + \beta_{10} SALES_{i,t} + \beta_{11} SALESGROWTH_{i,t} + \beta_{12} TURNOVER_{i,t} + \beta_{13} INSTHOLDINGS_{i,t} + \beta_{14} ANALYSTS_{i,t} + \beta_{15} NPR_{i,t} + Fixed\ Effects$, where $Image\ Usage_{i,t} = IMAGES\_PER\_PAGE_{i,t}$ or $IMAGES\_TO\_TEXT_{i,t}$. Specifications (1) & (2) include year fixed effects. Specifications (3) & (4) add Fama-French 12-industry fixed effects. Coefficient standard errors, presented in parentheses, are clustered by firm. Significance at the 0.01, 0.05 and 0.1 levels in two-tailed tests is denoted by ***, **, and *, respectively.

VARIABLES	(1) IMAGES_ PER_PAGE	(2) IMAGES_ TO_TEXT	(3) IMAGES_ PER_PAGE	(4) IMAGES_ TO_TEXT
SCORE_TEXTUAL	-0.0058***	-0.0439***	-0.0066***	-0.0453***
	(0.0014)	(0.0054)	(0.0013)	(0.0055)
MKTCAP	-0.0227	-0.0809	-0.0248	-0.0962
	(0.0175)	(0.0695)	(0.0175)	(0.0723)
AGE	-0.0108	-0.1469*	-0.0124	-0.1309
	(0.0184)	(0.0869)	(0.0184)	(0.0888)
BTM	-0.0062	0.0980	0.0230	0.1870
	(0.0527)	(0.2277)	(0.0554)	(0.2342)
LEV	0.1676**	0.8181**	0.1562**	0.7924**
	(0.0760)	(0.3481)	(0.0768)	(0.3536)
ADVT	1.1064	5.8169*	-0.2901	0.9929
	(0.7196)	(3.2690)	(0.8806)	(3.9960)
RD	-0.3497	0.8962	-0.1449	1.1733
	(0.3741)	(1.7409)	(0.4889)	(2.2519)
CAPX	0.7208**	2.7133**	0.6304*	3.3599*
	(0.3046)	(1.3666)	(0.3234)	(1.7465)
ROA	0.1788	0.1717	0.0933	-0.1201
	(0.2367)	(1.0973)	(0.2329)	(1.1011)
SALES	0.0259	0.1834	0.0252	0.1764
	(0.0244)	(0.1260)	(0.0286)	(0.1479)
SALESGROWTH	0.0090	0.2787	0.0162	0.2932
	(0.0665)	(0.3065)	(0.0667)	(0.3055)
TURNOVER	-0.0561***	-0.2517***	-0.0517***	-0.2412***
	(0.0192)	(0.0867)	(0.0195)	(0.0890)
INSTHOLDINGS	0.0486	0.4769**	0.0716	0.5305**
	(0.0578)	(0.2088)	(0.0537)	(0.2073)
ANALYSTS	-0.0022	-0.0033	0.0006	0.0042
	(0.0022)	(0.0092)	(0.0024)	(0.0097)
NPR	0.0031	0.0032	0.0042	0.0059
	(0.0039)	(0.0164)	(0.0037)	(0.0162)
Constant	1.3732***	4.8953***	1.6062***	5.5462***
	(0.2087)	(0.8237)	(0.2290)	(0.9143)
Observations	2,712	2,712	2,712	2,712
Adjusted R-squared	0.0639	0.1225	0.0866	0.1307
INDUSTRY FE	NO	NO	YES	YES
YEAR FE	YES	YES	YES	YES

Table 5. CSR Report Image Usage and Opportunities or Motivations for Impression Management

Columns (1)-(10) report estimation of the OLS regression *Image Usage*$_{i,t}$ = α + β$_1$*Industry Group*$_{i,t}$ + β$_2$*SCORE_TEXTUAL*$_{i,t}$ + *Firm Controls*$_{i,t}$ + *Year Fixed Effects*, where *Industry Group*$_{i,t}$ = *SIN_IND*$_{i,t}$, *DIRTY_IND*$_{i,t}$, *CONTROVERSIAL_IND*$_{i,t}$, *B2C_IND*$_{i,t}$, or *COMPETITIVE_IND*$_{i,t}$. Fama-French 12-industry fixed effects are excluded. Columns (11) & (12) report estimation of the OLS regression *Image Usage*$_{i,t}$ = α + β$_1$*GRI*$_{i,t}$ + β$_2$*SCORE_TEXTUAL*$_{i,t}$ + *Firm Controls*$_{i,t}$ + *Industry Fixed Effects + Year Fixed Effects*. Coefficient standard errors, presented in parentheses, are clustered by firm. Significance at the 0.01, 0.05 and 0.1 levels in two-tailed tests is denoted by ***, **, and *, respectively.

VARIABLES	(1) IMAGES_ PER_PAGE	(2) IMAGES_ TO_TEXT	(3) IMAGES_ PER_PAGE	(4) IMAGES_ TO_TEXT	(5) IMAGES_ PER_PAGE	(6) IMAGES_ TO_TEXT	(7) IMAGES_ PER_PAGE	(8) IMAGES_ TO_TEXT	(9) IMAGES_ PER_PAGE	(10) IMAGES_ TO_TEXT	(11) IMAGES_ PER_PAGE	(12) IMAGES_ TO_TEXT
SIN_IND	0.2009**	0.8159*										
	(0.0940)	(0.4553)										
DIRTY_IND			0.1331***	0.3652***								
			(0.0340)	(0.1393)								
CONTROVERSIAL_IND					0.0792**	0.1798						
					(0.0389)	(0.1794)						
B2C_IND							0.0473	0.2201				
							(0.0363)	(0.1405)				
COMPETITIVE_IND									-0.0469*	-0.1852*		
									(0.0252)	(0.1084)		
GRI											-0.0982***	-0.5626***
											(0.0300)	(0.1396)
SCORE_TEXTUAL	-0.0058***	-0.0437***	-0.0064***	-0.0455***	-0.0060***	-0.0442***	-0.0056***	-0.0430***	-0.0063***	-0.0463***	-0.0045***	-0.0338***
	(0.0014)	(0.0054)	(0.0013)	(0.0054)	(0.0014)	(0.0054)	(0.0014)	(0.0054)	(0.0014)	(0.0054)	(0.0014)	(0.0062)
Constant	1.3792***	4.9200***	1.3064***	4.7122***	1.4169***	4.9947***	1.3789***	4.9218***	1.4710***	5.1580***	1.6583***	5.8442***
	(0.2085)	(0.8193)	(0.2050)	(0.8255)	(0.2125)	(0.8531)	(0.2072)	(0.8139)	(0.2136)	(0.8450)	(0.2266)	(0.9167)
Observations	2,712	2,712	2,712	2,712	2,712	2,712	2,712	2,712	2,637	2,637	2,712	2,712
Adjusted R-squared	0.0676	0.1254	0.0775	0.1273	0.0657	0.1227	0.0653	0.1241	0.0687	0.1284	0.0932	0.1415
FIRM CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY FE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Table 6. CSR Report Image Usage and Poor CSR Performance

This table reports results from regressing Refinitiv (Thompson Reuters) ESG scores reflecting poor CSR performance on image usage, along with firm controls, Fama-French 12-industry fixed effects, and year fixed effects. In Panel A, LOW_SCORE_COMBINED equals 1 if SCORE_COMBINED is not higher than sample median in a year, LOW_ESG_SCORE equals 1 if SCORE_ESG is not higher than sample median in a year, and HIGH_SCORE_CONTROVERSIES equals 1 if SCORE_CONTROVERSIES is higher than sample median in year. In Panel B, LOW_SCORE_COMBINED equals 1 if SCORE_COMBINED is in the bottom tercile of the sample in a year, LOW_ESG_SCORE equals 1 if SCORE_ESG is in the bottom tercile of the sample in a year, and HIGH_SCORE_CONTROVERSIES equals 1 if SCORE_CONTROVERSIES is in the top tercile of the sample in a year. Standard errors, presented in parentheses, are clustered at the firm level. Significance at the 0.01, 0.05 and 0.1 levels in two-tailed tests is denoted by ***, **, and *, respectively.

Panel A. CSR Report Image Usage and Above or Below Median ESG Scores

VARIABLES	(1) IMAGES_PER_PAGE	(2) IMAGES_TO_TEXT	(3) IMAGES_PER_PAGE	(4) IMAGES_TO_TEXT	(5) IMAGES_PER_PAGE	(6) IMAGES_TO_TEXT
LOW_SCORE_COMBINED	0.0170	0.1780*				
	(0.0237)	(0.0988)				
LOW_SCORE_ESG			0.0670**	0.2468*		
			(0.0297)	(0.1285)		
HIGH_SCORE_CONTROVERSIES					0.0151	-0.0717
					(0.0237)	(0.1005)
SCORE_TEXTUAL	-0.0073***	-0.0524***	-0.0066***	-0.0501***	-0.0074***	-0.0530***
	(0.0015)	(0.0058)	(0.0015)	(0.0059)	(0.0015)	(0.0058)
Constant	1.7799***	5.9848***	1.6053***	5.2669***	1.7903***	5.7669***
	(0.2701)	(1.0132)	(0.2737)	(1.0471)	(0.2698)	(1.0151)
Observations	2,254	2,254	2,254	2,254	2,254	2,254
Adjusted R-squared	0.1006	0.1544	0.1039	0.1553	0.1005	0.1531
FIRM CONTROLS	YES	YES	YES	YES	YES	YES
INDUSTRY FE	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES

Panel B. CSR Report Image Usage and Bottom or Top Tercile ESG Scores

VARIABLES	(1) IMAGES_PER_PAGE	(2) IMAGES_TO_TEXT	(3) IMAGES_PER_PAGE	(4) IMAGES_TO_TEXT	(5) IMAGES_PER_PAGE	(6) IMAGES_TO_TEXT
LOW_SCORE_COMBINED	0.0328	0.1969*				
	(0.0229)	(0.1026)				
LOW_SCORE_ESG			0.0591*	0.2679**		
			(0.0303)	(0.1311)		
HIGH_SCORE_CONTROVERSIES					0.0221	0.0084
					(0.0281)	(0.1177)
SCORE_TEXTUAL	-0.0072***	-0.0523***	-0.0066***	-0.0497***	-0.0074***	-0.0532***
	(0.0015)	(0.0058)	(0.0015)	(0.0059)	(0.0015)	(0.0058)
Constant	1.7805***	5.9388***	1.6392***	5.2822***	1.8078***	5.8838***
	(0.2697)	(1.0082)	(0.2793)	(1.0114)	(0.2709)	(1.0345)
Observations	2,254	2,254	2,254	2,254	2,254	2,254
Adjusted R-squared	0.1012	0.1546	0.1028	0.1554	0.1006	0.1529
FIRM CONTROLS	YES	YES	YES	YES	YES	YES
INDUSTRY FE	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES

Table 7. CSR Report Image Usage and Performance Quartiles

In Panel A, we assign the value of 1 to BOTTOM_QUARTILE_SCORE_COMBINED, SECOND_QUARTILE_SCORE_COMBINED, THIRD_QUARTILE_SCORE_COMBINED, or TOP_QUARTILE_SCORE_COMBINED if the observation's SCORE_COMBINED falls within the 1st-25th, 26-50th, 51-75th, or 76-99th percentile of the entire sample within each year, respectively. Otherwise they are set to 0. We regress combinations of these indicator variables on CSR report image usage, along with firm controls, Fama-French 12-industry fixed effects, and year fixed effects. We repeat the process with SCORE_ESG in Panel B and SCORE_CONTROVERSIES in Panel C. Standard errors, presented in parentheses, are clustered at the firm level. Significance at the 0.01, 0.05 and 0.1 levels in two-tailed tests is denoted by ***, **, and *, respectively.

Panel A. SCORE_COMBINED Quartiles

VARIABLES	(1) IMAGES_ PER_PAGE	(2) IMAGES_ TO_TEXT	(3) IMAGES_ PER_PAGE	(4) IMAGES_ TO_TEXT	(5) IMAGES_ PER_PAGE	(6) IMAGES_ TO_TEXT	(7) IMAGES_ PER_PAGE	(8) IMAGES_ TO_TEXT
BOTTOM_QUARTILE_SCORE_COMBINED	0.0530**	0.2787**	0.0483*	0.3024**	0.0562*	0.2936**	0.0512**	0.2740**
	(0.0250)	(0.1193)	(0.0282)	(0.1276)	(0.0328)	(0.1469)	(0.0256)	(0.1217)
SECOND_QUARTILE_SCORE_COMBINED			-0.0122	0.0619	-0.0043	0.0533		
			(0.0267)	(0.1127)	(0.0309)	(0.1322)		
THIRD_QUARTILE_SCORE_COMBINED					0.0151	-0.0167		
					(0.0318)	(0.1213)		
TOP_QUARTILE_SCORE_COMBINED							-0.0060	-0.0160
							(0.0272)	(0.1105)
SCORE_TEXTUAL	-0.0072***	-0.0519***	-0.0072***	-0.0519***	-0.0071***	-0.0519***	-0.0071***	-0.0519***
	(0.0015)	(0.0058)	(0.0015)	(0.0058)	(0.0015)	(0.0058)	(0.0015)	(0.0058)
Constant	1.7738***	5.8953***	1.7666***	5.9320***	1.7598***	5.9395***	1.7788***	5.9087***
	(0.2695)	(1.0049)	(0.2698)	(1.0160)	(0.2696)	(1.0171)	(0.2711)	(1.0151)
Observations	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254
Adjusted R-squared	0.1024	0.1558	0.1021	0.1556	0.1019	0.1552	0.1021	0.1555
FIRMS CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY FE	YES	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Panel B. SCORE_ESG Quartiles

VARIABLES	(1) IMAGES_ PER_PAGE	(2) IMAGES_ TO_TEXT	(3) IMAGES_ PER_PAGE	(4) IMAGES_ TO_TEXT	(5) IMAGES_ PER_PAGE	(6) IMAGES_ TO_TEXT	(7) IMAGES_ PER_PAGE	(8) IMAGES_ TO_TEXT
BOTTOM_QUARTILE_SCORE_ESG	0.0520	0.3457**	0.0817**	0.4181**	0.1115***	0.6361***	0.0418	0.2910**
	(0.0316)	(0.1411)	(0.0359)	(0.1628)	(0.0417)	(0.1813)	(0.0319)	(0.1412)
SECOND_QUARTILE_SCORE_ESG			0.0581*	0.1417	0.0853**	0.3410**		
			(0.0332)	(0.1365)	(0.0404)	(0.1597)		
THIRD_QUARTILE_SCORE_ESG					0.0480	0.3507***		
					(0.0312)	(0.1343)		
TOP_QUARTILE_SCORE_ESG							-0.0645**	-0.3464***
							(0.0315)	(0.1276)
SCORE_TEXTUAL	-0.0068***	-0.0491***	-0.0064***	-0.0482***	-0.0063***	-0.0473***	-0.0064***	-0.0473***
	(0.0015)	(0.0058)	(0.0015)	(0.0059)	(0.0015)	(0.0059)	(0.0015)	(0.0058)
Constant	1.6708***	5.2169***	1.5826***	5.0019***	1.5196***	4.5411***	1.6082***	4.8812***
	(0.2793)	(1.0150)	(0.2779)	(1.0423)	(0.2821)	(1.0791)	(0.2785)	(1.0366)
Observations	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254
Adjusted R-squared	0.1020	0.1566	0.1038	0.1569	0.1046	0.1597	0.1043	0.1601
FIRMS CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY FE	YES	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Panel C. SCORE_CONTROVERSIES Quartiles

VARIABLES	(1) IMAGES_ PER_PAGE	(2) IMAGES_ TO_TEXT	(3) IMAGES_ PER_PAGE	(4) IMAGES_ TO_TEXT	(5) IMAGES_ PER_PAGE	(6) IMAGES_ TO_TEXT	(7) IMAGES_ PER_PAGE	(8) IMAGES_ TO_TEXT
BOTTOM_QUARTILE_SCORE_CONTROVERSIES	-0.0123	-0.0663	-0.0176	-0.0034	-0.0226	-0.0812	-0.0098	-0.0566
	(0.0246)	(0.1038)	(0.0277)	(0.1177)	(0.0370)	(0.1607)	(0.0242)	(0.1018)
SECOND_QUARTILE_SCORE_CONTROVERSIES			-0.0124	0.1489	-0.0174	0.0716		
			(0.0278)	(0.1157)	(0.0343)	(0.1501)		
THIRD_QUARTILE_SCORE_CONTROVERSIES					-0.0080	-0.1254		
					(0.0329)	(0.1396)		
TOP_QUARTILE_SCORE_CONTROVERSIES							0.0118	0.0449
							(0.0299)	(0.1308)
SCORE_TEXTUAL	-0.0074***	-0.0533***	-0.0074***	-0.0533***	-0.0074***	-0.0533***	-0.0074***	-0.0534***
	(0.0015)	(0.0058)	(0.0015)	(0.0058)	(0.0015)	(0.0058)	(0.0015)	(0.0058)
Constant	1.7857***	5.9598***	1.8060***	5.7165***	1.8201***	5.9371***	1.8021***	6.0219***
	(0.2700)	(1.0111)	(0.2718)	(1.0300)	(0.2814)	(1.0724)	(0.2750)	(1.0359)
Observations	2,254	2,254	2,254	2,254	2,254	2,254	2,254	2,254
Adjusted R-squared	0.1004	0.1530	0.1001	0.1533	0.0997	0.1533	0.1001	0.1527
FIRMS CONTROLS	YES	YES	YES	YES	YES	YES	YES	YES
INDUSTRY FE	YES	YES	YES	YES	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES	YES	YES	YES	YES

Table 8. Changes in Image Usage and Changes in ESG Controversies Score

We calculate ΔImage Usage$_{i,t}$ = Image Usage$_{i,t}$ – Image Usage$_{i,t-1}$ and ΔSCORE_CONTROVERSIES$_{i,t}$ as SCORE_CONTROVERSIES$_{i,t}$ – SCORE_CONTROVERSIES$_{i,t-1}$. We create an indicator variable INCREASE_SCORE_CONTROVERSIES$_{i,t}$ which equals 1 if ΔSCORE_CONTROVERSIES is greater than 0 and equals 0 otherwise. We regress INCREASE_SCORE_CONTROVERSIES$_{i,t}$ on ΔImage Usage$_{i,t}$ in Specifications (1) & (2) and regress ΔSCORE_CONTROVERSIES$_{i,t}$ on ΔImage Usage$_{i,t}$ in Specifications (3) & (4). We control for changes in SCORE_ESG, changes in SCORE_TEXTUAL, changes in firm controls, Fama-French 12-industry fixed effects, and year fixed effects. Standard errors, presented in parentheses, are clustered at the firm level. Significance at the 0.01, 0.05 and 0.1 levels in two-tailed tests is denoted by ***, **, and *, respectively.

VARIABLES	(1) ΔIMAGES_ PER_PAGE	(2) ΔIMAGES_ TO_TEXT	(3) ΔIMAGES_ PER_PAGE	(4) ΔIMAGES_ TO_TEXT
INCREASE_SCORE_CONTROVERSIES	0.0487*	0.3650***		
	(0.0254)	(0.1125)		
ΔSCORE_CONTROVERSIES			0.0007	0.0040*
			(0.0005)	(0.0022)
ΔSCORE_ESG	0.0007	0.0064	0.0008	0.0067
	(0.0026)	(0.0109)	(0.0026)	(0.0110)
ΔSCORE_TEXTUAL	-0.0025	-0.0290**	-0.0024	-0.0288**
	(0.0029)	(0.0133)	(0.0029)	(0.0133)
Constant	-0.1467	-0.4843	-0.1243	-0.3023
	(0.1573)	(0.5736)	(0.1579)	(0.5640)
Observations	1,566	1,566	1,566	1,566
Adjusted R-squared	0.0055	0.0116	0.0044	0.0051
FIRM CONTROLS	YES	YES	YES	YES
INDUSTRY FE	YES	YES	YES	YES
YEAR FE	YES	YES	YES	YES

Table 9. CSR Report Image Usage and Market Valuation

We form portfolios that long (short) firms with low (high) CSR report image usage and calculate one-year ahead abnormal returns. We rank the image usage of each firm in fiscal year t according to threshold image usage values in its Fama-French 12-industry group in fiscal year t-1. Only firms with December 31 fiscal year ends are included in the comparison. We define one specification of high (low) image usage as being above (below) last year's median value, another specification of high (low) image usage as being above last year's 75th percentile value (below last year's 25th percentile value). We aggregate monthly abnormal returns over twelve months, starting from the month after the CSR report publication month. We calculate expected returns using the Fama-French 3-factor model. Thus, $CAR = \sum_{t=1}^{12} R_t - ER_t$. $ER_t = RF_t + b(MktRF_t) + s(SMB_t) + h(HML_t)$, where RF_t is the one-month T-bill return, $MktRF_t$ is the excess value-weighted market return, (SMB_t is the return on factor-mimicking portfolio for firm size, HML_t is the return on factor-mimicking portfolio for book-to-market. We regress monthly returns on the three factors in the period [t-36, t-1], requiring at least 6 observations for estimation.

Panel A reports CAR from portfolios formed using the above procedures for all December fiscal year end firms. Panel B reports CAR from portfolios for problematic (SIN_IND=1, DIRTY_IND=1, or CONTROVERSIAL_IND=1) industries and non-problematic industries. Panel C reports CAR on portfolios formed for firms with high (above industry median in year t) and low (below industry median in year t) institutional ownership. Panel D reports CAR on portfolios formed for firms with high (above industry median in year t) and low (below industry median in year t) analyst following. At the bottom of each panel, we report the number of observations and unique firms with non-December year ends that are excluded from portfolio formation. We also report the number of observations and unique firms with December year ends that are included in the ranking pool for portfolio formation. Significance at the 0.01, 0.05 and 0.1 levels in two-tailed tests is denoted by ***, **, and *, respectively.

Panel A. All Sample Portfolio Returns

	One-Year Cumulative Abnormal Returns	
	IMAGES_PER_PAGE	IMAGES_TO_TEXT
Long (short) firms with below (above) median image usage	-0.0058 (0.0061)	-0.0111* (0.0061)
Long (short) firms with bottom (top) quartile image usage	-0.0115 (0.0085)	-0.0073 (0.0085)
# obs. excluded due to fiscal year end in months other than December:	708	
# firms excluded due to fiscal year end in months other than December:	128	
# obs. included in ranking pool:	2,004	
# firms included in ranking pool:	404	

Panel B. Problematic vs. Non-Problematic Industry Portfolio Returns

	One-Year Cumulative Abnormal Returns			
	Problematic Industries		Non-Problematic Industries	
	IMAGES_ PER_PAGE	IMAGES_ TO_TEXT	IMAGES_ PER_PAGE	IMAGES_ TO_TEXT
Long (short) firms with below (above) median image usage	-0.0106 (0.0089)	-0.0134 (0.0089)	-0.0007 (0.0084)	-0.0087 (0.0084)
Long (short) firms with bottom (top) quartile image usage	-0.0184 (0.0123)	-0.0184 (0.0125)	-0.0042 (0.0116)	0.0046 (0.0115)
# obs. excluded due to fiscal year end in months other than December:	708			
# firms excluded due to fiscal year end in months other than December:	128			
# obs. included in ranking pool:	993		1,011	
# firms included in ranking pool:	188		216	

Panel C. High vs. Low Institutional Ownership Portfolio Returns

	One-Year Cumulative Abnormal Returns			
	High Institutional Ownership		Low Institutional Ownership	
	IMAGES_ PER_PAGE	IMAGES_ TO_TEXT	IMAGES_ PER_PAGE	IMAGES_ TO_TEXT
Long (short) firms with below (above) median image usage	-0.0054 (0.0090)	0.0043 (0.0090)	-0.0050 (0.0084)	-0.0222*** (0.0084)
Long (short) firms with bottom (top) quartile image usage	-0.0016 (0.0122)	0.0173 (0.0132)	-0.0159 (0.0121)	-0.0239** (0.0113)
# obs. excluded due to fiscal year end in months other than December:	708			
# firms excluded due to fiscal year end in months other than December:	128			
# obs. included in ranking pool:	1,040		964	
# firms included in ranking pool:	251		267	

Panel D. High vs. Low Analyst Following Portfolio Returns

	One-Year Cumulative Abnormal Returns			
	High Analyst Following		Low Analyst Following	
	IMAGES_ PER_PAGE	IMAGES_ TO_TEXT	IMAGES_ PER_PAGE	IMAGES_ TO_TEXT
Long (short) firms with below (above) median image usage	-0.0086 (0.0085)	-0.0073 (0.0085)	-0.0021 (0.0088)	-0.0115 (0.0088)
Long (short) firms with bottom (top) quartile image usage	-0.0109 (0.0122)	-0.0098 (0.0119)	-0.0074 (0.0121)	-0.0004 (0.0124)
# obs. excluded due to fiscal year end in months other than December:	708			
# firms excluded due to fiscal year end in months other than December:	128			
# obs. included in ranking pool:	958		1,046	
# firms included in ranking pool:	230		309	