Corporate reporting agencies: Hiring Shakespeare for textual disclosure in annual reports

Vasiliki Athanasakou[1]

Yasmine Chahed[2]

Lisa Goh[3]

Acknowledgements: We acknowledge the comments of John Barrios, Sabrina Chi (discussant), In-mu Haw, Stephen Lin, Jeanmarie Lord (discussant), Bjorn Jorgensen, Katherine Schipper, and Li Yao (discussant) in the developmental stages of this paper, seminar participants at Alliance Manchester Business School, Concordia University (John Molson School of Business), Copenhagen Business School, Dalhousie University, the Hang Seng University of Hong Kong, and reviewers and conference participants at the AAA 2019 Annual Meeting, CAAA 2019 Annual Meeting, European Accounting Association 2022 Congress, and the 2022 Hawaii Accounting Research Conference. We thank the Corporate Financial Information Environment project (CFIE) at Lancaster University for their web-based tool for textual anal
ysis. We also thank the many practitioners who shared their insights and experiences with us. We gratefully acknowledge funding from the Canadian Academic Accounting Association (Grant ID: CPA-1-2019-004).

[1] Corresponding author. Saint Mary's University, 903 Robie Street, B3H 3C3, Halifax, Nova Scotia, Canada, v.athansakou@smu.ca.

[2] Alliance Manchester Business School, Booth St W, Manchester M15 6PB, yasmine.chahed@manchester.ac.uk

[3] The Hang Seng University of Hong Kong, Sha Tin, New Territories, Hong Kong SAR, lisagoh@hsu.edu.hk

Corporate reporting agencies: Hiring Shakespeare for textual disclosure in annual reports

Abstract

We examine the impact of hiring corporate reporting agencies (CRAs) on the content and usefulness of textual disclosure in annual reports. CRA services often include advice on the annual report production process, report structure, and content. We show that an increasing fraction of firms hire CRAs that provide content-related services ("content CRAs"). We find that demand for compliance with regulatory guidelines on textual disclosure is a distinct determinant of hiring content CRAs, and that annual reports drafted with help from content CRAs include lengthier and more consistent textual disclosure. Hiring of content CRAs is also associated with movements towards award-winning disclosure levels over time and reduced information asymmetry. Our analysis provides insights on the role of an external intermediary in the annual reporting process, particularly on textual disclosures. Content CRAs seem to function as "quality brokers" of textual disclosure.

1. Introduction

Annual reports have evolved into a fundamental channel for companies to convey their value creation to external stakeholders (FRC Lab [2018a], IASB [2021]). Textual disclosures, including the management discussion and analysis (MD&A), contain increasingly descriptive, forward-looking, and non-financial information about a firm's business model, strategy, risks, and environmental, social, and governance (ESG) matters. The expansion of textual disclosure challenges preparers to satisfy regulatory guidelines on annual report content and establish an understanding and believability of the disclosure with capital markets. The challenge mainly relates to contentious disclosures, like management disclosure about firm strategy and soft disclosures of an unverifiable and imprecise nature (Mercer [2004], Athanasakou and Hussainey [2014], Cazier, Merkley, and Treu [2020]). This may result in the provision of broad, imprecise, and potentially boilerplate disclosure as firms roll content forward from one year to the next, or choose content perceived as "safe" in view of concerns about litigation and commercially sensitive information (Bochkay and Levine [2017]). Amidst this backdrop, corporate reporting agencies that offer expert advice in drafting annual report content ("content CRAs") have emerged in several international markets, notably the United Kingdom, where firms have considerable flexibility in the content of textual disclosure, and where regulators have focused on annual report content as a crucial aspect of reporting. The emergence of CRAs challenges the conventional view that the firm is the sole preparer of its annual report, yet academic research on their participation and their effects on textual disclosure remains limited. Our study is a first step towards understanding the role of CRAs in shaping the content and usefulness of textual disclosure in the annual report.

A common challenge to the informativeness of textual disclosure is the use of boilerplate text, i.e., standard disclosure that uses many words with little firm-specific content. Similarly, the

rolling forward of disclosure can lead to textual stickiness over time, reducing the amount of relevant, fiscal period-specific content (Brown and Tucker [2011], Dyer, Lang, and Stice-Lawrence [2017]). Challenges to informativeness are relevant in many jurisdictions, and financial reporting regulators work actively against these practices by issuing guidelines for best practice (FRC [2011, 2015], SEC [2020]), especially in view of the rising global demand for sustainability reporting (IFRS [2021], FRC [2021, 2023], SEC [2023]). For preparers, the challenge in following this guidance is striking the right balance between value-relevant and irrelevant information, especially for contentious disclosure (Cazier et al. [2021], Elliott, Gale, and Robson [2022]) and in the presence of price efficiency frictions (e.g., limited attention and short-selling constraints; Zhou and Zhou [2021], Lu [2022]). Content CRAs may help firms deal with this challenge by providing their expert advice on the firm's annual report preparation, structure, and content (e.g., message consistency, disclosure templates, tone, and language). Content CRAs can be described as the "Shakespeare" of textual disclosures, as they often promote themselves as "storytellers" of the firm's value creation story.[1]

Evidence suggests that firm disclosure choices are designed with a view to reducing users' information processing costs (Blankespoor [2019]). As such, firms may hire a content CRA to navigate regulatory guidance for best reporting practices more efficiently and gain insight into users' expectations so as to enhance their processing of value-relevant information in the annual report. While content CRAs may help firms build confidence with capital markets about their annual report content, it is also possible that the effects are only cosmetic. This can happen if content CRAs are hired by firms that seek "label assurance" for their annual report content without

[1] We refer to playwright and poet William Shakespeare, whose intricate dialogues often reveal the truth about people and nature. Shakespeare's works are enduring and resonate with readers through the authenticity of their underlying message; the latter is also what stakeholders desire to assess when reading the firm's value creation story.

making real disclosure changes (e.g., firms wanting to give the impression of good disclosure by hiring an "expert" CRA). Cosmetic effects may also result when content CRAs induce noise in the annual report by crowding out unique information that top management would have otherwise provided, or by adding unnecessary information (e.g., pro forma disclosure models that may introduce extraneous information). In this paper, we examine the determinants of hiring content CRAs and address the question of whether the intervention of content CRAs in annual report content and usefulness is overall "real" or "cosmetic."

We conduct our analysis in three steps. First, we build awareness of the role and potential interventions of CRAs in the reporting process. As there is little prior research on CRAs, we provide a detailed discussion of the emergence of CRAs and the services they provide, based on a review of CRA documentation and archived CRA websites. We hand-collect data on CRA use from annual reports of London Stock Exchange-listed FTSE All-Share constituent firms from 2003 to 2019. We find that 78% of firms engage a CRA to help prepare their annual report. We review the service portfolio of each CRA and classify an agency as a "content CRA" if the agency a) makes frequent submissions to regulatory consultations, b) publishes commentaries to showcase expertise on best reporting practices, and c) lists annual report content advice as an offered service. We find that an average of 38% of firms engage a content CRA in drafting the annual report, with the annual average rising markedly over the years, reaching 66% by the end of our sample period.

Second, we examine the determinants of hiring content CRAs. CRAs often position themselves as arbiters of best or accepted practice. Firms are likely to hire content CRAs to offer their annual report content a form of "quality assurance" in terms of compliance with regulatory guidelines, best practices, and perceptions of optimal content. This type of assurance is visible, as firms typically publish the name of the CRA at the end of their annual report. Consistent with this

argument, we find that regulatory shocks requiring more textual content in annual reports are a distinct determinant of content CRA hiring.

Third, we examine the association between content CRA hiring and the content and usefulness of textual disclosures in the annual report. In terms of content, we follow recent research on UK annual report content and focus on the impact of CRAs on management discussion of business model and strategy (BMS disclosure), as well as other types of textual disclosure, e.g. performance, forward-looking, and governance and remuneration disclosures, causal attribution, and readability (Athanasakou, Eugster, Schleicher and Walker [2020]).[2] We find that content CRA fixed effects account for up to 7% of the variation in textual disclosure, incremental to the variation from firm and year fixed effects, and to using any CRA services. We find significant increases in both the length and consistency of BMS disclosure among firms hiring a content CRA, and increases in the length of forward-looking, governance, and remuneration disclosures. Year-on-year analysis suggests that increases in textual disclosure are gradual and continue beyond the year of appointing a content CRA.

We next examine the impact of hiring content CRAs on the usefulness of the annual report, as viewed by stakeholders. We use "best practice" awards for annual report content, granted by industry participants, as a benchmark for good disclosure practices. We hand-collect a sample of best practice awards for annual report content granted by PwC (Building Public Trust Awards) and *Communicate* magazine (Corporate and Financial Awards). We find that content CRAs help firms move towards award-winning levels of textual disclosure. We also examine the effects of

[2] BMS disclosure is management discussion on corporate objectives and strategy, resources available to deliver those objectives, risks and uncertainties, and factors likely to affect the firm's future development. Policy makers view BMS disclosure as a central pillar of effective corporate reporting (IASB [2021], Athanasakou et al. [2022]). Evidence suggests a global trend towards BMS disclosures within annual reports, especially in view of integrated and sustainability reporting initiatives (KPMG [2016]). The IASB makes a central case for BMS disclosures in the MD&A in its exposure draft of the IFRS practice statement for management commentary (IASB [2021]).

hiring content CRAs on investor uncertainty. We find that content CRAs are associated with a lower bid-ask spread following the release of the annual report. These effects are more pronounced when focusing on first-time CRA hirers and on the years surrounding their appointment.

We control for the endogenous nature of content CRAs by including three key components in our analysis: 1) an indicator of CRA hiring to control for any effects attributed to the hiring of CRAs for non-content-related services; 2) determinants of content CRA hiring to control for observed heterogeneity in the choice to hire a content CRA; and 3) firm fixed effects to control for unobserved firm heterogeneity related to the choice of hiring a content CRA. We also repeat the analysis for a sample of firms that hire a content CRA over a three-year window before and after the appointment. We further mitigate potential non-random sample selection bias by performing our analysis on the impact of content CRAs a) using Heckman's [1979] two-stage correction for sample selection; b) on an entropy-balanced sample that achieves virtually identical mean, variance, and skewness for the control and treatment samples across all determinant variables of hiring content CRAs; and c) through placebo tests where we randomly assign firms each year to the category of those hiring content CRAs.

Last, we consider the possibility that in some cases, the hiring of content CRAs are associated with cosmetic changes in textual disclosure. Within the pool of content CRAs, we identify types more likely to be hired for "label" assurance purposes, or to overly rely on standardized disclosure models that may end up reducing idiosyncratic information. Our additional analysis provides some evidence consistent with cosmetic effects.

Our study makes several contributions to research on disclosure intermediaries, corporate reporting, and reporting regulation. First, we contribute to research examining the role of external agents on corporate disclosure. Unlike previous studies that primarily focus on the role of auditors,

analysts, and the media (Gibbins et al. [1990], Bushee and Miller [2012]), we examine an external agent that is directly involved in the internal annual reporting process. Previous studies suggest that internal and external accounting experts may collude to achieve creative compliance with accounting rules (Shah [1996]). Our results suggest that, on average, content CRAs, as external experts of reporting, help firms reach textual disclosure levels that stakeholders are more likely to view as excellent. As such, content CRAs seem to function as "quality brokers" of textual disclosure. This role is more in line with Mercer [2004], who was among the first to consider that external agents add to the credibility of management disclosures. However, achieving the status of an expert quality broker also raises the possibility that content CRAs are hired to offer "label" instead of "real assurance" to textual disclosure.

Second, our study adds to research on preparer-side intermediaries in the disclosure process that so far focuses mainly on the role of in-house expertise, particularly investor relations (Kirk and Vincent [2014], Brown et al. [2019], Chapman et al. [2019]) and how annual report preparation is divided between individuals or departments within firms (Amel-Zadeh et al. [2019]). We highlight content CRAs as a largely overlooked preparer-side intermediary and provide insights about the potential interventions that CRAs may make in the reporting process. While top management and investor relations teams are often in charge of certain sections of the annual report, content CRAs are often hired to oversee the entire annual report preparation process, so that the value creation story is clear and cohesive (Chahed and Goh [2019]). An important implication of our analysis is that the textual disclosure of annual reports should no longer be viewed as solely attributable to top management's traits, incentives, and internal expertise.

Third, our study contributes to research on financial reporting regulation. Research shows that regulatory initiatives may promote the disclosure of useful information in annual reports, but

may also trigger information overload (e.g., Athanasakou et al. [2020]). Our analysis identifies content CRAs as a mechanism that may foster the usefulness of annual report content, alongside regulatory guidance for best practice. This insight is particularly useful to regulators when considering ways to improve the usefulness of the annual report content (e.g., the boilerplate challenge). This is particularly relevant at a time when capital market participants are debating optimal channels for firms to communicate on ESG and sustainability issues. The content CRA "solution" to navigating challenges of new reporting initiatives is not costless, however; content CRA fees imply a direct cost to reporting regulation. This insight informs research on the cost-benefit analysis of reporting regulations, which already considers audit fees as a direct cost (Leuz and Wysocki [2016]). Our analysis also enhances our understanding of the role of financial reporting regulators as gatekeepers of capital markets (Roychowdhury and Srinivasan [2019]), by alluding to the emergence of a new market, that of CRAs, which may be in due in part to satisfying these gatekeeper demands.

Finally, our study contributes to emerging literature on disclosure awards as a measure of disclosure quality (Gagnon, Young, and Alves [2020], Chircop, Gagnon, and Young [2022]). Our analysis adds content CRAs as key players with an arguably conflicted role, since content CRAs shape perceptions of excellent reporting (e.g., by publishing commentaries on good reporting practices), thus rendering their services almost necessary to achieve disclosure excellence.

The rest of the paper is as follows. In Section 2, we discuss the regulatory background and our hypotheses. In Section 3, we discuss our sample, data collection, and classification of CRAs as "content" CRAs. In Section 4, we discuss our findings on CRA use and disclosure and capital market outcomes. In Section 5, we discuss our supplementary tests. In Section 6, we conclude.

2. Background and Hypotheses Development

In this section, we discuss the institutional background that fostered the emergence of the CRA market, the nature of CRA service offerings, particularly content CRAs, and factors likely to trigger demand for content CRA services.

2.1 INSTITUTIONAL BACKGROUND AND EMERGENCE OF THE MARKET FOR CORPORATE REPORTING AGENCIES

Over the years, annual reports have come to be dominated by textual disclosure, such that a typical report now has front-end text averaging 118 pages (KPMG [2016]). For UK firms, the most prominent sections would normally be a) BMS reports containing the Chairperson, CEO, and CFO statements, review of performance, and discussions about the firm's business model, resources, and risks; b) governance reports, including the directors' report, remuneration and other committee reports; and c) other statutory information, with no fixed format, to complement to financial statements and notes. These reports comprise largely unaudited information, and managers have considerable discretion over their content, structure, terminology, layout, and language. Such flexibility, combined with the increasing volume of required information, has in recent years led many firms to seek outside services to better understand and comply with disclosure guidelines.

UK firms began to seek CRA services for the drafting of annual reports as early as the 1960s (Lee [1994]). CRA services at that point were centered on annual report design, layout, publishing, and printing services. While such traditional CRA services were expanded in the 1980s and the 1990s, they remained largely non-content related. More recently, the market for content-related CRA services has developed significantly due to growing demand from investors, governments, and other stakeholders for corporate accountability on business models, strategy,

and non-financial matters, including ESG reporting.[3] This is manifested in several regulatory initiatives that aim to improve the content of annual reports along these themes. In response, CRAs moved to develop content-related expertise to assist clients with the growing content of textual disclosure, starting in the late 2000s, according to our review of archived CRA websites.

The plethora of reporting initiatives asking for more explanatory content in annual reports poses a dual challenge for firms. For more structured textual disclosures, such as corporate governance disclosure, the primary challenge is completeness in compliance with a list of requirements. For less structured disclosure, such as BMS disclosure, the additional challenge is to choose the optimal content, i.e., to provide disclosure that is most useful and easy to process by capital markets. To address this need, the UK Financial Reporting Council (FRC) issued a series of thought leadership papers aiming to improve clarity and accessibility in reporting (e.g., FRC [2009, 2011, 2012, 2014, 2020]).[4] Despite implementation guidance, however, some firms may remain uncertain about compliance with reporting requirements (Chahed and Goh [2019]).

The FRC's "generic and private" approach to enforcement reinforces firm uncertainty about compliance. The FRC conducts Corporate Reporting Reviews of annual reports to examine compliance with company law and applicable accounting standards, including requirements for textual content, but publicly disclosed enforcements and disclosure-related litigation are relatively

[3] The growing demand for corporate accountability is manifested in several regulatory initiatives that affect the content of annual report. Following a root-and-branch review of UK company law, the Companies Act 2006 introduced enhanced disclosure requirements for listed firms, focusing on firm objectives, resources, and business dynamics, which are most likely to affect future performance (DTI [2005]). This was followed by several best-practice initiatives by the FRC to improve the clarity and accessibility of annual report information, a similar commitment by the UK government (HM Government [2010, p. 10]), two public consultations by the Department of Business, Innovation & Skills on annual reporting (BIS [2010, 2011]), and disclosure mandated within a major revision of the UK Corporate Governance Code (FRC [2010]). Further regulatory reforms in 2014 and 2016 reinforced BMS disclosure, particularly relating to the impact of the firm's activities on non-shareholder stakeholders, local communities, and the environment.

[4] Similarly, the IASB, the European Financial Reporting Advisory Group (EFRAG), and the International Integrated Reporting Council (IIRC) also emphasize the need for firms to provide clear information relating to business models in their financial reports (IIRC [2013], EFRAG [2013, 2021]).

uncommon in the UK. When issues or uncertainties are common, the FRC publicly issues generic guidance. When the FRC detects a more specific breach, it communicates with the firm directly and seeks appropriate voluntary corrections or improvements. This process is largely private; the FRC expects audit committees to explain the nature of interactions with the FRC in their next audit committee report.[5] While the regulator can in principle apply to the court to enforce corrections, this is also uncommon. This generic and private enforcement approach allows for significant variation in corporate approaches to textual disclosure, ranging from firms providing the bare minimum to those seeking to be disclosure leaders.

This uncertainty is a key trigger for seeking content-related advice when drafting annual report content. Content CRAs showcase expertise in this area by tracking regulatory updates, publishing proprietary research on reporting "best practice" and leading informational events and expert panels that deliberate on perceptions of optimal content.[6]

2.2 CONTENT CRAS

Content CRAs advertise that they help firms convey a more convincing value creation story for stakeholders in their annual report. Full-content service providers often stress the benefits of coherent annual reports that link different reporting sections to the core value creation method, corporate governance, and growth strategy. A key premise for content CRAs is the building of trust and reputation for firms, for example, through free-of-charge informational events and

[5] Non-binding guidance from the FRC suggests that audit committees should explain the nature and extent of interactions (if any) with the FRC in their subsequent annual report and accounts (FRC [2016]) and/or authorise the FRC to state in a public notice that an investigation has concluded and that corrective actions were taken. However, these are relatively infrequent; between 2009 and 2020, the FRC's Supervision Committee issued only 12 entity-specific public announcements in relation to accounts or other reports. See https://www.frc.org.uk/accountants/corporate-reporting-review/entity-specific-public-announcements. Generic guidance is published at https://www.frc.org.uk/accountants/corporate-reporting-review/generic-public-announcements.

[6] For example, corporate reporting agency Radley Yeldar publishes annual benchmarking reports for FTSE 100 firms, entitled "How does it stack up?," among other publications, and was member of the joint initiative Report Leadership group, together with PricewaterhouseCoopers and the Chartered Institute of Management Accountants (CIMA).

dissemination of best practice research. The hiring of a content CRA signals that a client firm is ready to involve the CRA in the drafting of their annual report and to take their content-related advice into consideration.

Content CRAs intervene in different stages of the annual reporting cycle. At the beginning of the cycle, before drafting the content, firms and content CRAs typically work together to develop a communication strategy and agree on the design templates. This planning impacts the structure and length of the annual report and provides a framework for drafting the textual content. At this initial stage, content CRAs often highlight specific questions that firms need to address in their annual report for the particular reporting period, or suggest a different communication approach compared to the previous reporting period. Content CRAs also offer insights into recent peer disclosure practices. Firms then have a first pass at drafting sections, which they provide to the CRA for review and editing. The CRAs review the clarity and consistency of the information and propose amendments to the use of language (often through several rounds of revisions) before the draft report is sent to the board for its first review (see also Chahed and Goh [2019]).The decision on the level of acceptance of the suggested changes rests with the firm.

2.3 DEMAND FOR CONTENT CRAS

Previous studies offer no explicit guidance on why firms hire content CRAs. From an economic perspective, fees for content CRA services suggest that listed firms expect them to add value to their reporting processes; firms proceeding with the hiring decision pass a cost-benefit threshold. Anecdotal evidence suggests that some FTSE 100 firms spend six-digit figures annually (in £GBP) on external advice regarding annual report preparation (FRC Lab [2018b]). While this is a fraction of the audit fees that could be expected for the same set of firms, it suggests a substantial added cost to the annual reporting process.

Like the hiring of other business consultants (e.g. compensation consultants, Goh and Gupta [2010], Cadman et al. [2010], Murphy and Sandino [2010], Armstrong et al. [2012]), where clients primarily expect some benefits in the form of operating or contracting efficiencies, hiring content CRAs may yield efficiency gains (e.g. more efficient drafting, editing, printing and distribution processes) in firms' reporting process, if CRAs draw from the experience of dealing with various clients.

A distinctive characteristic of buying advice on annual report content is the capital market's uncertainty about what constitutes best practice and optimal content. This is especially true for BMS disclosure, due to its contextual nature and the fluid and contentious nature of the business model and strategy constructs. This uncertainty is also true for performance, forward-looking, and governance commentaries, where it is challenging for companies to strike the right balance between useful content, boilerplate text, and impression management.[7] Evidence suggests that a mixture of content (value relevant and irrelevant information) reduces investors' processing of information due to poor acquisition and integration of information and leads to less accurate value estimates and market prices (Elliott, Gale and Hobson [2022]). Therefore, obtaining expert advice on regulatory requirements and observing peer disclosure practices are key starting points for deploying optimal value-relevant content. Since collecting data about field-wide practices can be costly, there is an economic incentive to hire external consultants. Content CRAs invest considerable resources by reviewing reporting guidelines, so they can improve client firms' textual disclosure through a benchmarking process against absolute standards (regulatory guidelines) or dynamic standards (industry peers and best practices following those standards). CRAs further position themselves as arbiters of "best or accepted practice" (Kipping and Engwall [2002], Sahlin-

[7] Athanasakou et al. [2020] provide evidence consistent with UK firms facing the challenge of immediately reaching optimal disclosure levels.

Andersson and Engwall [2002]), as they play a key role in evaluating reporting initiatives and shaping perceptions of best practice.

Thus, firms are likely to hire content CRAs as "quality brokers" of annual report content. This sort of hired "quality assurance" from content CRAs is visible, as firms typically publish the name of the CRA at the end of their annual report. Thus, we consider that the need to ensure compliance of annual report content with regulatory guidelines, best practices, and perceptions of optimal annual report content functions as a key trigger for firms to hire content CRAs.

2.4 CONTENT CRAS: REAL OR COSMETIC INTERVENTION?

Although content CRAs may claim that their expertise is necessary to improve the content of annual reports, previous studies offer little guidance on whether any benefits materialize, that is, whether their suggested changes are real (i.e., successful in yielding a useful report), cosmetic, or even hamper disclosure. First, it is possible that content CRAs are hired to provide some sort of "label" or "cosmetic" assurance to the annual report without really introducing any changes to the content, but simply showcasing the intervention of an "expert" content CRA. Second, if the changes induced by CRAs are indeed real, as external agents, content CRAs may interfere with the message that the firm's management wishes to convey to stakeholders. When content CRAs recommend or make changes to the content and presentation of strategic and governance disclosure, in particular the BMS disclosure, there is a risk that they add informational complexity or crowd out unique information. For example, in an effort to demonstrate their added value to corporate reporting, content CRAs may lead firms with a relatively simple starting point for disclosure (e.g., a simple and/or well-established business model) to add new information or convey existing information differently. In such cases, report users may interpret the outcome of CRA intervention as noise or clutter in the content and language of the annual report. Furthermore,

content CRAs may also discourage firms from disclosing new information if it is difficult to explain or may be perceived negatively.

An additional challenge in assessing the value of content CRA services is the subtle nature of the value itself, as resolving information asymmetry is often difficult to measure, and efficiency improvements in the reporting process may take a long time to become evident. Content CRAs stress this as a key challenge to promoting their services. At the same time, firms may gradually grasp the key insights of the content CRA's added expertise, leading to diminishing returns on content CRA services; that is, the firm will likely become better at ensuring the right content of BMS disclosure and consistency across sections on its own.

In sum, it is possible that content CRAs add cosmetic instead of real quality assurance to the annual report content, or even when they add real value to the reporting process, that stakeholders are unable to fully assess this value added. Therefore, the impact of content CRAs on the usefulness of annual reports remains an empirical question.

3. Sample and CRA Classification

In this section, we describe our sample, data sources, and method of identifying content CRAs.

3.1 SAMPLE

Our sample starts with LSE-listed constituent firms of the FTSE All-Share Index in 2003–2019, excluding financial firms and investment trusts, which are subject to different sets of regulations. We match this list to firms with data on automated disclosure scores made available to the public via the Corporate Financial Information Environment (CFIE) research program at Lancaster University.[8] We obtain financial data from Datastream; index membership and industry sector from FTSE Russell; governance data from BoardEx; and hand-collect CRA data from

[8] See http://ucrel.lancs.ac.uk/cfie/#research.

annual reports. Our final sample consists of 4,070 firm-years and varies slightly across tests depending on the data availability of additional variables.

3.2 IDENTIFYING AND CLASSIFYING CRAS

For listed firms, the annual report typically contains a page with information on the production of the annual report and the name of any CRA involved in the production process. We identify CRAs from this page, manually collecting the name of any CRA involved in the preparation of the annual report and any statement of attribution.[9] We infer no involvement of a CRA if we find no attribution to an external CRA or when the firm explicitly states that the report was produced internally. We obtain the annual reports for each firm-year from the individual firm's website. For firms without websites, delisted and acquired firms, or firms missing reports for certain years, we obtain annual reports from databases such as Capital IQ and Mergent, or from Companies House, the UK government repository for corporate filings.

Table 1 shows the ten largest CRAs over the sample period by market share. The five largest CRAs account for almost 40% of firms that choose to hire a CRA. Approximately 21% of preparers choose not to hire a CRA and prepare their reports internally. Figure 1 and Table 2 show the growth in the CRA market over time. The percentage of firms hiring a CRA increases steadily from 69% in 2003, peaking at 83% in 2012, remaining at this level until the end of our sample period in 2019.

CRAs do not explicitly state their roles in a client's annual reporting process. Firms also provide no description about the function of CRAs in their annual reports or their level of intervention. As a result, we design a classification scheme that includes three criteria to classify

[9] Automating identification is not possible, as the participation of the CRA in the annual report is typically attributed in the form of a logo image in the annual report PDF file, rather than text, its location is not consistently placed (because of the unstructured format of the annual report), and in some cases, the annual reports we obtain are unsearchable image scans of hard copy annual reports.

an agency as a "content CRA," which has the highest potential level of intervention in the content or drafting process of the annual report. We use the term "content" to reflect CRAs' involvement in shaping the value creation story from the start of a firm's annual report planning cycle (often early in the fiscal year) until the release of the final annual report. We use three filters to classify CRAs as content CRAs. First, we consider CRAs that have made submissions to regulatory consultations, as these are attempts by CRAs to involve themselves in a regulatory debate on effective financial reporting and to market their consultancy services.[10] Second, we consider CRAs that have published commentary reports, as these are an effort to showcase expertise in offering content- related services (e.g., Black Sun [2009a, 2009b], Radley Yeldar [2010]). Third, we collect self-reported information about the CRA's services from their websites as of 2020 and from their archived websites for earlier years (accessed from the Wayback Machine). We consider CRAs that offer consulting services on annual report content as content CRAs. These services include best-practice disclosure benchmarking analyses, development of communication strategies, style templates (visual and text), investor relations expertise, consulting on annual report structure, copy editing, and production project management, and go beyond traditional CRA services of graphic design, layout, typesetting, printing, and publishing.

Figure 1 and Table 2 show the fraction of firms hiring content CRA or any CRA across years. All variables are defined in the Appendix. There is a steady increase in the use of content CRAs (*ContentCRA*=1), with their market share increasing from 15% in 2003 to approximately 66% by the end of the sample period. Hence, growth in the CRA market is mainly attributed to content CRAs gaining market share over time and from other CRAs extending their services to

[10] For example, the 2010 Department of Business, Innovation, & Skills consultation on "The Future of Narrative Reporting" (BIS [2010]).

content over time.[11]

4. Method and Results

In this section, we describe the tests and review the results of our analyses on the factors affecting the hiring of content CRAs and their impact on the content and usefulness of the annual report.

4.1 HIRING CONTENT CRAS

We use the following basic model for the determinants of content CRA hiring:

$$ContentCRA_{it} = \alpha_0 + a_1 Post\_BR_{it} + a_2 Post\_CGREV_{it} + a_3 Post\_SR_{it} + a_4 FRCReviewEligibility_{it} + \sum_{n=1}^{4} a_{5n} GOV_{it} + a_6 Ln(TotalAssets)_{it} + a_7 ROA_{it} + a_8 \#BusinessSegments_{it} + a_9 BM_{it} + \alpha_{10} Finance_{it} + \sum_{n=1}^{N} Z_n IND_{it} + \sum_{y=1}^{Y} Z_m YEAR_{it} + \varepsilon_{it}. \quad (1)$$

ContentCRA equals 1 when a content CRA is involved in the preparation of the annual report. Our model considers both external and internal triggers for content CRAs' expert advice on complying with guidelines or expectations for optimal content. We include indicators for three key regulatory initiatives requiring more textual content in annual reports; a) *Post_BR*, identifying periods after the 2006 revision of the UK Companies Act, which mandated firms to include a Business Review section in the annual report with BMS disclosure (i.e. periods ending on or after March 31, 2006), b) *Post_CGREV*, identifying periods after the 2010 revision of the Corporate Governance Code, which asks for more detailed BMS disclosure (FRC [2010]) (i.e. periods ending on or after June 30, 2011), and c) *Post_SR*, identifying periods following the 2013 change in company law, which enacted BMS disclosure into law by mandating the Strategic Report as a separate section of the annual report (i.e. periods ending on or after September 30, 2013).[12] We include an indicator for

[11] Observing content CRAs websites, we note that they often advertise "storytelling" and "benchmarking" services after 2013, and make frequent references to value creation, stakeholder engagement, and sustainability, towards the end of our sample period.

[12] In between these initiatives, the FRC issued several consultation papers on making corporate reports less complex and more relevant by removing unnecessary text (FRC [2009, 2011]), but the three we choose involve regulatory changes, which constitute major triggers for a rise in demand in BMS disclosure (Athanasakou et al. [2022]).

FTSE 350 member firms (*FRCReviewEligibility*) to consider the demand for content CRA advice on best practices arising from firms' eligibility for annual reviews conducted by the FRC.[13]

We also include proxies for internal demand for seeking compliance assurance on annual report content arising from corporate governance factors. We consider an indicator of CEO-Chair duality (*CEO_Chair*), deviations in board size from industry norms (*BoardSizeDev*), deviations in board independence from industry norms (*BoardIndepDev*), and deviations in board tenure from industry norms (*BoardTenureDev*). Given the endogenous nature of governance, we consider these variables as second-order determinants to the hiring of content CRAs and use them to offer additional insights. Our specification also includes common factors affecting disclosure choices, such as firm size (*Ln(TotalAssets)*), operating performance (*ROA*), operational complexity (*#BusinessSegments*), growth opportunities (*BM*), and capital-raising activities (*Finance*). Finally, our specification includes industry and year fixed effects to account for year-on-year changes in technology that may trigger increases in demand for expert advice on corporate communication, and year-specific events or crises that may heighten public scrutiny over disclosure (e.g., the 2007–2009 financial crisis).

Table 3 presents the results of the logit regression of equation (1). We first exclude corporate governance variables to maximize the number of observations. The coefficient on *Post_SR* in column (1) is positive and significant, consistent with the 2013 company law amendment causing the most substantial rise in the use of content CRAs. The coefficient on *FRCReviewEligibility* is also positive and significant, consistent with eligibility for annual FRC reviews being an incremental trigger to hiring content CRAs. In column (2), we add governance

[13] See https://www.frc.org.uk/accountants/corporate-reporting-review and https://www.frc.org.uk/accountants/corporate-reporting-review/annual-activity-reports. The FRC chooses from the pool of FTSE350 constituent firms, with a view to evaluating best reporting practices and identifying issues in need of further monitoring and guidance.

variables. The coefficients on *BoardIndepDev* and *BoardTenureDev* are significantly negative and significantly positive respectively. These results suggest that it is firms with more independent, yet less experienced, boards that hire content CRAs. With a view to identifying the distinct determinants of using content instead of other CRAs, we repeat the analysis using only CRA-hiring firms, excluding all firm-years with no CRAs. In column (3), the results remain, with *CEO_Chair* and *BoardSizeDev* also becoming positive and significant, suggesting that content CRA hiring is particularly associated with CEO duality and smaller board sizes. These results affirm both external (regulatory shocks) and internal triggers (governance factors particularly related to CEO duality and board size) as key drivers of hiring content CRAs.

In the final column of Table 3, we model the likelihood of using traditional, i.e. non-content, CRA services, over no CRA services, on the sample of observations excluding *ContentCRA*=1. The dependent variable, *OtherCRA*, is an indicator for firms that use a CRA, but not a content CRA. Interestingly, *ROA* and *BM* load negatively while *Finance* loads positively, suggesting that for agencies offering traditional CRA services, the main triggers for hiring are agency-related considerations (e.g., poor performance and capital-raising activities).

4.2 THE IMPACT OF CONTENT CRAS ON ANNUAL REPORT CONTENT

To fully assess the impact of content CRAs, we first examine their impact on annual report textual disclosure measures. Our first measure is **BMS disclosure**, a vital part of UK annual reports. BMS disclosure features prominently in UK annual reports, with firms typically devoting a separate component of the text to discussing their strategy and business model. The IASB also centralizes BMS disclosure in the management discussion and analysis section of the annual report (Exposure Draft ED/2021/6 Management Commentary, IASB 2021). Content CRAs recognize the critical importance of BMS disclosure, advocating a special focus on the value creation story

within BMS disclosure, compared to other parts of the annual report (e.g., causality relations, back-end disclosures). Following Athanasakou et al. [2020] and Athanasakou et al. [2022], we assess the BMS disclosure using *StrategyScore*, a measure of the volume of BMS content in annual reports based on 231 keywords that reflect strategic content. For each annual report, *StrategyScore* counts the number of times that the keywords are used in the front-end textual sections (excluding the governance and remuneration sections). Athanasakou et al. [2022] show that the length of UK firms' BMS disclosures increases following regulatory initiatives to reduce investor uncertainty. However, it is not clear if the length of BMS disclosures is affected by the hiring of content CRAs.

Our second measure focuses on the **consistency of BMS disclosure**. With a view to promoting clear and concise reporting in annual reports, the FRC issued specific guidelines on the desirable properties of BMS disclosure, emphasizing the need for necessary linkages among sections so that the annual report presents a consistent story (FRC [2015]). To measure the consistency of BMS disclosure, we calculate a measure of the consistency of *StrategyScore* across different sections of the annual report. *StrategyScoreConsistency* is calculated as *StrategyScore* divided by the standard deviation of *StrategyScore* across the different sections of the front-end text (e.g., CEO statement, financial highlights, BMS section, performance section). Higher values of *StrategyScoreConsistency* indicate lower standard deviation of *StrategyScore* across sections given the same level of *StrategyScore*.

Our third measure is the **overall disclosure level**. For comparability with previous studies, we consider a comprehensive measure of textual disclosure that considers management disclosures across all front-end sections of the annual report, including BMS disclosure. We calculate *DiscFactor*, a principal common factor that combines eight component measures of textual disclosure in the annual report: BMS disclosure (*StrategyScore*), performance disclosure (*Perf*),

governance and remuneration disclosure (*Gov*), other front-end disclosure (*Restfront*), back-end notes (*Backend*), forward-looking disclosure (*Forward*), causality relations (*Causal*), and the readability of annual report performance section (*FogP_Inv*). Athanasakou et al. [2020] use a similar approach to capture the overall disclosure levels of UK firms in their annual reports. Given the diverse nature of the textual disclosure measures and the potential confounding effects on the combined score, we also repeat the analysis on the individual components (the results are in Table A1b of the Online Appendix).

Our first step is to examine whether we can identify a discernible effect of content CRAs on textual disclosures in the annual report. We conduct a simple decomposition of the explanatory factors of *StrategyScore*, *StrategyScoreConsistency* and *DiscFactor* to determine the proportion attributed to the presence of a content CRA, using an approach similar to Beyer et al. [2010], who decompose quarterly return variance. This gives perspective on the magnitude of the effect of content CRA involvement in preparing textual disclosures. For this decomposition, we estimate the following panel regression:

$$TextualDisclosure_{it} = \alpha_0 + \sum_{m=1}^{M} \beta_m FIRM_{it} + \sum_{y=1}^{Y} Z_m YEAR_{it} + \gamma ContentCRA_{it} + \delta OtherCRA_{it} + \varepsilon_{it}, \quad (2)$$

We estimate equation (2) using *StrategyScore*, *StrategyScoreConsistency*, and *DiscFactor* as the proxies for textual disclosure in the annual report. The specification includes firm fixed effects, year fixed effects, and the indicator variables *ContentCRA* and *OtherCRA* (non-content CRAs). Separating CRAs between "content" and "non-content" allows us to identify the incremental contribution of content CRAs in explaining variations in textual disclosure.

Table 4 reports the total R^2 and the mean partial R^2 attributable to firm fixed effects, year fixed effects, content CRAs, and other CRAs. Column (1) reports results of regressing

StrategyScore. Firm fixed effects and *ContentCRA* explain 64.1% of the variation in the *StrategyScore*, with 4.84% of the R^2 attributable to content CRAs, or 7.54% of the explainable variation, even after controlling for other CRA hiring (which explains an overall 0.05%) and potential year trends. While the results suggest that most of the variation of textual disclosure can be explained by firm characteristics, content CRAs seem to have a substantial incremental effect exceeding that of year effects. From the results in column (2), a similar picture emerges for *StrategyScoreConsistency*, with 2.02% of the R^2 and 4.04% of the explainable variation being attributable to content CRAs. In column (3), for the aggregate measure *DiscFactor*, content CRAs contribute an R^2 of 0.16% and 0.22% of the explainable variation, which are higher than CRA hiring and across-years variation. Analysis of remaining individual components of *DiscFactor* in Table A1a shows that content CRAs explain up to 5.14% of the variation in residual textual disclosure, with the more substantial impact focusing on forward-looking disclosure (*Forward*) and governance and remuneration disclosure (*Gov*). These initial results suggest that we can identify a discernible content CRA effect on the variation of textual disclosure that is substantially higher than either the hiring of other CRAs or year effects.

To assess the directional impact of content CRAs on textual disclosure, we extend equation (2) as follows:

$$\begin{aligned} TextualDisclosure_{it} = \alpha_0 + \; & a_1 ContentCRA_{it} + a_2 CRA_{it} + a_3 Ln(TotalAssets)_{it} + \\ & a_4 ROA_{it} + a_5 BM_{it} + a_6 Finance_{it} + \\ & \alpha_7 \#BusinessSegments_{it} + \alpha_8 WordCount\_FS_{it} + \\ & \sum_{m=1}^{M} \beta_m ContentCRADeterminants_{it} + \sum_{n=1}^{N} Z_n FIRM_{it} + \\ & \sum_{y=1}^{Y} Z_m YEAR_{it} + \varepsilon_{it}, \end{aligned} \tag{3}$$

using the same three textual disclosure measures, *StrategyScore*, *StrategyScoreConsistency*, and *DiscFactor*. In the model, we control for the endogenous nature of hiring content CRAs by controlling for the hiring of any CRA (*CRA*), firm fixed effects, and remaining confounding factors

that may also affect textual disclosure, such as operating performance (*ROA*), book-to-market ratio (*BM*), capital-raising activities (*Finance*), operational complexity (*#BusinessSegments*), and length of financial statements and notes (*WordCount_FS*). We also include remaining determinants of the content CRA hiring decision from equation (1).

Table 5 provides summary statistics of the annual report textual disclosure measures for firms hiring content CRAs (*ContentCRA*=1), other CRAs (*OtherCRA*=1) or no CRA (*CRA*=0). Average *StrategyScore*, *StrategyScoreConsistency*, and *DiscFactor* are significantly higher for firms hiring content CRAs compared to firms hiring *OtherCRA* or not engaging any CRA. We observe a similar pattern for all *DiscFactor* components.[14] Table 5 also reports firm characteristics by groups. Firms hiring content CRAs seem to have on average a smaller board size (higher *BoardSizeDev*), shorter board tenure (higher *BoardTenureDev*), higher independence (lower *BoardIndepDev*), larger firm size (*Ln(TotalAssets)*), higher operating performance (*ROA*) and lower capital-raising activity (*Finance*).

Table 6 presents the results of equation (3) for the three textual disclosure measures. The coefficient on *ContentCRA* is positive and significant for all three measures (columns (1)–(3)), while *CRA* is significant only for *StrategyScore* and *DiscFactor* (columns (1) and (3)). These results suggest that firms using content CRAs produce annual reports with incrementally more extensive and more consistent BMS disclosure, and an incrementally higher overall disclosure level than firms not employing CRAs or firms using non-content CRAs. As expected, both the level and consistency of BMS disclosure exhibit a significant increase following regulatory initiatives. Interestingly, the BMS disclosure is more extensive when CEOs are also the

[14] Across-year analysis on *StrategyScore* and *StrategyScoreConsistency* in Figures 2 and 3 suggests a steady rise in both textual measures over time. This extends evidence of the rise in BMS disclosure found by Athanasakou et al. [2022], with evidence of a rise in the consistency of BMS disclosure across sections.

chairperson (*CEO_Chair*) and when board tenure is lower than industry norms (*BoardTenureDev*). In additional analysis using individual components of *DiscFactor* (Online Appendix Table A1b), content CRAs are associated with significantly more governance (*Gov*) and forward-looking disclosure (*Forward*) in annual reports. A potential explanation for this is the increasing integration between BMS and governance disclosure and those about future plans. Taken together, these results suggest that content CRAs have an overall positive impact on textual disclosure.[15]

To provide more causal evidence on the effect of content CRAs on annual report content, we repeat equation (3) for the subsample of firms that hire a content CRA over a three-year window before and after the appointment. We choose this window because it is common for firms to retender content CRA contracts every three years. *HiredContentCRA* equals one for the period following the hiring. The results in Table 7 show a significantly higher *StrategyScore* and *StrategyScoreConsistency* for firm-years after the hiring of a content CRA. (Our untabulated analysis of the *DiscFactor* components also suggests an increase in *Forward* and *Gov*). The trends are robust to controlling for both firm and year fixed effects, as well as the remaining factors affecting content CRA hiring and disclosure levels. Additional descriptive analysis by year relative to the hiring of a content CRA, presented in Online Appendix Table A2, shows that the textual disclosure scores increase gradually after the hiring date. This suggests that the content CRA's involvement in the reporting process is continuous rather than a single once-off effect.

4.3 THE IMPACT OF CONTENT CRAS ON THE USEFULNESS OF TEXTUAL DISCLOSURE

We next explore the role of content CRAs on stakeholders' use of annual reports. To this

[15] We note that content CRAs are associated with reports that include more complex (less readable) performance sections (Table A1b). This is likely the result of firms hiring content CRAs to help integrate BMS disclosures in performance commentaries, as explicitly suggested in FRC guidance on the desired properties of BMS disclosures (FRC [2015]). However, in spite of this effect, untabulated analysis shows that content CRAs have little effect on the overall readability of front-end sections of the annual report.

end, we examine whether content CRAs help firms adjust to disclosure levels that capital markets view as desirable or adhering to best practice, and whether annual reports drafted with the help of content CRAs are associated with lower investor uncertainty. We focus on these two key outcomes, as regulatory and shareholder enforcement actions relating to annual report content are relatively uncommon in the UK (see Section 2.1).

First, we explore whether content CRAs help firms adjust to disclosure benchmarks. The UK offers an interesting setting for identifying disclosure best practices, as institutions participating in the award-setting process represent both the preparer (e.g., PwC and Radley Yeldar) and user sides (e.g., Investor Relations Society and *Communicate* magazine). These awards purport to honor excellence in annual report communication with capital markets, and they span a number of categories (e.g., best printed report, best online report, annual report of the year). Their development coincides with the convergence of investor relations, corporate communications, and financial reporting to improve communication with capital markets (*Communicate* magazine, 2014). We hand-collect data on annual disclosure awards granted by two key institutions, PwC and *Communicate* magazine, and investigate the textual disclosure features that increase the likelihood of winning a disclosure award. Focusing on the textual disclosure measures that seem to be "rewarded," we investigate whether content CRAs help firms move closer to "award-winning" disclosure levels.

We start by assessing the factors that matter for winning a disclosure award. Table 8 reports the regression results from modelling the winning of a disclosure award on the three textual disclosure measures we use: *StrategyScore*, *StrategyScoreConsistency*, and *DiscFactor*. We control for the hiring of a CRA (*CRA*), content CRA (*ContentCRA*), and other confounding effects (determinant factors of content CRA hiring from equation (1)). In column (1), coefficients to

StrategyScore and *StrategyScoreConsistency* are both positive and significant, but the coefficient to *DiscFactor* is not significant. We then repeat the analysis, separating *DiscFactor* into its constituent components (*Perf, Forward, Gov, Causal, Restfront, Backend,* and *FogP_Inv*). In column (2), only *Restfront* is significant, suggesting that it is primarily the BMS disclosure (level and consistency across sections) that is associated with the winning of a disclosure award. Our results are consistent with Gagnon et al. [2020], who also identify strategy-related disclosure as a key characteristic of firms winning annual disclosure awards. The coefficients for *ContentCRA* and *CRA* are not significant in any of the specifications, suggesting that CRA hiring is not directly associated with awards for disclosure excellence.

Using award-winning disclosure levels as a benchmark for user-perceived excellence, we next calculate measures capturing deviations from the benchmark; that is, firm-year-level deviations from the average scores of award-winning firms. We calculate the deviation measures for *StrategyScore* and *StrategyScoreConsistency*, as these two textual disclosure features appear to be significantly affected by content CRAs (Tables 6, 7, A1a, and A1b) and appear to also matter for gaining recognition (Table 8, column(1)). Table 9 reports the results of regressing the two deviation measures, *DAWStrategyScore* and *DAWStrategyScoreConsistency*, on hiring a content CRA. We control for persistence terms in annual report textual disclosure measures, CRA engagement (*CRA*), and remaining confounding factors (all determinant factors of content CRA hiring in equation (1)), plus firm and year fixed effects. *ContentCRA* loads negatively for both *DAWStrategyScore and DAWStrategyScoreConsistency,* consistent with content CRAs helping firms reach award-winning levels of BMS disclosure, both in terms of length and consistency across sections of the annual report.

Second, we investigate possible changes in investor uncertainty following the release of

annual reports in which firms engage content CRAs. Our proxy for investor uncertainty is the natural log of the firm's bid-ask spread in year t+1 (*Bid-Ask_Spread*$_{t+1}$). The bid-ask spread is the rolling average of the monthly spread (ask minus bid price divided by the average of the bid and ask price) from Datastream computed over fiscal year t+1, scaled by the lagged price. Table 10 shows the regression results. The specification includes controls for CRA engagement (*CRA*), textual disclosure measures (*StrategyScore*, *StrategyScoreConsistency* and *DiscFactor* and *Fog*), all determinant factors of content CRA hiring in equation (1), and firm and year fixed effects. The coefficient for *ContentCRA* is marginally negative when we control for CRA engagement (column (1)) and when we repeat the analysis, focusing only on CRA-engaging firms (column (2)). The coefficient on *CRA* (i.e., the hiring of any CRA) is not significant at conventional levels. The results suggest that investor uncertainty declines following the release of annual reports for firms using content CRAs. To offer more evidence, we repeat the analysis, focusing only on firms that hire content CRAs for the first time (using the three-year window before and after the appointment, as in Table 7). The coefficient for *HiredContentCRA* loads negatively, suggesting that hiring a content CRA reduces investor uncertainty.

5. Additional Analysis

In this section, we present the results of additional tests that address the endogeneity concerns over hiring a content CRA and the potential for cosmetic content CRA effects.

5.1 HECKMAN TWO-STAGE MODEL

To mitigate further sample selection bias concerns, we estimate a two-step sample selection model (Heckman [1979]). We perform a first-stage regression based on equation (1) to model the hiring of a content CRA, and obtain an inverse Mills ratio (*IMR*). In the second stage, we estimate our main multivariate specifications and include the *IMR* generated from the first-stage regression

as an additional independent variable. Our findings remain for all three key output variables: textual disclosure measures (Table A3a), deviations from award-winning disclosure levels (Table A4, columns (1)–(3)), and lead bid-ask spread (Table A5, column (1)). These findings suggest that our results are not driven by potential selection bias in our specifications.

5.2 ENTROPY BALANCING

As an additional step to mitigate potential concerns about the endogenous nature of content CRA hiring, we apply an entropy balancing approach. In this approach, we consider whether firms with and without a content CRA are inherently different in textual disclosure, information asymmetry, and other firm characteristics. In entropy balancing, we use a reweighting technique that assigns a weight to each control observation, such that the mean, variance, and skewness of the treatment and control groups are virtually identical (Hainmueller [2012]). Several recent accounting studies use entropy balancing to address endogeneity concerns (e.g., Chapman, Miller, and White [2019], Beardsley, Imdieke, and Omer [2021], Stuber and Hogan [2021]), as entropy balancing reduces absolute bias in coefficient estimates and performs better than other matching estimators, such as propensity score matching (McMullin and Schonberger [2020]).

We perform entropy balancing using content CRA-hiring firms as the treatment sample and assign all other firms to the control sample for reweighting. Entropy balancing's weighting scheme achieves virtually identical mean, variance, and skewness for all determinant variables of hiring content CRAs between the treatment and control samples. The results are presented in the Online Appendix and remain unchanged for all three key output variables: textual disclosure measures (Table A3b), deviations from award-winning disclosure levels (Table A4, columns (3)–(4)) and the lead bid-ask spread (Table A5, column (2)).[16] The results mitigate further concerns

[16] We note that when using entropy balancing, the coefficient on *ContentCRA* when modeling deviations of strategy score consistency from award winning levels (*DAWStrategyScoreConsistency*, in Table A4, Column 4) is insignificant

related to omitted variable bias.

5.3 PLACEBO TESTS

Last, to reduce the possibility that our findings on the effects of content CRAs are driven by mechanical bias or randomness in identifying content CRAs, we create a placebo sample and re-estimate our main specifications for the impact of content CRAs from Sections 4.2 and 4.3. We build a placebo sample for each year by randomly assigning firms to the content CRA hiring classification, such that, in any given year, the total number of firms hiring content CRAs remains the same as in the original sample. For instance, if a given year in the original sample has 10% of firms using content CRA services, then we randomly assign 10% of the firms the content CRA hiring classification in the placebo sample. We repeat this random assignment 1,000 times, and for each sample, re-estimate our regression specification for the textual disclosure measures, movements to award winning disclosure levels, and lead bid-ask spread. Figure 4 reports the distributions of the coefficients for *ContentCRA* for the three annual report property proxies (*StrategyScore,* shown in Figure 4a, *StrategyScoreConsistency,* shown in Figure 4b, and *DiscFactor,* shown in Figure 4c), the three measures of distance from award-winning disclosure (*DAWStrategyScore,* shown in Figure 4d, and *DAWStrategyScoreConsistency,* shown in Figure 4e), and lead bid-ask spread (Figure 4g). For each outcome proxy, we report below the figure the mean value of 1,000 coefficient estimates, standard deviation, *t*-statistic, and probability that the mean coefficient is different from zero.

Figures 4a-4g and their supporting data reveal that the coefficients obtained through the random process are statistically indistinguishable from zero. These results suggest that our core

at conventional levels. As the model includes an indicator for hiring a CRA (*CRA*), the coefficient on *ContentCRA* captures the incremental effect over the effect of non-content related CRA on textual disclosure. While the incremental effect over non-content related CRAs is not significant, the total effect of content CRAs (i.e. the linear combination of *ContentCRA* and *CRA*) is significant at conventional levels (coeff: −0.037, t =2.50).

findings for content CRAs are unlikely to be driven by a mechanical bias or randomness.

5.4 COSMETIC USE OF CONTENT CRAS

Our results suggest that, on the whole, content CRAs add value to annual report content. However, it is still possible that within the pool of content CRAs, some are hired to provide or end up providing only "label" or "cosmetic" assurance to annual report content. In this section, we explore this possibility by investigating the effects of different types of content CRAs.

Firms seeking to provide label assurance to their annual report content (i.e. those who seek to reap the benefits of good disclosure by making only cosmetic changes in content) are more likely to employ content CRAs with an established reputation as arbiters of "best" or "accepted" practice. This is more likely to be the case for agencies that had first-mover advantage into the content CRA market and managed to build a considerable market share. Such CRAs have a wide clientele base and corpus of reporting practices to draw from in giving reporting advice, and have had more time to position themselves in the CRA market as promoters of best practice. While such leading content CRAs may be able to provide better expert advice on annual report content, they are also more likely to be sought by client firms for providing "label" assurance. As such client firms are likely less willing to make real changes to their disclosure standards, they may forego the CRA's recommendations, so the CRA's involvement would lead to little or no actual improvement in disclosure.[17] It is also possible that leading content CRAs have enough clients and "expert" strength in the expert-client relationship that they develop a standardized approach to their idealized disclosure template, which may result in more standardized information production, crowding out valuable idiosyncratic information that a smaller agency may permit or encourage. Under this scenario, changes of annual report content will again be cosmetic.

[17] Even though content CRAs suggest amendments in content or language after reviewing sections of the annual report, the decision about implementing the suggested amendments rests with the appointing firm (see Section 2.2).

To investigate the possibility of cosmetic effects within content CRAs, we repeat equation (3), allowing for separate effects of hiring market-leading content CRAs. We classify the content CRAs with the two largest market shares as *ContentCRA_MarketLeaders*. Panel A in Table 11 reports the results when we add *ContentCRA_MarketLeaders* to equation (3), in addition to the *CRA* and *ContentCRA* identifiers. While the coefficient for *ContentCRA* remains positive and significant across all three textual disclosure measures, the coefficient for *ContentCRA_Market Leaders* is marginally or significantly negative for both *StrategyScore* and *DiscFactor*. These results suggest that the effects of content CRAs on textual disclosure are attenuated for firms hiring market-leading content CRAs. These findings are generally consistent with market-leading content CRAs making cosmetic changes in annual report content.

Panel B in Table 11 reports the results of estimating $Bid\text{-}Ask\_Spread_{t+1}$ (the specification in Table 10), adding *ContentCRA_MarketLeaders*, and provides inferences consistent with Panel A. While the coefficient for *ContentCRA* remains negative and significant, indicating a reduction in information asymmetry, the coefficient for *Content_CRA_MarketLeaders* is positive and significant, almost offsetting the coefficient for *ContentCRA*. This holds for both the entire sample (column (1)) and when focusing on only CRA-hiring firms (column (2)). These results suggest that the information asymmetry reduction effect of content CRAs is attenuated for firms hiring market-leading content CRAs. Taken together, our results provide some evidence consistent with market-leading content CRAs having cosmetic effects on the use and usefulness of textual disclosures in annual reports. These results affirm the concern that reaching the status of an expert quality broker raises the possibility that content CRAs are hired to offer label instead of real assurance to textual disclosure.

6. Conclusion

We are the first to examine the role of corporate reporting agencies (CRAs) in financial reporting. A key outcome of our analysis is to draw attention to CRAs as financial reporting intermediaries, challenging conventional thinking that the firm is the sole preparer of its annual report. Our results suggest that CRAs exert a distinct impact on annual report content, incremental to in-house expertise, captured by firm fixed effects. Our results suggest that content CRAs act as brokers of reporting quality, as they facilitate adjustments towards award-winning disclosure levels and reduce investor uncertainty associated with annual reports.

While we find that overall, content CRAs introduce real changes and value to annual reports, we find evidence of cosmetic changes within these agencies. We also find evidence associating the hiring of traditional CRAs with situational incentives, such as poor operating performance and capital raising activities. This result raises concerns over the potential hiring of other non-content CRAs as an impression management mechanism, that is, a provider of cosmetic assurance when underlying performance is poor.

Our findings have important implications for capital market participants and for reporting regulation, as we show that disclosure can be mediated by third parties beyond the traditional accounting remit of audit and assurance. Our findings are also relevant for future research on textual disclosure, including increasingly regulated ESG disclosure. Future research may also consider the degree of CRA involvement in other international markets where financial communications professionals are prevalent, such as the United States, Europe, or Asia, and how their participation is affected by legal and institutional differences compared to the UK. Overall, our study opens new avenues for research into the role of CRAs in the disclosure process.

References

ASB (Accounting Standards Board). "Statement: Operating and Financial Review." London: ASB, 1993.

ASB (Accounting Standards Board). "Reporting Statement: Operating and Financial Review." London: ASB, 2006.

AMEL-ZADEH, A.; A. SCHERF; and E. F. SOLTES. "Creating Firm Disclosures." *Journal of Financial Reporting* 4 (2019), 1–31.

ARMSTRONG, C. S.; C. D. ITTNER; and D. F. LARCKER. "Corporate Governance, Compensation Consultants, and CEO Pay Levels." *Review of Accounting Studies* 17 (2012): 322–351.

ATHANASAKOU, V., and K. HUSSAINEY. "The Perceived Credibility of Forward-Looking Performance Disclosures." *Accounting and Business Research* 44 (2014): 227–259.

ATHANASAKOU, V.; M. EL-HAJ; P. RAYSON; M. WALKER; and S. YOUNG. "Mandatory Annual Report Descriptions of Business Model and Strategy, Investor Uncertainty, and Disclosure Cascade Effects." Unpublished paper, Lancaster University, 2022. Available at https://ssrn.com/abstract=3212854 (accessed June 16, 2023).

ATHANASAKOU, V.; F. EUGSTER; T. SCHLEICHER; and M. WALKER. "Annual Report Narratives and the Cost of Equity Capital: UK Evidence of a U-Shaped Relation." *European Accounting Review*, 29 (2020), 27–54.

BEARDSLEY, E. L.; A. J. IMDIEKE; and T. C. OMER. "The Distraction Effect of Non-Audit Services on Audit Quality." *Journal of Accounting and Economics* 71 (2021): 101380.

BEYER, A.; D. A. COHEN; T. Z. LYS; and B. R. WALTHER. "The Financial Reporting Environment: Review of the Recent Literature." *Journal of Accounting and Economics* 50 (2010): 296–343.

BLANKESPOOR, E. "The Impact of Information Processing Costs on Firm Disclosure Choice: Evidence from the XBRL Mandate." *Journal of Accounting Research* 57 (2019): 919–967.

BLACK SUN plc. "Rethinking Reporting – Annual Analysis of FTSE100 Corporate Reporting Trends 2009." London: Black Sun plc, 2009a.

BLACK SUN plc. "Talking the Talk, Walking the Walk – Examining Corporate Responsibility Reporting Trends in Annual Reports." London: Black Sun plc, 2009b.

BOCHKAY, K., and C. B. LEVINE. "Using MD&A to Improve Earnings Forecasts." *Journal of Accounting, Auditing & Finance* 34 (2019): 458–482.

BROWN, L. D.; A. C. CALL; M. B. CLEMENT; and N. Y. SHARP. "Managing the Narrative: Investor Relations Officers and Corporate Disclosure." *Journal of Accounting and Economics* 67 (2019): 58–79.

BROWN, S. V., and J. W. TUCKER. "Large-Sample Evidence on Firms' Year-Over-Year MD&A Modifications." *Journal of Accounting Research* 49 (2011): 309–346.

BUSHEE, B. J., and G. S. MILLER. "Investor Relations, Firm Visibility, and Investor Following." *The Accounting Review* 87 (2012): 867–897.

CADBURY REPORT. "*Final Report of the Committee on the Financial Aspects of Corporate Governance*." London: Gee Publishing, 1992.

CADMAN, B.; M. E. CARTER; and S. HILLEGEIST. "The Incentives of Compensation Consultants and CEO Pay." *Journal of Accounting and Economics* 49 (2010): 263–280.

CAZIER, R. A.; J. L. MCMULLIN; and J. S. TREU. "Are Lengthy and Boilerplate Risk Factor Disclosures Inadequate? An Examination of Judicial and Regulatory Assessments of Risk Factor Language." *The Accounting Review* 96 (2021): 131–155.

CAZIER, R. A.; K. J. MERKLEY; and J. S. TREU. "When Are Firms Sued for Qualitative Disclosures? Implications of the Safe Harbor for Forward-Looking Statements." *The Accounting Review* 95 (2020): 31–55.

CHAHED, Y., and L. GOH. "Disclosure as Collective Work." Unpublished paper, Manchester Business School, 2019. Available at https://ssrn.com/abstract_id=2316972 (accessed June 16, 2023).
CHAHED, Y. "Words and Numbers: Financialization and Accounting Standard Setting in the United Kingdom." *Contemporary Accounting Research* 38 (2021): 302–337.
CHAPMAN, K.; G. S. MILLER; and H. D. WHITE. "Investor Relations and Information Assimilation." *The Accounting Review* 94 (2019): 105–131.
CHIRCOP, J.; J. GAGNON; and S. YOUNG. "Capital Market Response to High Quality Annual Reporting: Evidence from UK Annual Report Awards." *Accounting and Business Research* (2022). https://doi.org/10.1080/00014788.2022.2106542.
COMMUNICATE MAGAZINE (CM). "Corporate & Financial Awards." London: Cravenhill Publishing, 2014.
DEPARTMENT FOR BUSINESS, INNOVATION AND SKILLS (BIS). "The Future of Narrative Reporting: A Consultation." London: Department for Business, Innovation and Skills, 2010.
DEPARTMENT FOR BUSINESS, INNOVATION AND SKILLS (BIS). "The Future of Narrative Reporting: Consulting on a New Reporting Framework." London: Department for Business, Innovation and Skills, 2011.
DEPARTMENT OF TRADE AND INDUSTRY (DTI). "Explanatory Memorandum to The Companies Act 1985 (Operating and Financial Review and Directors' Report etc.) Regulations 2005." London: Department of Trade and Industry, 2005.
DYER, T.; M. LANG; and L. STICE-LAWRENCE. "The Evolution of 10-K Textual Disclosure: Evidence from Latent Dirichlet Allocation." *Journal of Accounting and Economics* 64 (2017): 221–245.
ELLIOTT, W.B.; B. T. GALE; and J. L. HOBSON. "The Joint Influence of Information Push and Value Relevance on Investor Judgments and Market Efficiency." *Journal of Accounting Research* 60 (2022): 1049–1083.
EUROPEAN FINANCIAL REPORTING ADVISORY GROUP (EFRAG). "The Role of the Business Model in Financial Statements: Research Paper." Brussels: European Financial Reporting Advisory Group, French Autorité des Normes Comptables (ANC), and UK Financial Reporting Council, 2013.
EUROPEAN FINANCIAL REPORTING ADVISORY GROUP (EFRAG). "Towards Sustainable Businesses: Good Practices in Business Model, Risks and Opportunities Reporting in the EU." Brussels: European Financial Reporting Advisory Group, 2021.
FINANCIAL REPORTING COUNCIL (FRC). "Louder Than Words: Principles and Actions for Making Corporate Reports Less Complex and More Relevant." London: Financial Reporting Council, 2009.
FINANCIAL REPORTING COUNCIL (FRC). "The UK Corporate Governance Code." London: Financial Reporting Council, 2010.
FINANCIAL REPORTING COUNCIL (FRC). "Cutting Clutter: Combating Clutter in Annual Reports." London: Financial Reporting Council, 2011.
FINANCIAL REPORTING COUNCIL (FRC). "Thinking About Disclosures in a Broader Context: A Road Map for a Disclosure Framework." London: Financial Reporting Council, 2012.
FINANCIAL REPORTING COUNCIL (FRC). "Guidance on the Strategic Report." London: Financial Reporting Council, 2014.
FINANCIAL REPORTING COUNCIL (FRC). "Clear and Concise Developments in Narrative Reporting." London: Financial Reporting Council, 2015.
FINANCIAL REPORTING COUNCIL (FRC). "Guidance on Audit Committees." London: Financial Reporting Council, 2016. Available at https://www.frc.org.uk/getattachment/

6b0ace1d-1d70-4678-9c41-0b44a62f0a0d/Guidance-on-Audit-Committees-April-2016.pdf (accessed June 16, 2023).
FINANCIAL REPORTING LAB (FRC Lab). "Reporting of Performance Metrics." London: Financial Reporting Council, 2018a. Available at: https://www.frc.org.uk/getattachment/e94631d1-69c1-4349-8ce5-780d4eca455f/LAB_Reporting-of-performance-metrics_June-2018.pdf (accessed June 16, 2023).
FINANCIAL REPORTING LAB (FRC Lab). *Reporting Now Conference*. London: Financial Reporting Council, 2018b. Available at https://www.youtube.com/watch?v=afuG85PWCdM (accessed June 16, 2023).
FINANCIAL REPORTING COUNCIL (FRC). "A Matter of Principles: The Future of Corporate Reporting." London: Financial Reporting Council, 2020.
FINANCIAL REPORTING COUNCIL (FRC). "FRC Statement of Intent on Environmental, Social and Governance Challenges." London: Financial Reporting Council, 2021. Available at https://www.frc.org.uk/getattachment/691f28fa-4af4-49d7-a4f5-49ad7a2db532/FRC-LAB-ESG-Paper_2021.pdf (accessed June 16, 2023).
FINANCIAL REPORTING COUNCIL (FRC). "FRC ESG Statement of Intent: What's Next." London: Financial Reporting Council, 2023. Available at https://www.frc.org.uk/getattachment/28eee408-ea7f-4a9e-af5f-f144ec2804c1/ESG-Statement-of-Intent-Whats-Next_January-2023.pdf (accessed June 16, 2023)
GAGNON, J.; S. YOUNG; and P. ALVES. "The Linguistic Properties of Award-Winning Annual Reports." Unpublished paper, Lancaster University, 2020. Available at https://ssrn.com/abstract=3575679 (accessed June 16, 2023).
GIBBINS, M.; A. RICHARDSON; and J. WATERHOUSE. "The Management of Corporate Financial Disclosure: Opportunism, Ritualism, Policies, and Processes." *Journal of Accounting Research* 28 (1990): 121–143.
GOH, L., and A. GUPTA. "Executive Compensation, Compensation Consultants, and Shopping for Opinion: Evidence from the United Kingdom." *Journal of Accounting, Auditing & Finance* 25 (2010): 607–643.
HAINMUELLER, J. "Entropy Balancing for Causal Effects: A Multivariate Reweighting Method to Produce Balanced Samples in Observational Studies." *Political Analysis* 20 (2012): 25–46.
HECKMAN, J. J. "Sample Selection Bias as a Specification Error." *Econometrica* 47 (1979): 153–161.
HM GOVERNMENT. "The Coalition: Our Programme for Government." London: Cabinet Office, 2010.
INTERNATIONAL ACCOUNTING STANDARDS BOARD. "Exposure Draft ED/2021/6 Management Commentary." London: IFRS Foundation, 2021.
INTERNATIONAL INTEGRATED REPORTING COUNCIL (IIRC). "Business Model Background Paper for <IR>." London: International Integrated Reporting Council, 2013.
IFRS FOUNDATION (IFRS). "Exposure Draft: Proposed Targeted Amendments to the IFRS Foundation Constitution to Accommodate an International Sustainability Standards Board to Set IFRS Sustainability Standards." London: IFRS Foundation, 2021. Available at https://www.ifrs.org/content/dam/ifrs/project/sustainability-reporting/ed-2021-5-proposed-constitution-amendments-to-accommodate-sustainability-board.pdf (accessed June 16, 2023).
KIRK, M. P., and J. D. VINCENT. "Professional Investor Relations Within the Firm." *The Accounting Review* 89 (2014): 1421–1452.
KIPPING, M., and L. ENGWALL. "Management Consulting: Emergence and Dynamics of a Knowledge Industry." Oxford: Oxford University Press, 2002.

KPMG INTERNATIONAL. "Room for Improvement. The KPMG Survey of Business Reporting, 2nd ed." KPMG International, 2016. Available at https://assets.kpmg.com/content/dam/kpmg/pdf/2016/04/room-for-improvement-survey-of-business-reporting.pdf (accessed June 16, 2023).

LEE, T. "The Changing Form of the Corporate Annual Report." *Accounting Historians Journal* 21 (1994): 215–232.

LEUZ, C., and P. D. WYSOCKI. "The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research." *Journal of Accounting Research* 54 (2016): 525–622.

LU, J. "Limited Attention: Implications for Financial Reporting." *Journal of Accounting Research* 60 (2022): 1991–2027.

MCMULLIN, J. L., and B. Schonberger. "Entropy-Balanced Accruals." *Review of Accounting Studies* 25 (2020): 84–119.

MERCER, M. "How Do Investors Assess the Credibility of Management Disclosures?" *Accounting Horizons* 18 (2004): 185–196.

MURPHY, K. J., and T. SANDINO. "Executive Pay and 'Independent' Compensation Consultants." *Journal of Accounting and Economics* 49 (2010): 247–262.

OBERWALLNER, K.; C. PELGER; and T. SELLHORN. "Preparers' Construction of Users' Information Needs in Corporate Reporting: A Case Study." *European Accounting Review* 30 (2021): 855–886.

RADLEY YELDAR. "How Does It Stack Up? Annual Reports and Sustainability Reports 2010." London: Radley Yeldar, 2010.

ROYCHOWDHURY, S., and S. SRINIVASAN. "The Role of Gatekeepers in Capital Markets." *Journal of Accounting Research* 57 (2019): 295–322.

SAHLIN-ANDERSSON, K., and L. ENGWALL. "The Expansion of Management Knowledge: Carriers, Flows, and Sources." Stanford: Stanford University Press, 2002.

SANTEMA, S., and J. VAN DE RIJT. "Strategy Disclosure in Dutch Annual Reports." *European Management Journal* 19 (2001): 101–108.

SECURITIES AND EXCHANGE COMMISSION (SEC). "Management's Discussion And Analysis, Selected Financial Data, And Supplementary Financial Information: Final Rule. (RIN 3235-AM48; Release No. 33-10890; 34-90459; IC-34100; File No. S7-01-20)." Washington: Securities and Exchange Commission, 2020.

SECURITIES AND EXCHANGE COMMISSION (SEC). "The Enhancement and Standardization of Climate-Related Disclosures for Investors: Proposed Rule. (RIN 3235-AM87; Release Nos. 33-11042; 34-94478; File No. S7-10-22)." Washington: Securities and Exchange Commission, 2023.

SHAH, A. K. "Creative Compliance in Financial Reporting." *Accounting, Organizations and Society* 21 (1996): 23–39.

STUBER, S. B., and C. E. HOGAN. "Do PCAOB Inspections Improve the Accuracy of Accounting Estimates?" *Journal of Accounting Research* 59 (2021): 331–370.

ZHOU, F.S. and Y. ZHOU, Y. "The Dog That Did Not Bark: Limited Price Efficiency and Strategic Nondisclosure." *Journal of Accounting Research*, 58 (2020): 155–197.

Appendix: Variable Definitions

Variable	Definition
#BusinessSegments	The number of reported business segments.
BM	Book-to-market ratio.
Backend	The word count in financials (i.e., the financial statements component of the annual report), comprising the auditors' report, statement of directors' responsibilities, financial statements and notes to the accounts, statutory shareholder information, statutory five-year summaries, subsidiaries and their locations, and information regarding the annual general meeting (where included).
Bid-Ask_Spread	The natural log of the bid-ask spread is the rolling average of the monthly spread (ask minus bid price divided by the average of the bid and ask price) from Datastream computed over the fiscal year $t+1$, scaled by lagged price.
BoardSizeDev	Industry average board size (total number of directors) minus board size of the firm.
BoardIndepDev	Industry average fraction of independent directors minus the fraction of independent directors of the firm.
BoardTenureDev	Industry average time on board minus average time on board of the firm's board members.
Causal	Number of causal keywords in the management performance sections of the annual report.
ContentCRA	Equals 1 for firm-years in which the firm attributes the engagement of a content CRA in the production of their annual report (see Section 3.2 for criteria), 0 otherwise.
ContentCRA_MarketLeaders	Equals 1 for firm-years in which the firm attributes the engagement of the top 2 in terms of market share content CRA in the production of their annual report (see Section 3.2 for criteria), 0 otherwise.
CRA	Equals 1 for firm-years in which the firm attributes engagement of corporate reporting agency in the production of their annual report, 0 otherwise (internal preparation).
Disc_Award	Equals 1 for firm years in which the annual report receives a disclosure award by PwC or *Communicate* magazine (Best Annual Report, Best Online Report, Best Printed Report). We hand-collect data on disclosure awards from 2003 to 2019.
DAWStrategyScore	Average *StrategyScore* of firms winning a disclosure award minus *StrategyScore* of the firm.
DAWStrategyScoreConsistency	Average *StrategyScoreConsistency* of firms winning a disclosure award minus *StrategyScoreConsistency* of the firm.
DiscFactor	An overall disclosure index aggregating the full sample ranks of eight component measures of annual report disclosure (Athanasakou et al. [2020]). Seven of the eight components of *DiscFactor* capture the word counts of textual disclosures in the annual report relating to strategy, performance, causality relations, forward-looking information, governance and remuneration (combined), other front-end disclosure, and back-end disclosure. The eighth component measures the readability of annual report performance section. Each component is: 1. *StrategyScore* (see below); 2. *Perf* equals the number of words in the management performance section of the annual report 3. *Forward* is the number of forward-looking keywords in the annual report. 4. *Gov* is the number of words in the remuneration and corporate governance sections of the annual report

	5. *Causal* equals the number of causal keywords appearing in the performance section of the annual report 6. *Restfront* equals the number of words in the residual categories, namely CSR, directors' reports, and risk reports of the annual report 7. *Backend* is defined as the number of words in the financial statement part of the annual report: and 8. *FogP_Inv* is defined as −1* Gunning's [1968] readability index as calculated for the performance sections of the annual report.
CEO_Chair	Equals 1 if the CEO serves as the chairperson of the board of directors, 0 otherwise.
FRCReviewEligibility	Equals 1 if the firm belongs to the FTSE 100 or FTSE 250 list of constituents, 0 otherwise.
Finance	Indicator variable equal to one if either (1) operating cash flows minus average capital expenditure from years $t-3$ through to year $t-1$ (scaled by current assets in $t-1$) is less than 0.5 (Dechow et al. [1996]) or (2) the firm raises capital in t as evidenced by a positive value for proceeds from equity issues (WC04251) or the annual increase in total debt exceeds 5%; and 0 otherwise.
Fog	A composite measure based on the number of words per sentence and the number of syllables per word, calculated for all major sections excluding the corporate governance and remuneration reports, financial statements, and notes to the financial statements.
FogP_Inv	Inverted of the Fog Index (a composite measure of the number of words per sentence and the number of syllables per word) calculated for the management performance section of the annual report.
Forward	The number of forward-looking keywords in the annual report.
Gov	Word count in governance and remuneration sections of the annual report.
Ln(*TotalAssets*)	The log of (1+ total assets, in £'000), with total assets obtained from Datastream.
OtherCRA	Equals 1 for firm-years in which the firm attributes the engagement of a corporate reporting agency, but not a content CRA, in the production of their annual report, 0 otherwise.
Post_BR	Equals to 1 for all firms-years with a financial year-end equal to March 31, 2006 or later, 0 otherwise.
Post_CGREV	Equals to 1 for all firm-years with a financial year-end equal to June 30, 2011 or later, 0 otherwise.
Post_SR	Equals to 1 for all firm-years with a financial year-end equal to September 30, 2013 or later, 0 otherwise.
Restfront	Word count in rest of front-end sections (i.e., sections in the annual report preceding financial statements) excluding performance and governance & remuneration sections).
ROA	Return on assets.
StrategyScore	Strategic keyword count across all front-end sections of the annual report excluding the corporate governance and remuneration reports (Athanasakou et al. [2022]).
StrategyScoreConsistency	*StrategyScore*/Standard deviation of the strategy word count across the front-end sections of the annual report (excluding corporate governance and remuneration reports).
Wordcount_Front	The word count of the annual report sections preceding the financials (i.e., before the auditors' report, statement of directors' responsibilities, financial statements, and notes to the accounts).

Figure 1: CRA and Content CRAs across years

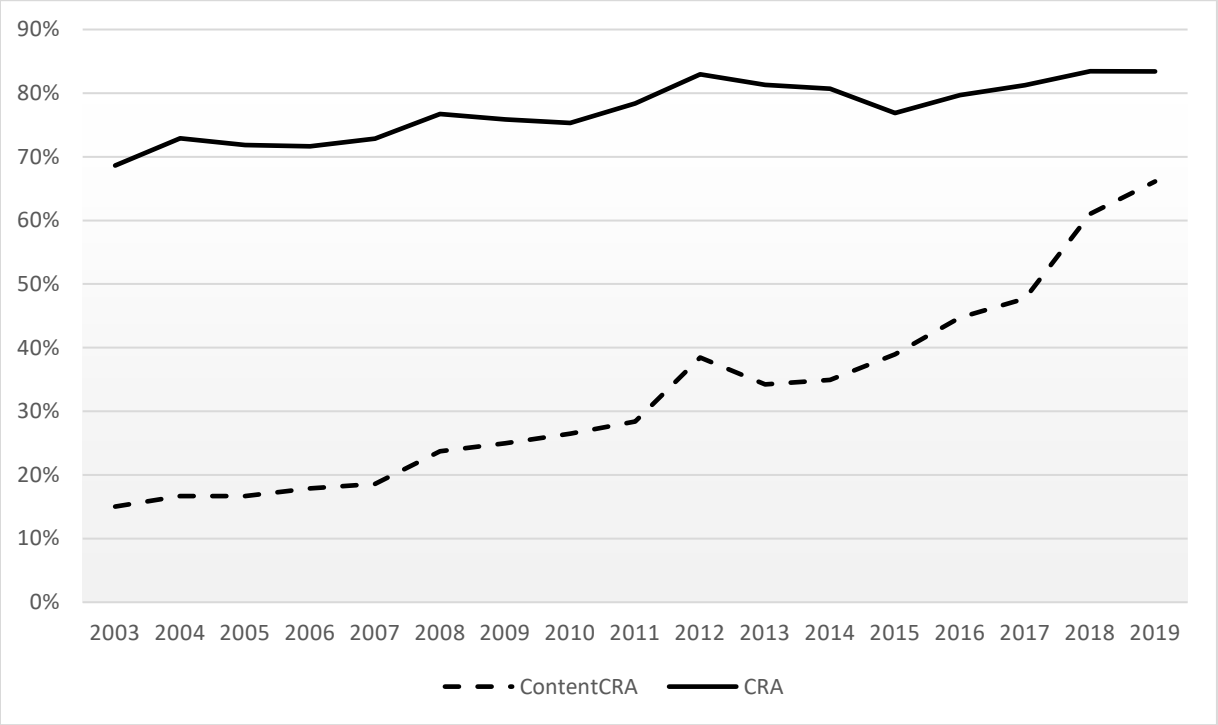


Figure 2: *StrategyScore* Across Years

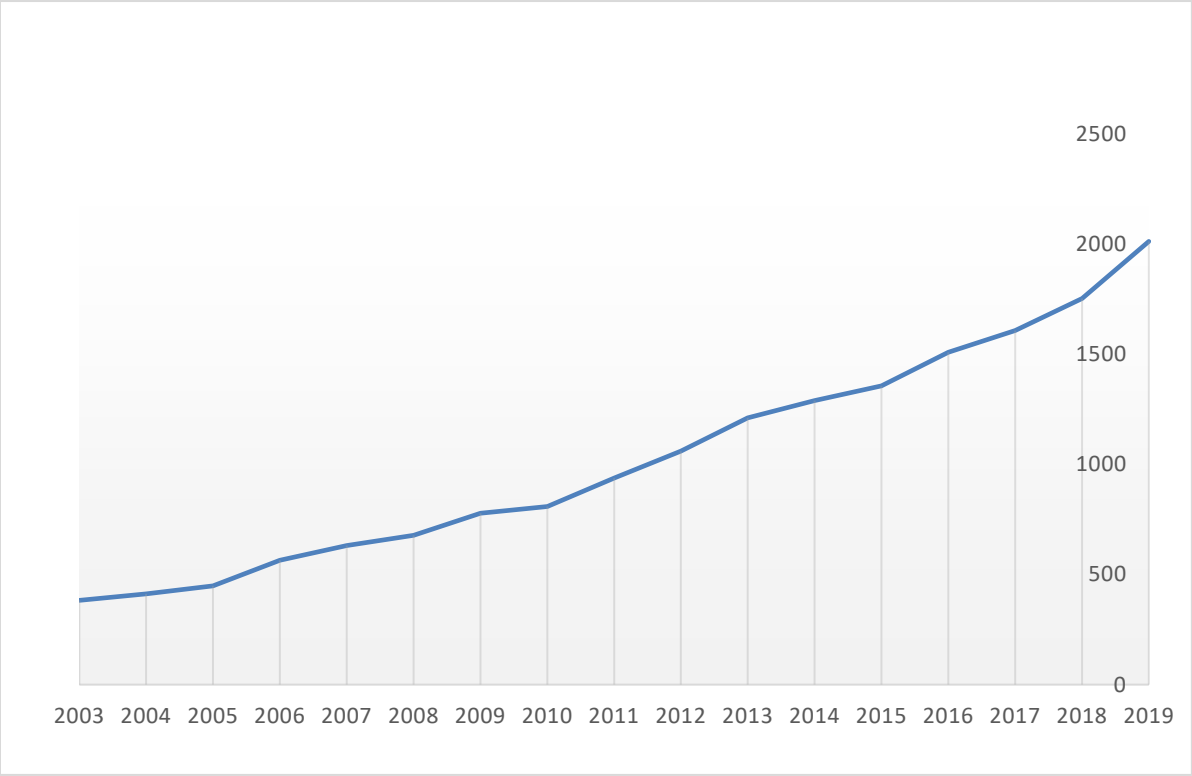


Figure 3: *StrategyScoreConsistency* across years

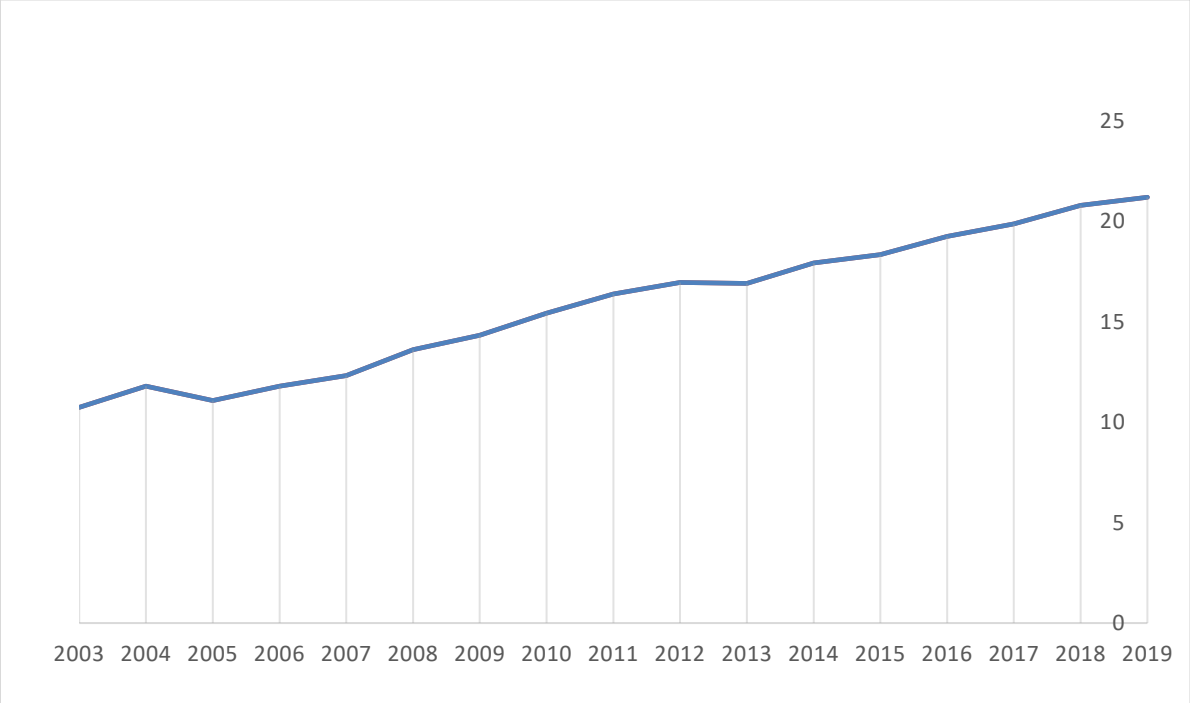
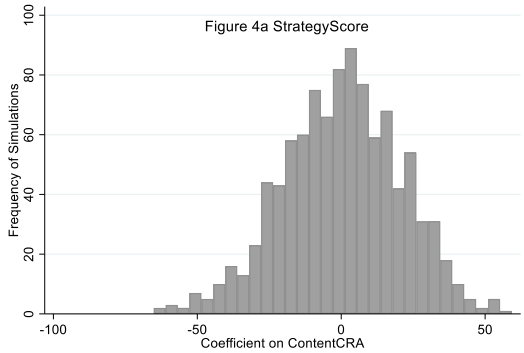
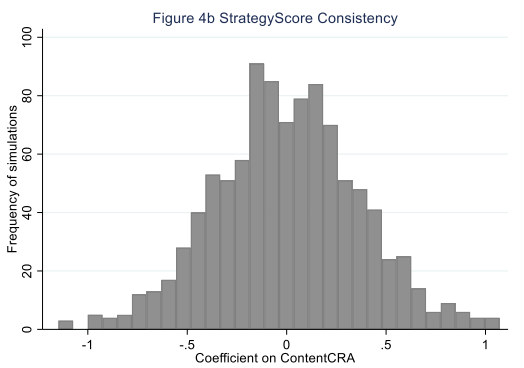


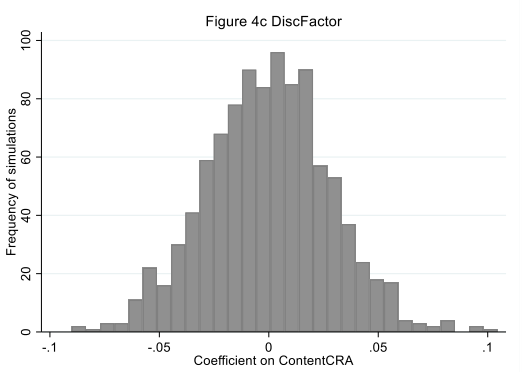
Figure 4: Content CRAs and the use and usefulness of textual disclosure: Placebo tests



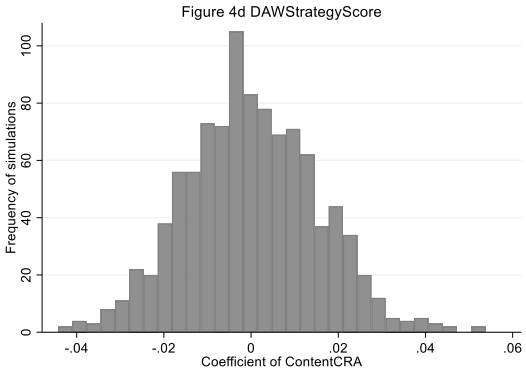
Descriptive statistics for PTE:
Mean estimate: 0.255
Std. dev: 0.648
Two-tailed *t*-test for PTE (H_o: mean = 0)
t-statistic: 0.3938
p-value: 0.6938



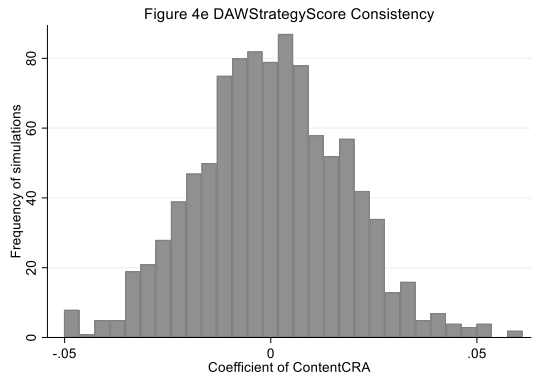
Descriptive statistics for PTE:
Mean estimate: 0.001
St. dev: 0.012
Two-tailed t-test for PTE (H_o: mean = 0)
t-statistic: 0.1152
p-value: 0.9083



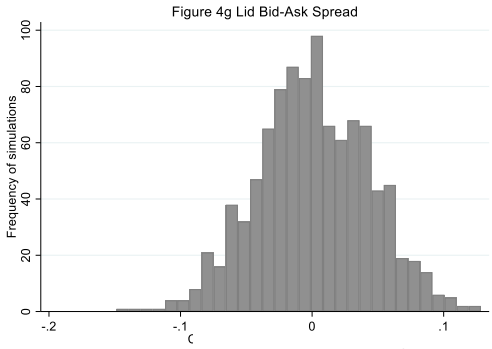
Descriptive statistics for PTE:
Mean estimate: -0.001
St. dev: 0.001
Two-tailed t-test for PTE (H_o: mean = 0)
t-statistic: -0.2140
p-value: 0.8306



Descriptive statistics for PTE:
Mean estimate: 0.001
St. dev: 0.001
Two-tailed t-test for PTE (H_o: mean = 0)
t-statistic: 0.1580
p-value: 0.8745



Descriptive statistics for PTE:
Mean estimate: 0.001
St. dev: 0.001
Two-tailed t-test for PTE (H_o: mean = 0)
t-statistic: 0.1922
p-value: 0.8476



Descriptive statistics for PTE:
Mean estimate: 0.001
St. dev: 0.001
Two-tailed t-test for PTE (H_o: mean = 0)
t-statistic: 0.8571
p-value: 0.3916

Table 1: List of largest 10 CRAs by market share, 2003–2019

Name of Corporate Reporting Agency (CRA)	# of client firm-years	Share of market (%)
Emperor	423	10.39%
Radley Yeldar	338	8.30%
Black sun	232	5.70%
Jones and Palmer	153	3.76%
Design Portfolio	134	3.29%
Carnegie Orr	126	3.10%
Conran design group	118	2.90%
Instinctif partners	105	2.58%
Luminous	105	2.58%
Addison	100	2.46%
Other	1,342	32.97%
All CRAs	3,176	78.03%
Firms with no CRA (internally produced report)	894	21.97%
Total	**4,070**	**100.0%**

Notes to Table 1:
This table provides a list of the largest 10 corporate reporting agencies by market share in annual report consulting, production, and design for fiscal years 2003–2019, for all sample firms. For brevity, we consolidate data for firm-years outside the top 10 agencies.

Table 2: CRA hiring by type over time

Year	*n* (all firm-years)	*CRA*=1			*CRA*=0
		ContentCRA (1)	*OtherCRA* (2)	*CRA*=1 (3) = (1)+(2)	(4)
2003	153	15%	54%	69%	31%
2004	192	17%	56%	73%	27%
2005	174	17%	55%	72%	28%
2006	201	18%	54%	72%	28%
2007	210	19%	54%	73%	27%
2008	232	24%	53%	77%	23%
2009	224	25%	51%	76%	24%
2010	170	26%	49%	75%	25%
2011	222	28%	50%	78%	22%
2012	182	38%	45%	83%	17%
2013	257	34%	47%	81%	19%
2014	295	35%	46%	81%	19%
2015	303	39%	38%	77%	23%
2016	315	45%	35%	80%	20%
2017	325	48%	33%	81%	19%
2018	308	61%	22%	83%	17%
2019	307	66%	17%	83%	17%
All years	4,070	38%	40%	78%	22%

Notes to Table 2:
This table provides the market share of content–shaping CRAs (*ContentCRA*, column (1)) and other CRAs (*OtherCRA*, column (2)) for fiscal years 2003–2019. *ContentCRA*=1 for firm-years in which the firm attributes the engagement of a content CRA in the production of their annual report (see section 3.2). *CRA* (column (3)) indicates firm-years in which the firm attributes engagement of any corporate reporting agency in the production of their annual report, whether *ContentCRA* or *OtherCRA*. *CRA=0* indicates firms who make no attribution to any external consultant in their annual report.

Table 3: The hiring of content CRAs

Variable	*ContentCRA*			*OtherCRA*
	(1)	(2)	(3)	(4)
Post_BR	0.521	0.328	0.119	0.959
	(0.49)	(0.30)	(0.10)	(0.82)
Post_CGREV	0.243	0.226	0.252	−0.051
	(1.20)	(1.02)	(1.06)	(−0.18)
Post_SR	1.430***	1.498***	1.853***	−1.076**
	(7.53)	(4.87)	(4.87)	(−2.45)
FRCReviewEligibility	0.498***	0.407***	0.387***	0.276*
	(4.64)	(3.44)	(2.93)	(1.89)
CEO_Chair		0.341	0.977***	−1.321***
		(1.09)	(2.75)	(−3.75)
BoardSizeDev		0.030	0.050*	0.016
		(1.27)	(1.92)	(0.54)
BoardIndepDev		−1.137***	−1.456***	0.407
		(−2.66)	(−3.10)	(0.81)
BoardTenureDev		0.093***	0.047**	0.114***
		(5.47)	(2.45)	(6.09)
Ln(TotalAssets)	0.100***	0.171***	0.109**	0.227***
	(2.80)	(4.19)	(2.37)	(3.87)
ROA	−1.233**	−0.633	0.290	−2.142***
	(−2.43)	(−1.10)	(0.45)	(−3.03)
#BusinessSegments	−0.017	−0.048*	−0.073***	0.043
	(−0.81)	(−1.94)	(−2.71)	(1.41)
BM	−0.000***	−0.000***	−0.000**	−0.000**
	(−3.03)	(−3.58)	(−2.19)	(−2.40)
Finance	−0.269***	−0.153	−0.288**	0.224*
	(−2.83)	(−1.45)	(−2.46)	(1.76)
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	4,070	3,385	2,615	2,026
n obs *ContentCRA*=1	1,444	1,140	1,140	1,484
Likelihood Ratio	−2,297.89	−1,863.82	−1,539.79	−1,267.79
Pseudo R^2	0.1319	0.1382	0.1403	0.1205

Notes to Table 3:

This table presents results from logit regressions of the hiring of a *ContentCRA* (columns (1)–(3)) or *OtherCRA* (column (4)) on external factors affecting demand for compliance with reporting guidelines, namely the introduction of the 2006 Business Review (*Post_BR*), the 2010 revision of the UK Corporate Governance Code (*Post_CGREV*), the 2013 Company Law revision (*Post_SR*), eligibility for FRC annual reviews (*FRCReviewEligibility*), firm-level controls, and industry and year fixed effects. Columns (2)–(4) include proxies for corporate governance characteristics, e.g. CEO-Chair duality (*CEO_Chair*), deviations in board size from industry norms (*BoardSizeDev*), deviations in board independence from industry norms (*BoardIndendenceDev*) and deviations of board expertise from industry norms (*BoardTenureDev*). Column (3) is estimated on the sample of firms where *CRA*=1 and column (4) is estimated on the sample excluding firms with *ContentCRA*=1. All variables are defined in the Appendix. The sample with available BoardEx data is 3,385 firm-year observations for 2003–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 levels, respectively (two-tailed).

Table 4: Decomposition of variation in annual report textual disclosure measures: The role of CRAs

Source of variation	*Dependent Variable*					
	StrategyScore **(1)**		***StrategyScoreConsistency*** **(2)**		***DiscFactor*** **(3)**	
	Partial R^2	% of total R^2	Partial R^2	% of total R^2	Partial R^2	% of total R^2
Firm fixed effects	59.26%	92.28%	47.73%	95.38%	71.66%	99.60%
Year fixed effects	0.09%	0.14%	0.22%	0.44%	0.07%	0.10%
ContentCRA	4.84%	7.54%	2.02%	4.04%	0.16%	0.22%
OtherCRA	0.03%	0.05%	0.07%	0.14%	0.06%	0.08%
Total R^2	64.22%	100.00%	50.04%	100.00%	71.95%	100.00%

Notes to Table 4:
This table provides a decomposition of the explanatory power (R^2) of regressions of annual report textual disclosure measures, BMS disclosure (*StrategyScore*), the consistency of BMS disclosure across years (*StrategyScoreConsistency*) and an overall disclosure index (*DiscFactor*) on firm fixed effects, year fixed effects, and content CRA (*ContentCRA*) and other CRA (*OtherCRA*) indicators. All variables are as defined in the Appendix.

Table 5: Annual report textual disclosure measures and firm characteristics by type of CRA

Variable	*ContentCRA*=1		*OtherCRA*=1		Diff	*CRA*=0		Diff
	Mean	**Median**	**Mean**	**Median**	**Mean**	**Mean**	**Median**	**Mean**
StrategyScore	1,431	1,354	1,201	1,055	230***	1,009	825	422***
StrategyScoreConsistency	19	18	17	17	2***	16	15	3***
DiscFactor	0.076	−0.086	0.032	−0.121	0.044***	−0.004	−0.160	0.080***
Perf	4,057	3,146	3,695	2,725	362***	3,394	2,460	663***
Forward	858	835	764	717	94***	686	629	172***
Gov	13,366	12,935	10,360	9,676	3,006***	9,286	8,137	4,081***
Causal	64	44	57	37	7***	52	33	12***
Restfront	3,367	2771	3205	2617	162***	3,070	2,491	297***
Backend	31,700	29,222	29,619	26,732	2,081***	27,885	24,867	3,815***
Fog_P	42	39	37	35	5***	33	22	9***
FRCReviewEligibility	0.740	1.000	0.702	1.000	0.038***	0.671	1.000	0.069***
CEO_Chair	0.011	0.000	0.012	0.000	−0.001	0.013	0.000	−0.002***
BoardSizeDev	0.078	0.190	0.003	0.122	0.075*	−0.055	0.093	0.133
BoardIndepDev	−0.009	−0.019	−0.003	−0.012	−0.006**	0.002	−0.001	−0.011***
BoardTenureDev	0.387	0.569	0.227	0.521	0.160***	0.104	0.487	0.283***
Ln(*Total Assets*)	14.337	14.147	14.164	13.905	0.173***	14.021	13.686	0.316***
ROA	0.047	0.047	0.046	0.047	0.001	0.046	0.047	0.001
#BusinessSegments	3.316	3.000	3.236	3.000	0.080**	3.169	3.000	0.147***
BM	0.569	0.441	0.571	0.442	−0.002	0.572	0.443	−0.003
Finance	0.784	1.000	0.818	1.000	−0.034***	0.847	1.000	−0.063***

Notes to Table 5:
This table provides descriptive statistics for textual disclosure measures and firm characteristics for firms engaging a content CRA (*ContentCRA*=1), other CRA (*OtherCRA*=1) or no CRA (*CRA*=0). All variables are as defined in the Appendix.

Table 6: CRAs and annual report textual disclosure measures

Variable	*StrategyScore*	*StrategyScore Consistency*	*DiscFactor*
	(1)	(2)	(3)
ContentCRA	82.090***	0.789**	0.060*
	(4.64)	(2.34)	(1.86)
CRA	56.589***	0.608	0.067*
	(3.63)	(1.58)	(1.88)
FRCReviewEligibility	−42.322*	−0.072	−0.040
	(−1.98)	(−0.30)	(−1.11)
Post_BR	161.830***	1.289***	0.116***
	(7.79)	(3.66)	(4.06)
Post_CGREV	339.875***	1.959***	−0.056**
	(17.50)	(5.94)	(−2.03)
Post_SR	291.176***	1.573***	0.035
	(14.90)	(4.74)	(1.27)
CEO_Chair	222.812***	1.286	0.245**
	(4.16)	(0.94)	(2.16)
BoardSizeDev	−25.248***	−0.072	−0.026***
	(−4.50)	(−0.91)	(−4.03)
BoardIndepDev	149.512	−0.825	−0.056
	(1.60)	(−0.72)	(−0.51)
BoardTenureDev	8.036**	0.137***	0.010**
	(2.87)	(3.06)	(2.36)
Ln(TotalAssets)	116.051***	0.996**	0.078***
	(5.33)	(2.63)	(3.92)
ROA	58.369	0.196	−0.163
	(0.92)	(0.12)	(−1.08)
BM	−0.048**	−0.001***	0.000
	(−2.26)	(−3.96)	(0.61)
Finance	−11.828	−0.136	−0.019
	(−1.66)	(−0.49)	(−0.80)
#BusinessSegments	6.286	−0.279**	0.010
	(1.13)	(−2.75)	(1.43)
Backend	0.004***	0.000	
	(3.05)	(1.17)	
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	3,306	3,306	3,306
Adj. R^2	0.8512	0.5126	0.6757

Notes to Table 6:

This table presents results from regressions of BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*) and overall disclosure level (*DiscFacor*) on the hiring of a *ContentCRA*, controlling for hiring of any CRA (*CRA*), determinant factors of hiring a content CRA (from Table 3), the length of the financial statements (*Backend*), and firm and year fixed effects. All variables are defined in the Appendix. The sample consists of 3,306 firm-year observations with available corporate governance data for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table 7: Annual report textual disclosure measures after hiring content CRAs

Variable	*StrategyScore* (1)	*StrategyScore Consistency* (2)	*DiscFactor* (3)
HiredContentCRA	133.436***	1.539***	0.035
	(7.35)	(4.31)	(1.01)
FRCReviewEligibility	−146.749***	0.046	−0.024
	(−4.09)	(0.08)	(−0.49)
Post_BR	184.293**	1.970	0.122
	(2.65)	(1.36)	(1.64)
Post_CGREV	328.503***	1.640*	−0.040
	(3.51)	(2.04)	(−1.10)
Post_SR	238.738**	1.423**	−0.101***
	(2.55)	(2.68)	(−3.02)
CEO_Chair	462.502*	3.831	0.221
	(2.07)	(1.42)	(1.18)
BoardSizeDev	−43.779***	−0.403**	−0.047**
	(−5.56)	(−2.87)	(−2.47)
BoardIndepDev	−163.876	−0.773	0.311
	(−1.02)	(−0.27)	(1.07)
BoardTenureDev	0.768	−0.004	0.016
	(0.08)	(−0.06)	(1.57)
Ln(TotalAssets)	478.487***	3.491***	0.056
	(6.40)	(4.32)	(1.14)
ROA	344.310*	1.399	−0.314
	(1.97)	(0.47)	(−1.25)
BM	−0.050	−0.000	−0.000
	(−0.94)	(−0.81)	(−0.93)
Finance	−83.789***	−0.980**	−0.010
	(−3.14)	(−2.81)	(−0.32)
#BusinessSegments	2.939	−0.125	−0.005
	(0.22)	(−0.63)	(−0.28)
Wordcount_FS	0.003	0.000	0.000***
	(1.54)	(0.82)	(3.29)
Year fixed effects	Yes	Yes	Yes
Observations	939	939	939
Adj. R^2	0.8054	0.4894	0.7119

Notes to Table 7:

This table presents regression results for a sample of firms that hire a CRA, tracking them three years following the appointment compared to three years before CRA appointment. We regress three textual disclosure proxies, the BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*) and overall disclosure level (*DiscFacor*) on the hiring of a *ContentCRA*, controlling for hiring of any CRA, and all determinant factors of hiring content CRA (Table 3), the length of the financial statements component of the annual report (*Backend*), and year fixed effects. All variables are defined in the Appendix. The constrained sample consists of 939 firm-year observations. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table 8: Annual report textual disclosure measures and winning of disclosure awards

Variable	*Disc_Award* (1)	*Disc_Award* (2)
StrategyScore	0.001***	0.001***
	(2.96)	(3.29)
StrategyScoreConsistency	0.032**	0.031**
	(2.49)	(2.33)
DiscFactor	0.108	
	(0.65)	
Perf		0.000
		(1.50)
Forward		0.000
		(0.67)
Gov		−0.001
		(−1.12)
Causal		−0.005
		(−1.41)
Restfront		0.001*
		(1.89)
Backend		0.000
		(1.00)
FogP_Inv		−0.003
		(−0.78)
ContentCRA	−0.009	−0.048
	(−0.05)	(−0.24)
CRA	0.219	0.184
	(0.84)	(0.72)
FRCReviewEligibility	0.369	0.295
	(1.41)	(1.12)
CEO_Chair	−0.828	−0.821
	(−0.74)	(−0.72)
BoardSizeDev	0.011	0.004
	(0.25)	(0.10)
BoardIndepDev	−0.061	−0.057
	(−0.07)	(−0.06)
BoardTenureDev	−0.036	−0.038
	(−1.09)	(−1.12)
Ln(TotalAssets)	0.286***	0.305***
	(3.20)	(3.18)
ROA	−2.036	−2.122
	(−1.56)	(−1.58)
BM	−0.000	−0.000
	(−0.78)	(−0.81)
Finance	−0.055	−0.060
	(−0.24)	(−0.25)
#BusinessSegments	−0.083*	−0.076
	(−1.81)	(−1.60)
LR Likelihood	−577.64	−577.63
Disc_Award=1	267	267
Industry fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	3,054	3,054
Adj. R^2	0.2369	0.2456

Notes to Table 8:
This table presents results from logit regressions of the likelihood of receiving an disclosure award from PwC or *Communicate* magazine on three textual disclosure measures: BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*), and overall disclosure level (*DiscFactor*), controlling for *ContentCRA*, any CRA (*CRA*), all determinant factors of hiring a content CRA, and industry and year fixed effects. In column (2), we add the individual components of *DiscFactor*. All variables are defined in the Appendix. The sample consists of 3,054 firm-year observations with available corporate governance data for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed).

Table 9: Content CRAs and reaching award-level disclosure

Variable	*DAWStrategyScore*	*DAWStrategyScore Consistency*
	(1)	**(2)**
ContentCRA	−0.033**	−0.033*
	(−2.91)	(−1.79)
CRA	−0.028*	−0.004
	(−2.13)	(−0.15)
$StrategyScore_{t-1}$	−0.000***	−0.000
	(−4.49)	(−0.17)
$StrategyScoreConsistency_{t-1}$	−0.000	−0.014***
	(−0.28)	(−8.48)
FRCReviewEligibility	0.035	0.019
	(1.40)	(1.48)
CEO_Chair	−0.011	−0.033
	(−0.11)	(−0.41)
BoardSizeDev	0.007*	0.004
	(1.80)	(0.93)
BoardIndepDev	0.044	0.147**
	(0.44)	(2.17)
BoardTenureDev	0.006	−0.005*
	(0.97)	(−1.90)
Ln(TotalAssets)	−0.069**	−0.051*
	(−2.21)	(−2.02)
ROA	−0.132**	−0.009
	(−2.18)	(−0.10)
BM	0.000**	0.000***
	(2.46)	(3.51)
Finance	−0.010	0.008
	(−0.82)	(0.48)
#BusinessSegments	0.004	0.013***
	(0.86)	(2.96)
WordCount_FS	0.000	−0.000
	(0.79)	(−0.84)
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	2,804	2,804
Adj. R^2	0.8054	0.5217

Notes to Table 9:

This table presents results from regressions of deviations from award winning BMS disclosure (*DAWStrategyScore*) and consistency of BMS disclosure across sections (*DAWStrategyScore Consistency*) on hiring of a *ContentCRA*, controlling for the hiring of any CRA (*CRA*), determinant factors of hiring a content CRA, firm and year fixed effects. All variables are defined in the Appendix. The sample consists of 3,054 firm-year observations with available corporate governance data for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table 10: Content CRAs and lead bid-ask spread

Variable	*Bid-Ask_Spread*$_{t+1}$		
	Full Sample	***CRA*=1**	**Content CRA Sample**
	(1)	**(2)**	**(3)**
ContentCRA	−0.085*	−0.093*	
	(−1.99)	(−1.80)	
CRA	−0.069		
	(−1.08)		
HiredContentCRA			−0.113**
			(−2.47)
StrategyScore	−0.000***	−0.000***	−0.000
	(−4.25)	(−3.95)	(−1.69)
StrategyScoreConsistency	−0.000	0.001	−0.004
	(−0.01)	(0.20)	(−0.78)
DiscFactor	0.117***	0.118**	0.032
	(3.75)	(2.82)	(0.58)
Fog	0.001	0.000	0.002
	(1.14)	(0.62)	(1.39)
FRCReviewEligibility	0.035	0.019	0.020
	(1.40)	(1.48)	(0.42)
CEO_Chair	−0.011	−0.033	−0.177
	(−0.11)	(−0.41)	(−1.17)
BoardSizeDev	0.007*	0.004	0.022
	(1.80)	(0.93)	(1.74)
BoardIndepDev	0.044	0.147**	0.142
	(0.44)	(2.17)	(0.80)
BoardTenureDev	0.006	−0.005*	−0.015*
	(0.97)	(−1.90)	(−1.79)
Ln(TotalAssets)	−1.028***	−1.077***	−1.123***
	(−16.04)	(−21.57)	(−11.90)
ROA	−2.066***	−2.038***	−2.706***
	(−7.73)	(−7.58)	(−4.56)
BM	0.001***	0.001***	0.001***
	(10.78)	(10.49)	(9.29)
Finance	−0.148***	−0.186***	−0.169*
	(−3.70)	(−4.48)	(−1.99)
#BusinessSegments	0.004	0.013	0.013
	(0.34)	(1.00)	(0.69)
Firm fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	3,065	2,351	889
Adj. R^2	0.9233	0.9231	0.9383

Notes to Table 10:
This table presents results from OLS estimations of the bid-ask spread following the release of the annual report on the use of content CRAs (*ContentCRA*), controlling for CRA engagement (*CRA*) and other firm characteristics affecting reporting choices, and year and firm fixed effects. Column (2) presents regression results when constraining the sample to only those firm-years when firms engage a CRA (*CRA*=1), and column (3) presents regression results constraining the sample to firms hiring a content CRA, in the three years before and after the content CRA's appointment. All variables are defined in the Appendix. *, **, and *** denote significance at the 0.1., 0.05, and 0.01 level, respectively (two-tailed) using clustered standard errors by year.

Table 11: Content CRA type, annual report textual disclosures, and lead bid-ask spread

Variable	*Strategy Score*	*StrategyScore Consistency*	*DiscFactor*	Variable	*Bid-Ask_Spread*$_{t+1}$	
					Entire Sample	***CRA*=1**
	(1)	**(2)**	**(3)**		**(4)**	**(5)**
ContentCRA	114.198***	1.055**	0.102**	*ContentCRA*	−0.161**	−0.185**
	(4.18)	(2.84)	(2.91)		(−2.64)	(−2.70)
ContentCRA_MarketLeaders	−62.707*	−0.521	−0.089**	*ContentCRA_MarketLeaders*	0.143**	0.180***
	(−1.88)	(−1.19)	(−2.46)		(2.37)	(3.33)
CRA	60.600***	0.641	0.042	*CRA*	−0.078	
	(3.92)	(1.64)	(1.52)		(−1.24)	
FRCReviewEligibility	−43.333*	−0.080	−0.020	*FRCReviewEligibility*	−1.026***	−1.072***
	(−1.99)	(−0.34)	(−0.63)		(−15.92)	(−21.37)
Post_BR	88.286*	−1.186*	0.107**	*StrategyScore*	−0.000***	−0.000***
	(2.07)	(−1.94)	(2.50)		(−4.23)	(−4.14)
Post_CGREV	266.034***	−0.216*	−0.035***	*StrategyScoreConsistency*	0.000	0.001
	(43.32)	(−1.96)	(−3.38)		(0.01)	(0.24)
Post_SR	578.885***	2.832***	−0.239***	*DiscFactor*	0.120***	0.123***
	(21.57)	(7.87)	(−6.64)		(3.87)	(2.95)
				Fog	0.001	0.000
					(1.12)	(0.51)
CEO_Chair	231.219***	1.357	0.203*	*CEO_Chair*	−2.088***	−2.085***
	(4.08)	(0.98)	(2.10)		(−7.88)	(−7.70)
BoardSizeDev	−25.185***	−0.071	−0.025***	*BoardSizeDev*	0.001***	0.001***
	(−4.49)	(−0.90)	(−3.34)		(11.02)	(10.81)
BoardIndepDev	148.189	−0.836	−0.049	*BoardIndepDev*	−0.151***	−0.192***
	(1.61)	(−0.73)	(−0.54)		(−3.85)	(−4.66)
BoardTenureDev	8.393***	0.140***	0.010**	*BoardTenureDev*	0.004	0.014
	(2.96)	(3.10)	(2.49)		(0.37)	(1.08)
Ln(TotalAssets)	114.958***	0.987**	0.039**	*Ln(TotalAssets)*	−0.999***	−0.929***
	(5.35)	(2.61)	(2.19)		(−15.44)	(−11.61)
ROA	67.799	0.274	−0.078	*ROA*	−0.334**	−0.497***
	(1.04)	(0.16)	(−0.56)		(−2.78)	(−2.99)
BM	−0.050**	−0.001***	0.000	*BM*	0.011	0.015
	(−2.26)	(−4.12)	(0.16)		(1.21)	(1.59)

Finance	−10.109	−0.122	−0.014	*Finance*	0.083	−0.016
	(−1.32)	(−0.44)	(−0.62)		(0.39)	(−0.07)
#BusinessSegments	6.070	−0.280**	0.003	*#BusinessSegments*	0.020***	0.024***
	(1.10)	(−2.73)	(0.34)		(3.27)	(3.20)
Backend	0.004***	0.000	0.000***			
	(3.08)	(1.17)	(8.98)			
Wordcount_Front	−763.758**	3.387	−1.216***			
	(−2.62)	(0.70)	(−4.71)			
Firm Fixed Effects	YES	YES	YES	Firm fixed effects	YES	YES
Year fixed effects	YES	YES	YES	Year fixed effects	YES	YES
Observations	3,316	3,308	3,316	Observations	3,065	2,351
R^2	0.8739	0.5863	0.7562	R^2	0.9344	0.9357
Adj. R^2	0.8515	0.5126	0.7129	Adj. R^2	0.9235	0.9235

Notes to Table 11:

This table presents results from OLS estimations of BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*) overall disclosure level (*DiscFactor*), and lead bid-ask spread on the hiring of a *ContentCRA*, with a separate indicator for market leaders (*ContentCRA_MarketLeader*). The specifications control for CRA engagement (*CRA*) and other firm characteristics affecting reporting choices, and year and firm fixed effects. The set of control variables follows those from Tables 3 and 6 (columns (1)–(3)) and those in Table 10 (columns (4)–(5)). All variables are defined in the Appendix. *, **, and *** denote significance at the 0.1., 0.05, and 0.01 level, respectively (two-tailed) using clustered standard errors by year.

Online Appendix

Table A1a: Decomposition of variation in annual report textual disclosure measures: The role of CRAs

Source of variation	Dependent Variable							
	Perf **(1)**		***Forward*** **(2)**		***Gov*** **(3)**		***Causal*** **(4)**	
	Partial R^2	% of total R^2	Partial R^2	% of total R^2	Partial R^2	% of total R^2	Partial R^2	% of total R^2
Firm fixed effects	44.94%	98.01%	64.02%	94.96%	50.16%	94.77%	45.48%	98.13%
Year fixed effects	0.61%	1.33%	0.11%	0.17%	0.01%	0.02%	0.65%	1.39%
ContentCRA	0.23%	0.50%	3.25%	4.82%	2.72%	5.14%	0.18%	0.39%
OtherCRA	0.08%	0.16%	0.03%	0.05%	0.04%	0.07%	0.04%	0.08%
Total R^2	45.85%	100.00%	67.42%	100.00%	52.93%	100.00%	46.34%	100.00%

Source of variation	Dependent Variable					
	Restfront **(5)**		***Backend*** **(6)**		***FogP_Inv*** **(7)**	
	Partial R^2	% of total R^2	Partial R^2	% of total R^2	Partial R^2	% of total R^2
Firm fixed effects	46.90%	99.58%	64.62%	97.91%	44.47%	97.36%
Year fixed effects	0.18%	0.39%	0.12%	0.19%	0.07%	0.14%
ContentCRA	0.01%	0.03%	1.22%	1.84%	1.13%	2.48%
OtherCRA	0.00%	0.00%	0.04%	0.06%	0.01%	0.02%
Total R^2	47.10%	100.00%	66.01%	100.00%	45.68%	100.00%

Notes to Table A1a:
This table provides a decomposition of the explanatory power (R^2) of regressions of annual report content measures included in *DiscFactor* other than *StrategyScore*, i.e., performance commentary *(Perf)*, forward-looking content (*Forward*), governance and remuneration disclosure *(Gov)*, causality relations (*Causality*), other front-end disclosure (*Restfront*), length of the financial statement component of the annual report (*Backend*), and readability of annual report performance sections (*FogP_Inv*), on firm fixed effects, year fixed effects, content CRA (*ContentCRA*), and other (non-content) CRA (*OtherCRA*). All variables are as defined in the Appendix.

Table A1b: CRAs and annual report textual disclosure measures

Variable	*Perf* (1)	*Forward* (2)	*Gov* (3)	*Causal* (4)	*Restfront* (5)	*Backend* (6)	*FogP_Inv* (7)
ContentCRA	15.488	20.061**	881.412**	−0.280	−35.530	181.114	−6.159***
	(0.07)	(2.44)	(2.57)	(−0.08)	(−0.20)	(0.35)	(−5.07)
CRA	178.473	11.985	290.600	0.738	−32.441	1,737.823***	0.726
	(0.86)	(1.36)	(1.03)	(0.21)	(−0.21)	(2.98)	(0.44)
FRCReviewEligibility	−174.375	−12.522	320.248	−3.461	643.835***	−1,275.838*	2.141
	(−0.89)	(−1.26)	(0.78)	(−0.93)	(4.11)	(−1.86)	(1.49)
Post_BR	1,531.536***	95.075***	1,552.000***	26.724***	719.962***	7,581.806***	−11.846
	(7.53)	(11.16)	(5.67)	(7.81)	(4.67)	(13.24)	(−7.44)
Post_CGREV	−139.363	114.799***	2,813.008***	−4.709	99.760	1,274.895**	−3.397
	(−0.73)	(14.42)	(11.00)	(−1.47)	(0.69)	(2.26)	(−2.28)
Post_SR	412.852**	106.910***	1,695.260***	9.473***	224.566	3,853.458***	0.353
	(2.16)	(13.35)	(6.59)	(2.94)	(1.55)	(6.91)	(0.24)
CEO_Chair	334.198	85.727**	1,103.448*	12.117	128.962	3,091.189*	1.517
	(0.58)	(2.57)	(1.81)	(1.14)	(0.39)	(1.94)	(0.30)
BoardSizeDev	−113.112***	−7.638***	−124.984	−1.309*	−22.973	−106.051	0.441
	(−3.29)	(−3.63)	(−1.51)	(−2.06)	(−0.60)	(−0.61)	(1.74)
BoardIndepDev	−589.735	27.793	824.864	−5.548	−394.136	−534.484	12.423*
	(−0.83)	(0.72)	(0.65)	(−0.48)	(−0.64)	(−0.20)	(1.90)
BoardTenureDev	48.545	3.612**	38.873	0.868	−19.503	64.693	0.030
	(1.33)	(2.36)	(0.78)	(1.35)	(−0.73)	(0.84)	(0.13)
Ln(TotalAssets)	−248.482*	35.655***	367.334*	−3.499	−298.031*	2,092.346***	1.046
	(−2.04)	(4.12)	(1.80)	(−1.57)	(−2.03)	(3.75)	(0.76)
ROA	214.492	−107.830***	−765.154	−17.080	−847.190*	−4,104.128	0.021
	(0.17)	(−3.42)	(−0.96)	(−0.96)	(−1.82)	(−1.68)	(0.00)
BM	0.044	−0.006	−0.109	0.006	0.130	0.989*	−0.000
	(0.16)	(−0.59)	(−0.36)	(1.20)	(0.67)	(1.79)	(−0.22)
Finance	−51.388	−1.716	172.832	−2.692	19.273	−151.784	−0.083
	(−0.29)	(−0.26)	(0.79)	(−0.83)	(0.16)	(−0.42)	(−0.09)
#BusinessSegments	1.972	6.514***	−25.605	−0.369	−70.996**	413.151**	0.715
	(0.03)	(3.40)	(−0.36)	(−0.30)	(−2.31)	(2.25)	(1.56)
Backend	0.004	0.009***	0.063***	0.000	0.004		−0.000*
	(0.29)	(15.54)	(3.96)	(0.25)	(0.45)		(−1.77)
Wordcount_Front						0.060***	
						(3.16)	

Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,306	3,306	3,306	3,306	3,306	3,306	3,306
Adj. R^2	0.3501	0.8980	0.6120	0.3761	0.3874	0.7201	0.3727

Notes to Table A1b:

This table presents results from regression of annual report content measures included in *DiscFactor* other than *StrategyScore*, i.e. performance commentary *(Perf)*, forward-looking content *(Forward)*, governance and remuneration disclosure *(Gov)*, causality relations (*Causality*), other front-end disclosure (*Restfront*), length of the financial statement component of the annual report (*Backend*), and readability of annual report performance section (*FogP_Inv*) on the hiring of a *ContentCRA*, controlling for hiring of any CRA, and all determinant factors of hiring content CRA (Table 3), the length of the financial statements component of the annual report (*Backend*), firm and year fixed effects. All variables are defined in the Appendix. The sample consists of 3,306 firm-year observations with available corporate governance data for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table A2: Annual report textual disclosure measures before and after hiring a content CRA

Year	*n*	*StrategyScore*	*StrategyScore Consistency*	*Forward*	*Gov*	*FogP_Inv*
ContentCRA_Y4	107	1,584	18	921	14,446	45
ContentCRA_Y3	134	1,527	18	894	13,556	42
ContentCRA_Y2	176	1,484	18	862	13,227	46
ContentCRA_Y1	229	1,377	18	828	12,496	43
PreContentCRA_Y1	229	1,168	16	759	11,353	36
PreContentCRA_Y2	204	1,079	16	729	11,273	34
PreContentCRA_Y3	173	985	15	674	10,439	33

Notes to Table A2:

This table presents average for BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*), forward-looking disclosure (*Forward*), governance and remuneration disclosure (*Gov*), and readability of annual report performance section (*FogP_Inv*) for a sub-sample of firms hiring a content CRA in year *t* (*ContentCRA_Y1*), three years after the hiring (*ContentCRA_Y2,Y3,Y4*), and three years before the hiring (*PreContentCRA_Y1,Y2,Y3).*

Table A3a: CRAs and annual report textual disclosure measures: Heckman two-step sample selection model

Variable	*Strategy Score*	*Strategy Score Consistency*	*DiscFactor*	*Perf*	*Forward*	*Gov*	*Causal*	*Restfront*	*Backend*	*FogP_Inv*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
ContentCRA	80.453***	0.786**	0.056*	20.076	19.396**	877.287**	−0.222	−41.078	174.472	−6.245***
	(4.66)	(2.32)	(1.87)	(0.09)	(2.35)	(2.55)	(−0.06)	(−0.23)	(0.34)	(−5.23)
CRA	65.346***	0.626	0.039	176.934	14.668	297.906	0.784	−24.160	1,847.979***	1.039
	(3.97)	(1.69)	(1.37)	(0.86)	(1.66)	(1.03)	(0.23)	(−0.16)	(3.19)	(0.60)
FRCReviewEligibility	278.183***	−0.584	0.095	879.530	52.139*	216.272	15.272*	−3.080	3,011.922**	7.837***
	(4.73)	(−1.35)	(1.24)	(1.63)	(1.86)	(0.21)	(1.78)	(−0.01)	(2.59)	(3.40)
Post_BR	360.632***	−1.644	0.203	2,519.839***	67.888**	44.178***	133.683	−564.326	5,144.738***	−1.088
	(2.68)	(−0.65)	(1.64)	(2.80)	(2.39)	(3.06)	(0.15)	(−1.17)	(3.02)	(−0.15)
Post_CGREV	678.766***	4.965*	0.125	1,432.430**	148.669***	19.835*	1,246.982	−1,024.076**	20,880.334***	7.785
	(10.10)	(1.73)	(1.29)	(2.05)	(5.39)	(1.77)	(1.26)	(−2.12)	(6.17)	(1.52)
Post_SR	111.095***	1.215	−0.027	−528.965	94.708***	−7.415	3,008.452***	513.791**	2,125.019***	−2.097
	(3.42)	(0.51)	(−0.58)	(−1.43)	(7.36)	(−1.28)	(5.62)	(1.98)	(2.66)	(−0.76)
CEO_Chair	448.443***	0.922	0.271**	1,067.984	131.582***	1,038.259	25.164*	−319.286	6,119.054**	5.350
	(8.59)	(0.66)	(2.44)	(1.42)	(3.39)	(1.10)	(1.98)	(−0.77)	(2.92)	(1.18)
BoardSizeDev	−3.387	−0.113	−0.017*	−34.799	−3.487	−136.632	0.046	−71.384*	180.962	0.780**
	(−0.40)	(−1.15)	(−1.78)	(−0.63)	(−0.95)	(−1.14)	(0.06)	(−1.83)	(0.88)	(2.46)
BoardIndepDev	−689.088***	0.755	−0.338	−3,482.873*	−136.532	1,166.852	−56.158*	1,405.820	−11,735.627**	−1.125
	(−3.67)	(0.50)	(−1.40)	(−1.95)	(−1.57)	(0.41)	(−2.07)	(1.66)	(−2.65)	(−0.15)
BoardTenureDev	78.919***	0.019	0.034*	278.508**	17.980**	17.300	4.986**	−162.337**	1,013.234***	1.253**
	(7.76)	(0.18)	(2.09)	(2.26)	(2.79)	(0.09)	(2.56)	(−2.87)	(3.53)	(2.55)
Ln(TotalAssets)	249.362***	0.763*	0.088**	189.463	62.396***	327.347	4.377	−577.050***	3,882.031***	3.319**
	(12.96)	(2.08)	(2.74)	(0.72)	(4.72)	(0.80)	(1.16)	(−5.01)	(4.38)	(2.41)
ROA	−449.945***	1.016	−0.269	−1,457.393	−209.735***	−591.780	−46.877*	200.767	−10,889.410***	−8.558
	(−4.01)	(0.58)	(−1.24)	(−0.85)	(−3.97)	(−0.48)	(−1.91)	(0.30)	(−3.76)	(−0.91)
BM	−0.321***	−0.000	−0.000	−0.868	−0.060**	−0.006	−0.010	0.706***	−2.670*	−0.005**
	(−10.01)	(−1.05)	(−1.07)	(−1.48)	(−2.49)	(−0.01)	(−1.11)	(3.08)	(−2.06)	(−2.13)
Finance	−121.421***	0.049	−0.055	−414.923	−23.674**	209.885	−9.153*	244.592*	−1,615.403**	−1.922
	(−5.82)	(0.16)	(−1.57)	(−1.54)	(−2.20)	(0.58)	(−2.10)	(2.05)	(−2.92)	(−1.61)
#BusinessSegments	−31.434***	−0.211*	−0.010	−124.219	−1.027	−12.847	−2.599	6.303	−87.085	0.082
	(−3.95)	(−1.77)	(−0.68)	(−1.00)	(−0.24)	(−0.15)	(−1.32)	(0.15)	(−0.39)	(0.15)
Backend	0.003**	0.000	0.000***	0.002	0.009***	0.063***	0.000	0.004		−0.000*
	(2.72)	(1.19)	(8.59)	(0.18)	(15.91)	(4.07)	(0.13)	(0.54)		(−1.96)
Wordcount_Front									−0.004	
									(−0.06)	

IMR	1,732.337***	−2.867	0.611	5,685.432*	349.325**	−554.131	101.177**	−3,507.87***	23,030.746***	29.339***
	(7.44)	(−1.26)	(1.52)	(1.97)	(2.57)	(−0.13)	(2.30)	(−3.59)	(3.40)	(3.19)
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306
Adj. R^2	0.8553	0.5132	0.7125	0.3513	0.8988	0.6114	0.3774	0.3884	0.7216	0.3735

Notes to Table A3a:

This table presents results from regression of annual report textual disclosure, BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*), overall disclosure level (*DiscFactor*), performance commentary *(Perf),* governance and remuneration disclosure *(Gov),* other front-end disclosure (*Restfront*), length of the financial statement component of the annual report (*Backend*), and readability of annual report performance section (*FogP_Inv*) on the hiring of a *ContentCRA*, controlling for hiring of any CRA, determinant factors of hiring content CRA (Table 3), the length of the financial statements component of the annual report (*Backend*), firm and year fixed effects, and the Inverse Mills Ratio (*IMR*) calculated from a first stage regression of content CRA hiring on its determinants (Table 3). All variables are defined in the Appendix. The sample consists of 3,306 firm-year observations with available corporate governance data for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table A3b: CRAs and annual report textual disclosure measures: Entropy balancing

Variable	*Strategy Score*	*Strategy Score Consistency*	*DiscFactor*	*Perf*	*Forward*	*Gov*	*Causal*	*Restfront*	*Backend*	*FogP_Inv*
ContentCRA	57.680***	0.612**	0.051*	−11.995	13.065	1,073.040***	−0.626	56.778	−486.118	−7.921***
	(2.89)	(1.97)	(1.87)	(−0.06)	(1.57)	(3.38)	(−0.20)	(0.35)	(−0.84)	(−5.44)
CRA	69.204**	0.530	0.062*	340.498	19.062	6.206	4.190	55.342	2,450.384***	0.297
	(2.48)	(1.39)	(1.84)	(1.46)	(1.59)	(0.02)	(1.03)	(0.33)	(3.15)	(0.16)
FRCReviewEligibility	−30.063	−0.044	−0.011	−272.738	−4.186	621.606*	−4.164	504.244***	−645.956	3.005*
	(−1.45)	(−0.11)	(−0.34)	(−1.31)	(−0.43)	(1.89)	(−1.15)	(2.84)	(−1.20)	(1.66)
CEO_Chair	256.824***	1.318	0.306***	1,162.078**	94.717***	1,373.294	25.248***	558.891*	4,390.727**	0.566
	(3.49)	(1.14)	(3.13)	(2.11)	(2.64)	(1.39)	(2.64)	(1.87)	(2.34)	(0.10)
BoardSizeDev	−34.241***	−0.099	−0.037***	−189.511***	−9.854***	−237.150***	−2.534***	−28.484	−202.213	0.962**
	(−7.04)	(−1.26)	(−4.79)	(−3.32)	(−4.52)	(−2.68)	(−2.75)	(−0.68)	(−1.11)	(2.54)
BoardIndepDev	319.499***	−0.034	0.020	−535.002	53.377	1,617.318	−3.658	−337.247	−3,722.347	14.625**
	(2.88)	(−0.02)	(0.16)	(−0.58)	(1.06)	(0.96)	(−0.24)	(−0.51)	(−1.13)	(2.11)
BoardTenureDev	1.408	0.045	0.003	28.071	1.171	−24.884	0.720	−13.589	8.774	0.439
	(0.33)	(0.70)	(0.53)	(0.65)	(0.63)	(−0.40)	(0.96)	(−0.42)	(0.07)	(1.20)
Ln(TotalAssets)	123.666***	1.044***	0.015	−299.973	30.947***	154.028	−5.532	−384.101**	1,713.142***	1.721
	(5.69)	(3.06)	(0.50)	(−1.54)	(3.45)	(0.51)	(−1.57)	(−2.40)	(2.68)	(0.95)
ROA	87.854	0.005	−0.179	−474.078	−105.696**	−1,562.973	−34.400**	−464.523	−3,090.690	4.015
	(0.98)	(0.00)	(−1.47)	(−0.49)	(−2.43)	(−1.12)	(−2.22)	(−0.67)	(−1.03)	(0.50)
BM	−0.063***	−0.001**	0.000	−0.070	−0.010	−0.392	0.004	0.326*	1.102*	−0.001
	(−3.09)	(−2.04)	(0.23)	(−0.31)	(−0.97)	(−1.05)	(0.89)	(1.79)	(1.72)	(−0.44)
Finance	0.734	0.032	−0.007	−155.543	6.874	293.850	−3.310	150.555	−97.377	0.234
	(0.04)	(0.12)	(−0.27)	(−0.89)	(0.89)	(1.10)	(−1.11)	(1.16)	(−0.19)	(0.16)
#BusinessSegments	9.926	−0.276***	−0.000	−47.196	6.668***	−98.220	−1.107	−126.184**	561.232***	0.893
	(1.48)	(−2.72)	(−0.05)	(−0.73)	(2.61)	(−0.92)	(−0.96)	(−2.37)	(3.03)	(1.38)
Backend	0.002	0.000	0.000***	−0.009	0.008***	0.039*	−0.000	0.003		−0.000
	(1.20)	(0.18)	(8.00)	(−0.90)	(10.55)	(1.90)	(−0.55)	(0.46)		(−0.68)
Wordcount_Front									−0.069	
									(−1.37)	
Firm fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306	3,306
Adj. R^2	0.8553	0.5132	0.7125	0.3513	0.8988	0.6114	0.3774	0.3884	0.7216	0.3754

Notes to Table A3b:
This table presents results from regression of annual report textual disclosure measures, BMS disclosure (*StrategyScore*), consistency of BMS disclosure (*StrategyScoreConsistency*), overall disclosure level (*DiscFactor*), performance commentary *(Perf),* governance and remuneration disclosure *(Gov),* other front-end disclosure (*Restfront*), length of the financial statement component of the annual report (*Backend*), and readability of annual report performance section (*FogP_Inv*) on the hiring of a *ContentCRA*, controlling for hiring of any CRA, and determinant factors of hiring content CRA (Table 3), the length of the financial statements component of the annual report (*Backend*), firm and year fixed effects for an entropy balanced sample which uses a reweighting scheme to achieve virtually identical mean, variance, and skewness all determinant variables for hiring content CRAs for the control (content CRA) and treatment samples (*ContentCRA*=0). All variables are defined in the Appendix. The sample consists of 3,306 firm-year observations with available corporate governance data for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table A4: Content CRAs and reaching award-level disclosure: Heckman two-step sample selection model and entropy balancing

	Heckman Selection Model		*Entropy Balancing*	
Variable	***DAWStrategy Score***	***DAWStrategy Score Consistency***	***DAWStrategy Score***	***DAWStrategy Score Consistency***
	(1)	**(2)**	**(3)**	**(4)**
ContentCRA	−0.032**	−0.032*	−0.035**	−0.024
	(−2.85)	(−1.75)	(−2.14)	(−1.47)
CRA	−0.030**	−0.005	−0.025	−0.013
	(−2.15)	(−0.19)	(−1.31)	(−0.63)
$StrategyScore_{t-1}$	−0.000***	−0.000	−0.000***	0.000
	(−4.71)	(−0.27)	(−6.35)	(0.62)
StrategyScore	−0.000	−0.014***	−0.000	−0.013***
$Consistency_{t-1}$	(−0.20)	(−8.66)	(−0.15)	(−8.58)
FRCReviewEligibility	0.070	0.054	0.051***	0.026
	(1.25)	(1.58)	(3.26)	(1.27)
CEO_Chair	0.014	−0.008	−0.146	−0.035
	(0.13)	(−0.10)	(−1.64)	(−0.46)
BoardSizeDev	0.010*	0.006	0.015***	0.005
	(1.79)	(1.26)	(3.50)	(1.11)
BoardIndepDev	−0.069	0.040	−0.073	0.072
	(−0.57)	(0.42)	(−0.89)	(0.88)
BoardTenureDev	0.014	0.003	0.009***	−0.001
	(1.04)	(0.44)	(2.70)	(−0.36)
Ln(TotalAssets)	−0.054*	−0.035	−0.056***	−0.057***
	(−1.83)	(−1.70)	(−2.69)	(−2.69)
ROA	−0.189*	−0.060	−0.136*	0.032
	(−1.78)	(−0.93)	(−1.95)	(0.38)
BM	0.000	0.000	0.000***	0.000**
	(0.35)	(0.67)	(2.77)	(1.98)
Finance	−0.022	−0.004	−0.019	0.004
	(−1.04)	(−0.32)	(−1.44)	(0.27)
#BusinessSegments	−0.001	0.009*	0.001	0.016***
	(−0.18)	(1.90)	(0.13)	(2.94)
WordCount_FS	0.000	−0.000	0.000	0.000
	(0.79)	(−0.85)	(1.34)	(0.35)
IMR	0.193	0.197		
	(0.83)	(1.20)		
Firm fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	2,860	2,860	2, 860	2, 860
Adj. R^2	0.8054	0.5217	0.8465	0.6133

Notes to Table A4:

This table presents results from regressions of deviations from award-winning BMS disclosure (*DAWStrategyScore*), and consistency of BMS disclosure across sections (*DAWStrategyScoreConsistency*) on hiring of content CRAs, controlling for the hiring of any CRA, determinant factors of hiring content CRA (from Table 3), firm and year fixed effects, and the Inverse Mills Ratio (*IMR*) calculated from a first stage regression of hiring content CRAs on their determinants (columns (1)–(2)), or on an entropy balanced sample (columns (3)–(4)) which uses a reweighting scheme to achieve virtually identical mean, variance, and skewness for all determinant variables of hiring content CRAs between the control (*ContentCRA*=0) and treatment samples (*ContentCRA*=1). All variables are defined in the Appendix. The sample with available corporate governance data after the reweighting is 2,860 firm-year observations for 2004–2019. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.

Table A5: Content CRAs and lead bid-ask spread:
Heckman two-step sample selection model and entropy balancing

Variable	*Heckman Selection Model*	*Entropy Balancing*
	$Bid\text{-}Ask\_Spread_{t+1}$	$Bid\text{-}Ask\_Spread_{t+1}$
	(1)	**(2)**
ContentCRA	−0.085*	−0.097***
	(−1.99)	(−2.87)
CRA	−0.069	0.011
	(−1.08)	(0.25)
StrategyScore	−0.000***	−0.000***
	(−4.25)	(−3.97)
StrategyScoreConsistency	−0.000***	0.004*
	(−4.53)	(1.80)
DiscFactor	−0.000	0.074**
	(−0.08)	(2.44)
Fog	0.117***	0.001
	(3.84)	(1.43)
FRCReviewEligibility	0.001	−1.002***
	(1.14)	(−15.55)
CEO_Chair	−0.310***	−0.407***
	(−3.47)	(−3.50)
BoardSizeDev	0.013	0.015
	(1.28)	(1.49)
BoardIndepDev	0.056	−0.199
	(0.16)	(−1.18)
BoardTenureDev	0.023	0.026***
	(1.10)	(3.08)
Ln(TotalAssets)	−1.027***	−1.025***
	(−13.70)	(−21.13)
ROA	−2.077***	−2.045***
	(−8.25)	(−8.59)
BM	0.001***	0.001***
	(8.13)	(13.40)
Finance	−0.151***	−0.141***
	(−3.77)	(−4.09)
#BusinessSegments	0.003	0.018*
	(0.28)	(1.74)
IMR	0.052	
	(0.10)	
Firm fixed effects	Yes	Yes
Year fixed effects	Yes	Yes
Observations	3,055	3,123
Adj. R^2	0.9221	0.9399

Notes to Table A5:
This table presents results from OLS estimations of the bid-ask spread following the release of the annual report on the use of content CRAs (*ContentCRA*), controlling for CRA engagement (*CRA*), other firm characteristics affecting reporting choices, year and firm fixed effects, and the Inverse Mills Ratio (*IMR*) calculated from a first stage regression of hiring content CRAs on their determinants (column (1)), or for an entropy balanced sample (column (2)) which uses a reweighting scheme to achieve virtually identical mean, variance, and skewness for all determinant variables of hiring content CRAs between the control (*ContentCRA*=0) and treatment samples (*ContentCRA*=1). All variables are defined in the Appendix. *, **, and *** denote significance at the 0.1, 0.05, and 0.01 level, respectively (two-tailed) based on standard errors clustered by year.