Do Firms Respond to Auditors' Red Flags?
Evidence from the Expanded Audit Report

Abstract: We investigate the impact of the expanded audit report on firms' financial disclosure decisions, focusing on auditors' mentions of goodwill impairment as a key audit matter (KAM). Drawing on a sample of UK Premium Listed companies with goodwill on their balance sheets during 2013-2019, we identify instances where goodwill impairment is flagged as a KAM and contrast firms' disclosure level on goodwill impairment using textual measures constructed from information in their annual reports. We find that managers increase (decrease) disclosure on goodwill impairment when auditors start (stop) mentioning goodwill impairment as a KAM. The increase in disclosure is more pronounced in the presence of stronger external information demand and better internal governance. Finally, firms are more likely to impair goodwill in the next period when auditors flag goodwill impairment as a KAM. Overall, this paper establishes the role of the expanded audit report as a trigger of enhanced corporate disclosure.

I. INTRODUCTION

The auditor report is the primary channel through which auditors communicate information uncovered during the process of auditing companies. However, traditional "black and white" audit opinions limit auditors' ability to provide firm-specific information to investors and other stakeholders (DeFond and Zhang 2014). To enhance the communicative value of the audit report, standard setters and regulators worldwide have revisited the amount and type of required disclosures of significant matters in a company's financial reporting and its audit, leading to the implementation of the expanded model of audit reporting. The additional disclosure was widely expected to improve the information content of audit reports and the quality of audit (FRC 2013; IAASB 2015; PCAOB 2017). At odds with this view, prior studies do not systematically support this expectation (e.g., Gutierrez, Minutti-Meza, Tatum, and Vulcheva 2018; Reid, Carcello, Li, and Neal 2019; Lennox, Schmidt, and Thomson 2021). In this paper, we examine a setting in which the expanded audit report improves firms' disclosure behavior, which is critical to reducing agency frictions and improving market efficiency (Healy and Palepu 2001). This analysis could help regulators better weigh the potential costs and benefits of the expanded audit report adoption.

We focus on the case of the United Kingdom (UK), since it was the first country to adopt an expanded audit report model with the introduction of its International Standard on Auditing (ISA) (UK and Ireland) 700: *The Independent Auditor's Report on Financial Statements* by the Financial Reporting Council (FRC). The regulation has been in effect for companies with a Premium Listing on the London Stock Exchange (LSE) for fiscal years ending on or after September 30, 2013.[1] It requires auditors to provide firm-specific information on the risks of

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[1] Starting from 2017, the expanded audit report has become effective for all companies listed on the LSE, including the Main Market and the Alternative Investment Market, and for Public Interest Entities with fiscal year-ends on or after June 2017.

material misstatement that had the greatest effect on the overall audit strategy, allocation of resources during the audit process, and efforts of the audit engagement team (FRC 2013).[2,3] Essentially, the main conclusions embedded in the auditors' opinions remain unchanged, but information on key audit matters (KAM) expands the granularity of the opinions and provides auditors' assessment of managers' private judgments and estimates.

Our prediction is motivated by ISA (UK and Ireland) 701 explicitly stating that auditors can invite firms to enhance their disclosures in areas identified as KAMs.[4] Results of manager surveys also indicate that firms make improvements to their annual reports after expanded audit reporting has been mandated (ACCA 2017). Brian Croteau, a deputy chief accountant at the US Securities and Exchange Commission, highlighted that an effect of the increased disclosures in the audit report "may be that management thinks more carefully about disclosures they've already made, and perhaps enhances disclosures they've made as a result of the auditor's highlighting a particular area" (Katz 2013).

Managers face various offsetting incentives when deciding the optimal amount of information to include in public disclosures when presented with KAMs. On the one hand, the reporting requirements of ISA (UK and Ireland) 700 allow auditors to report on significant matters

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[2] The ISA (UK and Ireland) 700 also requires auditors to disclose materiality thresholds (FRC 2013). We focus on the risks of material misstatement rather than on materiality thresholds because the former are common requirements of the audit reporting standards issued by other major standard-setters and regulators (i.e., PCAOB, IAASB, and the European Commission).

[3] In the 2013 version of ISA 700, the FRC used the term "risk of material misstatement," whereas in 2016 they changed the term to "key audit matters." Hereafter, we use the term key audit matter (KAM) to refer to both the risk of material misstatement and key audit matters.

[4] Paragraph 36 states that "the auditor may encourage management or those charged with governance to disclose additional information," and paragraph 37 mentions that "[m]anagement or those charged with governance may decide to include new or enhanced disclosures in the financial statements or elsewhere in the annual report relating to a key audit matter in light of the fact that the matter will be communicated in the auditor's report." Moreover, several commenters on the PCAOB's final document on critical audit matters stated that "the communication of critical audit matters would give auditors leverage to encourage disclosure of information by management, and that management would likely modify its disclosure in response to the communication of critical audit matters in the auditor's report." https://pcaobus.org/Rulemaking/Docket034/2017-001-auditors-report-final-rule.pdf.

in a company's financial reporting identified as KAMs. KAMs cannot be the original source of the information they convey but, due to their engagement-specific nature, they are more salient than other sections of the auditor report (Gold, Heilmann, and Rematzki 2020; Sirois, Bédard, and Béra 2018) and thus might guide investors' and other stakeholders' attention to firms' relevant financial reporting decisions, referred to in the KAM section. Such increased attention might prompt managers to enhance the extent of disclosure they previously withheld due to agency and proprietary costs in anticipation of increased information demands (Beyer, Cohen, Lys, and Walther 2010). On the other hand, managers might not respond to auditors' KAM mentions for the following reasons. First, these flagged risks may be boilerplate in nature and fail to reflect firms' relevant financial reporting risks (Lennox et al. 2021). Second, they may not convey any new information to external stakeholders if they were previously disclosed by third parties through other channels, such as annual reports, earnings announcements, and conference calls. Intuitively speaking, if firms perceive lower marginal benefits of disclosure, they will not increase disclosure on the items flagged by auditors.

Although KAMs span a variety of topics, in this paper, we choose to focus on whether and how auditors' mention of goodwill impairment as a KAM is related to firms' goodwill impairment related disclosure.[5] There are several reasons why the goodwill impairment KAM provides an ideal setting for our examination. Goodwill impairment ranks among the most substantial asset write-offs and is one of the most complex accounting estimates over which managers have considerable discretion.[6] The combination of high impact, complexity, and discretion leads

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[5] We use "goodwill impairment KAM" to include both goodwill valuation and goodwill impairment KAMs.
[6] Firms are required to test their acquired goodwill for impairment annually or when there is a sign of possible impairment loss. The amount of goodwill impairment charge is determined by comparing the carrying value with the fair value of goodwill per cash generating unit of the company. Goodwill valuation may involve Level 3 fair value measurement that is prone to managerial bias. Consequently, auditors must test the integrity of the impairment test models used by managers by assessing the appropriateness of the underlying data and assumptions, the allocation of assets and liabilities to the cash-generating units, and the discount rates.

goodwill impairment to fit the description of a key audit matter by the FRC (ISA 701).[7] A January 2016 FRC survey of FTSE 350 companies revealed that the most common KAMs relate to impairments of goodwill (included in 43% of sampled audit reports), taxation (43%), and accounting for revenue (42%). Furthermore, by focusing on one major KAM rather than all mentioned risks, we can better measure the corresponding disclosure changes after an area is flagged as a KAM, thus allowing us to conduct more refined tests and enabling us to draw more direct conclusions.

Our sample consists of non-financial companies listed on the Premium Segment of the LSE with non-zero goodwill on their balance sheet for fiscal years ended on or after September 2013 through December 2019. Using a first-differences research design, we show that firms provide significantly more goodwill impairment disclosure when auditors initiate the mention of goodwill impairment as a KAM and reduce disclosure upon elimination of the mention. To provide some sense of the economic magnitude, an average firm uses 4.4% more (5.6% fewer) words in the goodwill impairment note, and their references to goodwill impairment throughout the annual report are 0.2% higher (0.1% lower) when auditors identify (eliminate) goodwill impairment as a KAM. In the cross-section, we find a stronger disclosure response when firms are followed by more financial analysts, consistent with firms responding to the external monitoring demand for more disclosure on areas exposed to financial reporting risk, and when the board is comprised of more independent directors, indicating that firms with better corporate governance respond to KAMs more promptly.

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[7] The FRC mentions that to determine the key audit matters to be included in the expanded audit report, auditors should focus on "areas in the financial statements that involved significant management judgment, including accounting estimates that have been identified as having high estimation uncertainty" and that "areas of significant auditor attention often relate to areas of complexity and significant management judgment in the financial statements, and therefore often involve difficult or complex auditor judgments" (ISA 701).

While our first-differences approach reduces the static omitted variable bias and omitted variables that co-move with our treatment, there could exist other factors that affect both auditors' decisions to flag a specific area as a KAM and firms' disclosure decisions, or our results could be subject to reverse causality. For instance, a positive association between changes in KAM disclosure and changes in corporate disclosure could be driven by a macroeconomic shock, which subjects goodwill/goodwill impairment to higher risk and triggers additional corporate disclosure on goodwill/goodwill impairment. We address this concern in several ways. First, we construct two sub-samples where goodwill is unlikely to become risker. When we examine a sub-sample where there was no change in goodwill impairment between two consecutive years, the coefficient on audit risk remains highly significant with a magnitude very close to that in our main analysis. We also restrict our analysis to observations whose goodwill did not change in value between two consecutive years. The coefficient on audit risk remains significant despite the much-reduced sample size. Second, we use an entropy balancing matched sample to address the concern that our results are driven by observable differences between the treatment and control groups, and our results remain robust. Third, to confirm that the documented relationship is not spurious, we conduct a placebo test in which we randomly assign a placebo goodwill impairment KAM to each firm-year observation, and our results become insignificant. Fourth, to discern causality, we interviewed three Big 4 audit partners and two finance professionals from listed companies to obtain more information about the audit process that generates KAMs in practice. The information we have gathered is not consistent with a reverse causality claim.

To alleviate concerns that our findings are specific to the goodwill impairment KAM, we also test our empirical predictions on an additional KAM: defined benefit plans (or pensions). The results, albeit weaker, corroborate our main findings and show that firms increase their pension

disclosures when auditors flag them as a KAM. Taken together, the risk section in the expanded audit report increases firm disclosure in relevant financial reporting areas.

In addition to disclosure quantity, we examine whether firms respond to KAM mentions by increasing their disclosure compliance to the accounting standard. To the extent that more similar language used in the goodwill impairment financial statement note relative to the International Accounting Standard (IAS) 36 *Impairment of Assets* means higher compliance with the regulatory disclosure requirements, this analysis captures not only how much companies disclose but also what they disclose.

Finally, we examine another real consequence brought about by the expanded audit report, beyond enhanced corporate disclosure. The inclusion of goodwill impairment as a KAM draws attention to the sensitivity of goodwill to the underlying parameters, potentially prompting managers to be more conservative in their choice of test parameters when assessing the economic value of goodwill to avoid market scrutiny. Consistent with this view, we find that firms are more likely to impair goodwill in the immediate period after receiving a goodwill KAM.

Despite the literature's growing attention to assessing the information content of the expanded audit report, most prior research has focused on either (1) capital market consequences, documenting, on the one hand, a lack of incremental information content (Lennox et al. 2021), and, on the other hand, a decline in the bid-ask spread, reduced analyst forecast dispersion (Smith 2021), and improved lending terms (Porumb, Karaibrahimoglu, Lobo, Hooghiemstra, and De Waard 2021); or (2) audit consequences, showing that the reports are associated with higher audit fees (Gutierrez et al. 2018), decreased opportunistic earnings management, and auditors' increased legal liability (Backof, Bowlin, and Goodson 2018; Brasel, Doxey, Grenier, and Reffett 2016; Gimbar, Hansen, and Ozlanski 2016; Kachelmeier, Rimkus, Schmidt, and Valentine 2020). We

extend this emerging literature by examining the effect of the expanded audit report on firms' disclosure decisions. We identify a setting where corporate disclosures are crucial, as they reveal forward-looking information based on managers' unobservable private information, which allows us to determine the disclosure implications of the expanded audit report. The conclusions of our study align with recent findings that credit the expanded audit report as a reliable mechanism through which auditors' assessments of firms' financial reporting quality are revealed (Elliott, Fanning, and Peecher 2020; Gold et al. 2020) and with research that attributes the adoption of the expanded audit report and transparency of the KAM section to firms' improved financial reporting quality (Reid et al. 2019).

Moreover, we contribute to the limited concurrent research that examines KAMs by topic areas. Focusing on tax-related KAMs, Lynch, Mandell, and Rousseau (2021) find that UK firms are more likely to receive a tax KAM if they have greater tax avoidance, but firms that stop receiving a tax KAM increase their tax avoidance in subsequent years. Drake, Goldman, Lusch, and Schmidt (2021) show that US firms receiving a critical audit matter (CAM) on tax are less likely to use tax expenses to meet analysts' after-tax consensus forecasts. Rousseau and Zehms (2020) document an audit partner style in identifying KAMs by topical areas. Our analyses using the goodwill impairment setting complement prior research on specific KAMs and respond to calls for research showing that the KAM section affects complex aspects of financial reporting (Minutti-Meza 2021).

Finally, the findings of this paper have implications for audit regulations. By documenting evidence of enhanced corporate disclosure, our results provide insights into the benefits of the expanded audit report.

II. BACKGROUND AND RELATED LITERATURE

Changes in the auditing reporting regimes

The UK was the first country to adopt the expanded audit report model with its introduction of ISA (UK and Ireland) 700 by the FRC. The adoption of the standard became mandatory in two waves, September 2013 and June 2017, respectively. In the first wave, the standard mandated significant changes to the audit reports for Premium Listed companies on the LSE with fiscal years ending on or after September 30, 2013.[8] It requires auditors to provide previously unobservable additional information on the risks of material misstatement that have the greatest effect on their audit strategy, the application of the materiality threshold, and the audit scope. These developments came in response to the 2008 financial crisis and concerns raised by academics (e.g., Church, Davis, and McCracken 2008), investors, and other stakeholders regarding the lack of informativeness of the traditional audit report. Surveys of market participants indicated that sophisticated financial statement users, dissatisfied with the standardized nature of the traditional audit report, require more firm-specific content on the risks of material misstatement as well as more informative disclosures regarding management's significant judgments and estimates (Carcello 2012).

As such, proponents of the new regulation claim that the expanded audit report conveys useful information to investors and other stakeholders, as auditors are required to provide more detail about the approaches they adopt and the judgments they make to reach their audit opinions. Nevertheless, opponents argue that the additional information is boilerplate, with little incremental

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[8] According to the LSE website, "a Premium Listing is only available to equity shares issued by trading companies and closed and open-ended investment entities. Issuers with a Premium Listing are required to meet the UK's super-equivalent rules, which are higher than the EU minimum requirements. A Premium Listing means the company is expected to meet the United Kingdom's highest standards of regulation and corporate governance – and as a consequence may enjoy a lower cost of capital through greater transparency and through building investor confidence." http://www.londonstockexchange.com/companies-and-advisors/main-market/companies/primary-and-secondary-listing/listing-categories.htm.

value, and that the new report model decreases overall audit quality, as auditors focus on reporting rather than on their oversight duties (BDO 2013).

In the second wave, the requirement to provide an expanded audit report was extended to all companies listed on the LSE, including the Main Market and the Alternative Investment Market, and to Public Interest Entities with fiscal year-ends on or after June 2017. Although the revised standard is quite similar to the original one, it offers an enhanced framework to guide auditors in discussing KAMs.

In an attempt to improve the communicative value and relevance of the audit report, the IAASB and PCAOB likewise have set standards broadly consistent with the existing auditor requirements in the UK (PCAOB 2014). Mirroring the UK requirements for the identification of significant risks of material misstatement, the IAASB and PCAOB also require discussion of key audit matters or critical audit matters, respectively, in the audit report.[9] The IAASB's new and revised auditor reporting standard became effective for fiscal years ending on or after December 15, 2016. In the United States, auditors have to disclose critical audit matters in the expanded audit reports of large accelerated companies for fiscal years ending on or after June 30, 2019, and for all other companies for fiscal years ending on or after December 15, 2020. Further, since June 2016, the amended Audit Directive (2014/56/EU) and the Audit Regulation (537/2014/EU) have required all European Union member states to expand auditor reporting by including critical judgments made during the audit.

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[9] PCAOB's "critical audit matters (CAMs)" are similar but not identical to the IAASB's "key audit matters (KAMs)." CAMs are those areas in the audit of financial statements with the most significant auditor difficulty, whereas KAMs are those areas of the audit that demanded the most significant auditor attention.

The audit process that generates KAMs in practice

The FRC's ISA 701 defines KAMs as "those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period." To explore in depth how KAMs are determined in practice in the UK context, we conducted interviews with five practitioners: three audit partners from three different Big 4 audit firms and two corporate professionals (one CFO and one internal auditor).[10]

Early in the engagement year, the external auditor uses their knowledge about the client firm to draw up a list of transactions and/or accounts that are considered to be bearing significant audit risk among the following areas: (i) those with higher risk of material misstatements, (ii) those concerning significant auditor judgments relating to areas in the financial statements that involved significant management judgment, and (iii) significant events or transactions that occurred during the period (ISA 701). The external auditor communicates and discusses their assessment of the KAMs with their client firm's audit committee at multiple meetings during the year.[11,12] These meetings are intended to give external auditors greater insight into specific areas in financial reporting that may help them in the audit process and to share the information they have gathered about the KAMs. For example, concerning the goodwill impairment KAM, firms share details about the impairment testing process, including the parameters used, with their auditors, who then evaluate the data using their firm-specific and industry knowledge as well as account-specific expertise to judge the firms' conclusion to / not to impair goodwill.

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[10] The information gathered from the interviews on the process that generates KAMs are in line with the process described by Minutti-Meza (2021) in Section 3.1 pp. 556-558.

[11] This view is supported by anecdotal evidence stating that "audit committees should expect their audit firm to communicate with them early, and to communicate well, about the KAMs that are likely to be included in the auditor's report" (EY Reporting 2015).

[12] Other matters that are discussed during these meetings are: (i) the auditor's responsibilities in relation to the financial statement audit, (ii) the planned scope and timing of the audit, (iii) significant findings from the audit, and (iv) auditor independence (FRC ISA 260).

The external auditor's assessment of potential KAMs is a continuous exercise throughout the engagement year. While we cannot preclude that, after gathering information from firm management, the external auditor may deem that certain matters should not be classified as KAMs or identify new transactions, events, estimates, or accounts to be included as KAMs, the interviewees reiterated that such outcomes are not the results of bargaining. Instead, most, if not all, identified KAMs are reported in the audit report. To verify the process described to us, we read a sample of goodwill impairment KAMs and noticed that auditors state high-level reasons, such as the client firms' recent history of goodwill impairments, rather than specific impairment testing parameters used during the fiscal year, to justify their identification of goodwill impairment as a KAM. Among those we sampled, auditors were satisfied with the parameters employed by the firms in the impairment tests and firms' conclusions about the impairment outcome.

It is worth noting that the information revealed through KAMs should not be the sole or primary source of original information about the concerned company for external parties. As emphasized by Minutti-Meza (2021), ISA 701, paragraph 36, discourages original information in the KAM description. However, this does not necessarily imply that KAMs are boilerplate or standardized disclosures, as some critics have suggested. Due to their engagement-specific nature, KAMs are more salient than other sections in the auditor reports (Gold et al. 2020), which potentially draw users' attention and increase the communicative value of the auditor report.

Literature review on the expanded audit report

Given the expanded audit report's objective of enhancing the transparency of the audit process and communication between auditors and users of the audit report, a key research question addressed in prior literature is whether the expanded audit report enhances the informational content and relevance of the audit report. In this respect, several studies assess how both equity

and debt market participants react to the informational content of the new audit report, with mixed evidence. Some studies find that the expanded audit report provides incremental information to equity investors in the UK (Reid et al. 2019; Bens, Chang, and Huang 2019; and Smith 2021) and China (Goh, Li, and Wang 2020), but a few other studies fail to find such an effect when examining the UK market (Gutierrez et al. 2018; Lennox et al. 2021), US market (Burke, Hoitash, Hoitash, and Xiao 2021), and Hong Kong and China stock markets (Liao, Minutti-Meza, Zhang, and Zou 2019). Considering the debt market consequences, Porumb et al. (2021) show that the expanded audit report improves lending terms.

Studies examining the effect on the cost of audit and audit quality have also yielded divergent conclusions. A few studies show that the identified audit risks do not affect audit fees or audit quality (Gutierrez et al. 2018; Lennox et al. 2021; Reid et al. 2019; Liao et al. 2019; Burke et al. 2021). However, Reid et al. (2019) find that both abnormal accruals and the propensity to meet or beat analyst forecasts decreased after the expanded audit report became mandatory.

Experimental studies have also examined the impact of key audit matters on investors' decisions and firms' real operating decisions. Kachelmeier et al. (2020) find that key audit matters decrease users' confidence in the associated financial statement areas. Christensen, Glover, and Wolfe (2014) show that investors are more likely to change their investment decisions in the presence of a key audit matter than in its absence. Focusing on firm response, Bentley, Lambert, and Wang (2021) show that key audit matter disclosures reduce firms' risk-decreasing activities more than their risk-increasing activities.

Taken together, the prior literature does not systematically support the claim that the expanded audit report provides incremental information to investors or influences the quality of audits. However, this literature views KAMs as homogenous and does not exploit potential

heterogeneous effects across topical areas. A couple of concurrent studies examine KAMs by topic area and find that key audit matters concerning tax issues are associated with less earnings management through tax expenses (Drake et al. 2021) and that the elimination of such a KAM increases firms' tax avoidance in subsequent years (Lynch et al. 2021). Rousseau and Zehms (2020) document an audit partner style in the topical diversity of KAMs. Extending and complementing this emerging literature, we examine the effect of the expanded audit report on firms' disclosure decisions with a primary focus on the goodwill impairment KAM.

Empirical prediction

When deciding on the optimal disclosure strategy, firms face offsetting incentives. With the introduction of the expanded audit report, auditors are allowed to report on significant risks in a company's financial reporting, identified as KAMs. While KAMs cannot be the original source of information they convey, they might act as an attention-direction mechanism (Sirois et al. 2018) that leads users to demand more information about the issues referred to in the KAM section. As a response, managers would be incentivized to increase disclosure on the flagged items in anticipation of potential negative reactions by stakeholders who have become more aware of managers' information endowment (Beyer et al. 2010).[13] In the absence of the KAM section, managers might have refrained from providing these disclosures due to concerns about proprietary costs (e.g., firms making public valuable proprietary information on their future cash flow that might potentially benefit competitors) and agency costs (e.g., firms revealing information on discretionary impairment of goodwill that might trigger adverse market reactions).[14] In addition,

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[13]Anecdotal evidence confirms that firms do alter their disclosure in areas identified as KAMs. An ACCA (2017) study in Singapore surveyed the audit committees of 109 listed companies. Fifty-two percent indicated that the process of considering KAMs and reviewing the expanded audit reports had resulted in their entities making moderate-to-significant improvements to the financial statements as well as other parts of the annual reports (such as Chairman's statements and CEO's statements).

[14] Our arguments are based on the premise that a higher level of disclosure increases the level of both proprietary and non-proprietary information provided to financial statement users (Dye 1986).

it is explicitly stated in ISA 701 that auditors may encourage firms to enhance their disclosure relating to KAMs. Anecdotal evidence from sampling expanded audit reports is also consistent with this view. Therefore, we state the following directional hypothesis:

H1: Firms increase the goodwill impairment related disclosure when auditors mention goodwill impairment as a KAM.

We acknowledge that there are also reasons why the expanded audit report might not matter for firms' disclosure behavior. The KAMs outlined in the expanded audit report may fail to reflect relevant risks of firms' financial statements (Lennox et al. 2021). In addition, uninformative repetition of what investors and other stakeholders have already learned from alternative sources, such as annual reports, earnings announcements, and conference calls, would not affect firms' disclosure behavior.

III. SAMPLE AND RESEARCH DESIGN

Sample description

The initial sample comprises non-financial firm-years of Premium Listings on the LSE for fiscal years ending on or after September 30, 2013 until December 31, 2019, available on Thomson Reuters Eikon database.[15] We retain observations that reported non-zero goodwill in any given firm-year. From this sample, we drop observations that lack available annual reports or audit risk disclosures, observations with negative book-to-market ratios, and observations with missing values for the control variables. We also lost observations due to computing changes, resulting in a final sample of 1,100 firm-year observations, corresponding to 286 unique firms. For each firm-year observation, we hand-collect the audit risks mentioned in the expanded audit report. Since we

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[15] We eliminate financial firms (SIC = 6xxx) due to the requirement that these firms follow industry-specific impairment rules and disclosures (Lobo, Paugam, Zhang, and Casta 2017).

construct a first-differences model for our analyses, our final sample starts from 2014.

Measurement of goodwill impairment disclosure level

We employ two textual measures of goodwill impairment disclosure: the number of words in the goodwill/goodwill impairment related financial statement note, *(GWI note words)*, and the number of times goodwill impairment related references appear throughout the annual report, *(GWI references)*. To construct the first measure, we extract from annual reports the note to the financial statements that concern goodwill and/or goodwill impairment test into individual text files. After removing tables from each text file, we use Python's Natural Language Toolkit to calculate the number of words. For the latter measure of disclosure, we define a goodwill impairment reference as the appearance of the word "goodwill" within ten words from "impair," "write-off," "write-down," "one-off," and their variants throughout the annual report, excluding the goodwill impairment note and the section containing the auditor report. We scale both measures by the number of words in the annual report (Loughran and McDonald 2016).[16] A higher value of the two textual measures proxies for a higher level of goodwill impairment disclosure.

Regression models

To test our main research question that firms respond to auditors' mentions of goodwill impairment as a KAM by increasing their goodwill impairment disclosures, we estimate equation (1) below, stated in first-differences:

$$\Delta Disclosure_{i,t} = \alpha_1 \Delta GWI\ audit\ risk_{i,t} + \theta \Delta X_{i,t} + \gamma_j + \eta_t + \varepsilon_{i,t} \quad (1)$$

where the subscripts *i, j,* and *t* index firms, auditors, and years. *Disclosure* stands for the two metrics that proxy for the level of disclosure on goodwill impairment, namely *GWI note words* and *GWI references*. *GWI audit risk* is an indicator variable taking the value one if auditors flag

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[16] All our inferences remain unaffected if we use the natural logarithm of the number of words (references) as an alternative to their scaled counterparts.

goodwill impairment as a KAM and zero otherwise.[17] A positive and significant α_1 indicates that managers increase (decrease) their goodwill impairment related disclosure when auditors initiate (eliminate) goodwill impairment as a KAM. In subsequent analyses, we also allow the coefficient on *ΔGWI audit risk* to vary for different values of the variable by replacing it with three indicator variables: *First mention, Subsequent mention,* and *First drop*, with *First mention* taking the value one if goodwill impairment risk is initiated as a KAM and zero otherwise; *Subsequent mention* taking the value one if auditors reiterate goodwill impairment as a KAM and zero otherwise; and *First drop* taking the value one when goodwill impairment is eliminated from the list of KAMs and zero otherwise.[18]

We draw the vector of firm-year-level control variables, $X_{i,t}$, from prior research showing that the level of corporate disclosure is higher for firms that are larger and less leveraged, have lower book-to-market ratio (Li 2008) and are loss-making, and have multiple business segments (Smith 2021). It also positively relates to the amount of goodwill, goodwill impairment, and analyst coverage (Ayres, Campbell, Chyz, and Shipma 2019). Therefore, we control for firm size (*Size*), leverage (*Leverage*), book-to-market ratio (*BTM*), whether a firm reports a loss (*Loss*), goodwill amount (*Goodwill*), goodwill impairment charges (*Goodwill impairment*), number of segments (*Log(#Segments)),* and analyst coverage (*Log(1+#Analysts)*). Finally, the adoption of the expanded audit report model occurred concurrently with changes in the UK Corporate Governance Code, which requires firms' internal audit committee to report significant company

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[17] Appendix 1 provides an example of an expanded audit report with goodwill impairment flagged as a KAM.
[18] An implicit assumption of our analysis is that firms are aware of the forthcoming KAM disclosures. Given that auditors are required to communicate the audit risks to firms' internal audit committees, firms are likely to be informed about the audit risks before the publication of the expanded audit reports. Our conversation with auditors described in the section *The audit process that generates KAMs in practice* supports this assumption.

risks.[19] Thus, it is reasonable to expect that the risk identified by the internal audit committee could potentially confound our results. Therefore, we control for a dummy variable indicating if goodwill impairment is included as one of the business risks by the audit committee (*GWI committee risk*).

All variables are included in the model after taking their first-differences. γ_j denotes auditor fixed effects, which deal with time-invariant auditor characteristics, while η_t captures year fixed effects, which account for time-specific trends. Finally, we winsorize continuous variables at the top and bottom one percent to reduce the influence of outliers and cluster standard errors at the firm level to address within-firm correlations of the error terms.[20,21] Appendix 2 provides details for the definition of the variables. If applicable, amounts are converted into British pound sterling.

IV. EMPIRICAL RESULTS

Univariate results

Panel A of Table 1 reports summary statistics of all variables included in our main regressions. On average, a goodwill financial statement note has 573 words. An annual report has approximately 100,323 words and contains ten entries of goodwill impairment related keywords. Over half (59%) of the sample observations have goodwill impairment flagged as a KAM by external auditors. In comparison, audit committees are more likely to identify goodwill impairment as a business risk (65%). With regard to the control variables, our sample firms are relatively large, as expected for acquirers, with average total assets amounting to £8 billion. On average, they report

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[19] These changes have been effective for fiscal years ending on or after September 30, 2013. Although there is nothing in either the auditing standards or the Corporate Governance Code that requires these significant issues identified by the internal audit committee to be identical with those reported by the external auditor, it is reasonable to expect some overlap between them. We manually collect company risks disclosed by internal audit committees in annual reports and identify instances in which goodwill impairment is mentioned as a risk.

[20] We use an alternative method (Cook's distance) to eliminate influential observations from affecting our inferences. The results are qualitatively the same (and sometimes stronger).

[21] All our inferences are unaffected by clustering the standard errors by industry, or by both firm and year.

goodwill of £1,343 million and goodwill impairments of nearly £8.7 million. Around 13% of the sample observations record a loss even before goodwill impairment charges are considered. Finally, our sample firms are covered by 11 analysts, on average.

[Insert Table 1 here]

Panels B to D present descriptive statistics for sub-samples where auditors initiate (Panel B, 211 observations), reiterate (Panel C, 438 observations), and eliminate (Panel D, 68 observations) goodwill impairment as an audit risk. Panel E comprises 383 observations where goodwill impairment is not identified as an audit risk. There are significant variations in the amount of goodwill and goodwill impairment among the four sub-samples. For instance, firms in the reiteration sub-sample carry a substantially higher amount of goodwill (£1.7 billion) and charge £17 million impairment, on average. While these differences suggest that our treatment is unlikely to be random, we control for these firm characteristics in the regression analyses and attempt to mitigate their influences in robustness tests.

Panel F reports the Pearson correlation coefficients between the variables used in equation (1). Changes in the disclosure level (*ΔGWI note words, ΔGWI references*) are positively correlated with changes in audit risk mentions (*ΔGWI audit risk*) ($p < 0.05$). We also find that firms increase the level of disclosure when they experience an increase in goodwill amount and goodwill impairment amount.

Multivariate results

Table 2 reports the results of estimating the first-differences model stated in equation (1). In column (1), where we measure the level of corporate disclosure by the number of words in the goodwill impairment related financial statement note scaled by the total number of words in the annual report (*ΔGWI note words*), the coefficient of 0.054 on *ΔGWI audit risk* is positive and

statistically significant at the 1% level. In economic terms, when auditors change from excluding to including goodwill impairment as a KAM, firms present 31 (5.4%) more words from the sample average of 573 words in the goodwill impairment note, which we consider economically meaningful.[22] We reach a similar conclusion in column (2), where we measure the level of corporate disclosure by the number of goodwill impairment related references throughout the annual report, scaled by the total number of words in the annual report (*ΔGWI references*). The much smaller economic magnitude can be partly explained by the fact that we have included the audit committee's mention of goodwill impairment risk as a control variable and counted these mentions in the dependent variable. Turning to the control variables, firms increase the extent of disclosure on goodwill impairment when they report more goodwill and goodwill impairment charges. Surprisingly, the coefficient on *ΔGWI committee risk* is insignificant in column (1).

In column (3), where we allow the coefficient on *ΔGWI audit risk* to vary, our results indicate that only the coefficients on *First mention* and *First drop,* but not the coefficient on *Subsequent mention*, are statistically significant at conventional levels, suggesting that firms increase (decrease) disclosure on goodwill impairment when auditors start (stop) mentioning this accounting event as a KAM.[23] In terms of economic magnitude, the coefficient of 0.044 in column (3) on *First mention* translates to 25 (4.4%) additional words in the goodwill impairment note. We do not find a significant coefficient on *First drop* in column (4), but the sign of the coefficient is negative, as expected.[24]

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[22] This result is comparable in magnitude to changes in the disclosure length following other major events. For instance, Brown, Tian, and Tucker (2018) find that firms not receiving any SEC comment letter modify the length of their risk disclosure by an additional 12.8 percent (5.8 percent) if its industry leader (rival) has received SEC risk comments.

[23] The difference between the coefficients on *First mention* and *Subsequent mention* is statistically significant in columns (3) ($p = 0.031$) and (4) ($p = 0.009$), respectively.

[24] The insignificant result might be explained by the potential lack of power to document significant results due to the relatively small sample.

Overall, on the premise that auditors' decisions on the list of KAMs precede firms' final decisions on annual report disclosure, the results in this table support the argument that expanded audit reports provide relevant information about the significant judgments and estimates made by managers, who respond to auditors' inclusion of goodwill impairment as a KAM by increasing the disclosure on goodwill impairment in the annual report. [25],[26]

[Insert Table 2 here]

Cross-sectional analyses

To provide further corroborative evidence that the expanded audit report triggers the disclosure response by firms, we examine whether the relationship documented in Table 2 varies in the expected manner with two partition variables: the number of analysts following a firm and the ratio of independent directors sitting on the board. If external stakeholders react to the KAMs by increasing their scrutiny of how firms manage the related financial reporting issues, management is likely to react by increasing disclosure on the flagged items. Therefore, we expect that firms will increase their goodwill impairment disclosure to a greater extent when they are followed by more financial analysts. Moreover, prior research shows that corporate governance plays a crucial role in mitigating agency problems (Shleifer and Vishny 1997). Specifically, the presence of independent directors on the board has been shown to be instrumental in improving financial reporting outcomes, such as reducing occurrences of financial statement fraud (Beasley, 1996) and enhancing voluntary disclosure (Patelli and Prencipe 2007). Based on this evidence, we

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[25] We acknowledge that an increase in the disclosure level may not necessarily translate to an improvement in the financial reporting environment, as suggested by the management obfuscation hypothesis. While this remains a possibility, past literature generally uses disclosure quantity as a proxy for disclosure quality (e.g., Francis, Nanda, and Olsson 2008; Hail 2002), and there is some evidence that the two constructs are positively correlated (André, Filip, and Moldovan 2016).

[26] Our results are not at odds with prior literature. For instance, Lennox et al. (2021) argue that KAMs are not irrelevant, but investors were already informed about the KAMs before the auditors disclosed them in the audit report. Our view is that even if investors are aware of the audit risks, the KAM section in the auditor report potentially increases the salience of these risks, motivating firms to enhance firm disclosure to prevent negative stakeholder reactions.

expect that companies are more likely to increase disclosure on accounting items flagged as a KAM when there is a higher proportion of independent directors on the board.

We construct two indicator variables: *High analysts*, which takes the value one if the number of analysts following is higher than the median number for firms in the same industry and zero otherwise, and *High independent directors*, which is coded one if the ratio of independent directors is higher than the sample median and zero otherwise.[27] The variables of interest are the interaction terms between the partition variables and *ΔGWI audit risk*. As tabulated in Table 3, the interaction variables are positive and significant in columns (1) and (3), consistent with our expectation that firms respond to analysts' demands as external firm monitors and that better corporate governance improves firms' disclosure responses. Following our main analyses in Table 2, the results are significantly weaker when the dependent variable is *ΔGWI references*, and in this case, insignificant. Taken together, the results lend further support to our hypothesis that firms respond to KAM disclosure and that their response varies predictably with both internal and external forces.

[Insert Table 3 here]

V. ENDOGENEITY CONCERNS

Our results thus far support the notion that firms increase goodwill impairment related disclosure when auditors include goodwill impairment as a key audit risk. While our first-differences approach reduces the static omitted variable bias and omitted variables that co-move with our treatment, it is still possible that our findings reported in Table 2 are subject to other forms

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[27] We measure *High analysts* on an industry level to avoid the partition proxying industry grouping because analyst coverage varies significantly by industry.

of endogeneity bias. To this end, we conduct several robustness tests to address these potential endogeneity concerns.

Sub-samples analyses

One might be concerned that the positive association between changes in the goodwill impairment KAM and changes in goodwill impairment related disclosure is driven by external events, such as a shock in the underlying macroeconomic or industry conditions, that affect both auditors' assessments of goodwill impairment as an audit risk and firms' disclosures of goodwill impairment concurrently. We address this concern by re-estimating the model in our main analyses on two sub-samples of firms with no change in goodwill impairment and goodwill, respectively, between two consecutive years.[28] We expect these sub-samples of firms to have experienced minimal changes in the underlying macroeconomic and industry conditions that affect both KAM mentions and corporate disclosures. In Panel A of Table 4, we continue to find a positive and significant coefficient on *ΔGWI audit risk* in all four specifications with a magnitude similar to those reported in Table 2, indicating that firms respond to auditors' disclosures on goodwill impairment risk even in the absence of a prominent indication of the increased riskiness of the goodwill/goodwill impairment account.[29]

[Insert Table 4 here]

Entropy balancing matched sample

Our descriptive analyses, reported in Panels B-E of Table 1, reveal that several observable firm characteristics differ between the four sub-samples. To address selection issues stemming from observable differences, we conduct an entropy balancing matched sample to ensure that any differences in the observable assignment outcomes can be considered random (Hainmueller 2012).

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[28] We thank the Editor, Vic Naiker, for his suggestion of this analysis.
[29] All instances where there is no change in goodwill impairment have zero goodwill impairment.

Entropy balancing produces a balanced sample by reweighting observations in the treatment group to match the covariate moments in the control group. The treatment group presents observations that have experienced an initiation of goodwill impairment as an audit risk (i.e., from *GWI audit risk$_{t-1}$* = 0 to *GWI audit risk$_t$* = 1) and observations that have experienced an elimination of goodwill impairment as an audit risk (i.e., from *GWI audit risk$_{t-1}$* = 1 to *GWI audit risk$_t$* = 0). The control group presents observations that have not experienced a change in this variable (i.e., from *GWI audit risk$_{t-1}$* = 0 to *GWI audit risk$_t$* = 0 or from *GWI audit risk$_{t-1}$* = 1 to *GWI audit risk$_t$* = 1). We thus match the first and the second moments of the treatment and control groups on all covariates in equation (1). The coefficient estimates on *ΔGWI audit risk* on this entropy balancing matched sample, reported in Panel B of Table 4, are similar to those discussed in our main analysis (Table 2), which helps alleviate the concern that differences in observable firm characteristics drive our results. [30]

Placebo test

To provide further evidence that our results are not driven by a spurious correlation, we conduct a placebo test. We randomly assign a placebo goodwill risk to each firm-year observation and construct an indicator variable *Placebo GWI audit risk* using the same procedure as in our main tests. We then re-estimate equation (1) by *replacing ΔGW audit risk* with *ΔPlacebo GWI audit risk*. We repeat this procedure 1,000 times to obtain a distribution of the estimated coefficient of interest and its *t*-statistic for each regression. In Figure 1, Panel A (Panel B), we report the empirical distribution of the placebo coefficient when using *ΔGWI note words* (*ΔGWI references*) as the dependent variable. The placebo coefficients largely follow a normal distribution centered

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[30] We have also conducted an alternative procedure by propensity matching, with replacement, observations in the treatment group with observations in the control group by a prediction model using the level specification of the same control variables in equation (1) as covariates. We set the caliper to 0.02 in the process of propensity score matching using the four nearest neighbors and continue to find a positive and significant coefficient on *ΔGWI audit risk.*

at zero with a mean of 0.0005 and standard deviation of 0.0107 for *ΔGWI note words* as the dependent variable, and a mean of -0.000005 and standard deviation of 0.0003 for *ΔGWI references* as the dependent variable, respectively. The actual *ΔGW audit risk* coefficients, i.e., 0.054 and 0.002, are larger than the mean of their placebo counterparts. Our simulated *p*-value, calculated as the fraction of cases in which the placebo *t*-statistics are larger than the actual *t*-statistic, is 0.003 for the *ΔGWI note words* model and 0 for the *ΔGWI references* model. This suggests that only 3 (0) out of 1,000 placebo coefficients have a *t*-statistic higher, i.e., more positive, than the true *t*-statistic of 2.90 (3.47) for the *ΔGWI note words* (*ΔGWI references*) model. Overall, the insignificant results from the random assignments suggest that our main finding is unlikely to be driven by un-modeled factors.

VI. ADDITIONAL ANALYSES

Goodwill impairment disclosure compliance

To extend our analysis to include firm responses beyond the disclosure quantity, we examine disclosure compliance as another firm disclosure dimension. In the spirit of Hassan, Hollander, Van Lent, and Tahoun (2019), we construct our measure of goodwill impairment disclosure compliance by relying on a textual analysis of the IAS 36 to build a library with the unique language used to specify and discuss goodwill impairment matters. To do so, we compare two-word combinations (bigrams) in IAS 36 (i.e., goodwill impairment library: A) with a library of documents capturing non-business English words (non-goodwill impairment library: N), which is built upon a large set of open-source English novels. We construct the set of unique goodwill impairment bigrams as A \ N, and then count the number of A \ N bigrams in a given firm's goodwill impairment note, which is then scaled by the total number of words in the annual report,

to yield a measure of goodwill impairment disclosure compliance (*GWI disclosure compliance*).[31] The degree to which companies use similar vocabulary to IAS 36 in the goodwill impairment note is a valid measure of goodwill impairment compliance, as it captures not only how much companies disclose but also what they disclose. The significant results on *ΔGWI audit risk*, presented in Table 5, indicate that managers not only increase the level of disclosure on risk areas flagged by auditors but also provide more compliant disclosure.

[Insert Table 5 here]

Alternative setting – defined benefit plan (pension)

Our focus on goodwill impairment audit risk leads to the concern that our findings may not be generalizable to other types of risks disclosed in the audit report. To alleviate this concern, we test our main empirical prediction in an additional setting: defined benefit plans, or pensions. We choose the pension setting for several reasons. First, pension is a common KAM among UK firms, which allows for a sufficiently large sample for our empirical analyses. Second, all defined benefit plan sponsors provide a dedicated financial statement note discussing the accounting treatments of pensions. Third, UK pension plans are managed by trustees who are legally required to follow a liability-driven investment approach, which reduces firms' exposure to external shocks.[32]

Our sample consists of 777 non-financial firm-years of Premium Listings on the LSE with non-zero projected benefit obligation during the same sample period for which we have available data for all variables on Thomson Reuters Eikon.[33] Similar to the goodwill impairment setting, we construct two measures of pension disclosure: the number of words in the pension related financial

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[31] We list the top 20 bigrams that discuss unique goodwill impairment language in Appendix 3.

[32] A liability-driven investment approach refers to the investment of defined benefit plan assets that back the associated liabilities in a way that is appropriate to the nature, timing, and duration of the expected future benefits payable under the scheme. Such a strategy typically involves a portfolio of high-quality bonds and other assets and/or derivatives and their collateral whose value responds to changes in market conditions, similar to how the liability value responds.

[33] We lost a relatively large number of observations due to data unavailability on control variables on Thomson Reuters Eikon.

statement note, *Pension note words*, and the number of times pension related references appear throughout the annual report, *Pension references*, both scaled by the total number of words in the annual report.[34]

We employ a first-differences model where we control for pension-plan specific variables that are associated with pension risk (e.g., Rauh 2009; Anantharaman and Lee 2014; Guan and Lui 2016): the size of pension plans (*Plan size*), underfunding of pension plans (*Underfunding*), pension investment risk (*Asset allocation to equity* and *Asset allocation to bonds*), pension plans that have stopped accruing new benefits (*Frozen*), and pension discount rate (*Discount rate*). Moreover, we also control for variables that are associated with firm-level risk: firm size (*Size*), financial leverage (*Leverage*), book-to-market ratio (*BTM*), and cash flow volatility (*CFO volatility*). As in all the regressions, we control for a variable indicating whether internal audit committees have identified pension as a business risk.

Panel A of Table 6 provides some descriptive statistics of the main variables included in the pension regressions. On average, a pension financial statement note of 1,603 words is considerably longer than a goodwill financial statement note. Similarly, there are substantially more pension related keywords (92 entries) than goodwill impairment related keywords in an average annual report. Thirty-six percent of the sample firms have been flagged by external auditors as having a pension KAM, while audit committees are more likely to identify pension as a business risk (48%).

[Insert Table 6 here]

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[34] We define a pension reference as appearances of the word "pension," plus appearances of the words "defined," "projected," "post-retirement," "post-employment," "employment" within ten words from "benefits." We count the number of times the word and their variants appeared throughout the annual report, excluding the pension note and the section containing the auditor report.

Our regression results, reported in Panel B, show that firms increase pension related disclosure in response to the change in audit risk on pensions. The coefficient in column (1) suggests that firms present 16.5% more words in the pension related note from the sample average of 1,603 words. Similar to the results in Table 2, the coefficient in column (2), where the dependent variable is changes in pension related keywords, is much smaller but statistically significant. In columns (3), the coefficients on *First mention pension* and *First drop pension* are significant with opposite signs to each other as expected. To ensure that our results are not driven by any observable differences between the treatment and the control sample, we conduct an entropy balanced matched sample and our (unreported) results are robust.

Goodwill impairment reporting

In addition to the disclosure consequences of the expanded audit report, these new auditor disclosures may also trigger other firm responses. Particularly relevant for our goodwill impairment setting, we examine whether firms are more likely to impair goodwill when auditors identify goodwill impairment as a KAM. The inclusion of goodwill impairment as a KAM reflects auditors' desire to highlight the risk associated with the goodwill account. As a result, managers may feel compelled to impair goodwill to avoid market scrutiny, despite their incentives to delay such charges (Ayres et al. 2019). To test this conjecture, we base our analysis on the linear probability model presented in equation (2).[35] We estimate both contemporaneous and lead-lag specifications because, on the one hand, firms may impair goodwill in the same year after auditors communicate with them that goodwill impairment has been identified as a KAM, and, on the other hand, we noticed a large number of goodwill impairment KAMs without concurrent impairment.

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[35] We estimate the coefficients using a linear probability model, instead of a non-linear model, because the estimator can suffer the incidental parameters problem when fixed effects are incorporated in non-linear panel data models (Greene, 2004). We document similar evidence if we estimate the model using probit or logit regressions.

Impairment indicator$_{i,t+1}$

$$= \beta_1 \Delta GWI\ audit\ risk_{i,t(t+1)} + \theta Y_{i,t(t+1)} + \gamma_j + \eta_t + \varepsilon_{i,t(t+1)} \qquad (2)$$

where *Impairment indicator* stands for either *Impair*, which equals one if goodwill is impaired in

a given firm-year and zero otherwise, or *Material impair*, which equals one if a material amount

of goodwill is impaired in a given firm-year and zero otherwise. We consider goodwill impairment

to be material if its amount is higher than 1% of beginning total assets, or £10 million (Jarva 2009;

Knauer and Wöhrmann 2016). *ΔGWI audit risk* is defined as above. A positive and significant β_1

indicates that firms are more likely to impair goodwill when auditors mention goodwill impairment

risk in the expanded audit report.

The vector $Y_{i,t}$ contains a set of firm-year-level variables that prior work has documented

to predict goodwill impairment. Firms are more likely to book an impairment if they are bigger

and less leveraged (Glaum, Landsman, and Wyrwa 2018), have a larger book-to-market ratio, more

goodwill, fewer segments (Ramanna and Watts 2012), and more consecutive years with goodwill

impairment before the current year (Glaum et al. 2018). The likelihood of impairment also

increases when firms take a big bath (Glaum et al. 2018) and are covered by more analysts (Ayres

et al. 2019). Because auditors communicate key audit matters to the audit committee, we also

control for audit committee goodwill impairment risk. γ_j represents audit firm fixed effects, while

η_t captures year fixed effects. Standard errors are clustered by firm.

Column (1) of Table 7, Panel A, shows that firms are more likely to impair goodwill in the

following year after auditors mention goodwill impairment as a KAM. In column (2), we separate

ΔGWI audit risk$_t$ into three indicator variables: *First mention*$_t$, *Subsequent mention*$_t$, and *First*

drop$_t$. We show that when auditors start or continue disclosing goodwill as a KAM in a period,

firms are more likely to impair goodwill in the next period. This effect is stronger when we

consider material impairment only, where the effect of *First mention* is significantly larger than that of *Subsequent mention*. Panel B presents the results from the contemporaneous specification, where only the coefficient on *Subsequent mention* is significant. We interpret these combined results as suggesting that firms are more likely to impair goodwill in the period after auditors flag goodwill impairment as a KAM. We note that the coefficients on *Subsequent mention* are significant in all specifications. However, since this variable is coded 1 for the presence of goodwill impairment KAM in two consecutive periods, the significant coefficients in both contemporaneous and lead-lag relationships could be driven by the prior-period KAM, rather than the current-period KAM. The fact that the coefficient on *First mention* is insignificant in the contemporaneous relationship is consistent with this interpretation.

[Insert Table 7 here]

VII. CONCLUSION

Taking advantage of changes in the auditing regulation in the UK since 2013, this study examines whether managers respond to the red flags raised by auditors in their expanded audit report by changing their disclosure behavior. Using the setting of auditors' mentions of goodwill impairment as a KAM, we find that managers increase (decrease) the level of goodwill impairment disclosure in their annual report when auditors initiate (eliminate) the mention of this KAM in the expanded audit report. The effect on corporate disclosure is larger in the presence of stronger external information demand and better internal governance. Our main results are robust to sub-sample analyses, where we keep constant the change in goodwill impairment/goodwill, construct an entropy balancing matched sample, employ a placebo test, examine a different firm disclosure characteristic, and engage a different setting where we examine pension audit risk. Furthermore,

we find that managers are more likely to book goodwill impairment when auditors include it as a KAM in the expanded audit reports.

Our results are subject to several caveats. First, they could be driven by other concurrent regulatory changes, including the issuance of International Financial Reporting Standard (IFRS) 13 on fair-value measurement, which became mandatory for fiscal year ends beginning on or after January 1, 2013. IFRS 13 provides a common framework for measuring fair values when required or permitted by another IFRS on firm assets and liabilities, including goodwill. Among our sample firms, the standard had the largest impact upon adoption on companies with substantial amounts of goodwill on their balance sheets; therefore, these companies may potentially increase the level of disclosure on goodwill impairment tests. To the extent that the identification of goodwill impairment as a KAM correlates with the magnitude of goodwill on the book, our results could be confounded. However, the fact that our sample covers a period beyond the adoption year of IFRS 13, and that we have controlled the amount of goodwill in the regression model, provide some comfort that the adoption of IFRS 13 does not explain our main results.

Second, this study focuses on one type of asset-related risk on goodwill impairment, supplemented by another risk on corporate pension, because it is infeasible to directly address the disclosure consequences of some other common KAMs, such as revenue recognition, using our approach. As such, our results may not be generalizable to all types of risks disclosed in the expanded audit report. Despite these limitations, this study complements the extant literature by establishing the role of the expanded audit report as a trigger for enhanced corporate disclosure. Our results are particularly relevant to standard setters, as the IAASB, European Commission, and PCAOB have all recently followed the UK example by approving similar changes to audit reports within their power.

Appendix 1: Example of goodwill impairment mentions in expanded audit reports

Firm: Stagecoach Group
Year: 2018
Auditor: Ernst & Young LLP

Risk	Our response to the risk	Key observations communicated to the Audit Committee
Carrying value of North America goodwill *Refer to the Audit Committee report (section 5.4.1) and notes 1 and 11 to the consolidated financial statements.* The Group carries out an annual impairment review of the carrying value of its goodwill. At 28 April 2018 the Group carried goodwill in North America of £91.0m (2017: £97.1m). The significant risk arises because the headroom in the North America cash generating unit is particularly sensitive to management's estimated future cash flows, the discount rate and expected long-term growth. The preparation of cash flow forecasts and value in use calculations requires management to exercise significant judgement in estimating future cash flows and the appropriate growth and discount rates.	We gained an understanding of the key controls and processes in place over management's impairment review. We assessed the methodology used to calculate value in use and integrity of the valuation model. We corroborated key assumptions used by management in the forecasts, including future cash flows, growth rates and the pre-tax discount rate. We evaluated management's sensitivity analysis and disclosures showing the impact of a reasonably possible change in impairment assumptions and contrasted to our own independently prepared sensitivity analysis to test for reasonableness. In doing so, we assessed the adequacy of the disclosure provided in the financial statements. All audit work in relation to this key audit matter was undertaken by the Group engagement team, with the assistance of our valuation specialists.	We are satisfied that there is no impairment required for North America goodwill. We are satisfied with the adequacy of the disclosure within the financial statements.

Appendix 2: Variable definition

Variable	Description
GWI note words	Number of words in the goodwill impairment financial-statement note scaled by the total number of words in the annual report.
GWI references	Number of goodwill impairment related references throughout the annual report, excluding the auditor report and the goodwill impairment note, scaled by the total number of words in the annual report.
GWI audit risk	An indicator variable taking the value one in the year when the external auditor mentions goodwill impairment as an audit risk and zero otherwise.
First mention	An indicator variable taking the value one in the year when the external auditor initiates goodwill impairment as an audit risk and zero otherwise.
Subsequent mention	An indicator variable taking the value one in the year when the external auditor reiterates goodwill impairment as an audit risk and zero otherwise.
First drop	An indicator variable taking the value one in the year when the external auditor drops goodwill impairment as an audit risk and zero otherwise.
GWI committee risk	An indicator variable taking the value one if the firm's internal audit committee mentions goodwill impairment as a business risk and zero otherwise.
Size	Natural logarithm of total assets.
Leverage	Total debt divided by total assets.
BTM	Balance sheet value of common equity divided by market value of common equity.
Loss	An indicator variable taking the value one if net income before goodwill impairment is negative and zero otherwise.
Goodwill	Goodwill amount before impairment during the year scaled by total assets.

Impairment	Goodwill impairment amount scaled by total assets.
Log(#Segments)	Natural logarithm of the number of business segments.
Log(1+#Analysts)	Natural logarithm of one plus the number of analysts following the firm.
High analysts	An indicator variable taking the value one if the number of analysts following a firm is higher than the median level of analyst following at the industry level and zero otherwise.
High independent directors	An indicator variable taking the value one if the ratio of independent directors to total number of directors on the board is higher than the sample median and zero otherwise.
Impair	An indicator variable taking the value one if the company impairs goodwill and zero otherwise.
Material impair	An indicator variable taking the value one if the amount of goodwill impairment exceeds £10 million or 1% of beginning total assets and zero otherwise.
ROA	Net income before goodwill impairment scaled by total assets.
Big bath	An indicator variable taking the value one if the company records a net loss and experiences a greater-than-median negative change in income among all firms with a net loss and zero otherwise.
Years impair	Number of consecutive years with goodwill impairment charges before the current year.
Disclosure compliance	Goodwill impairment disclosure compliance, measured as the extent to which firms use similar language in the goodwill impairment financial statement note relative to the IAS 36.
Pension words	Number of words in the pension financial statement note scaled by the total number of words in the annual report.
Pension references	Number of pension related references throughout the annual report, excluding the auditor report and the pension note, scaled by the total number of words in the annual report.
Pension audit risk	An indicator variable taking the value one in the year when the external auditor mentions pension as an audit risk and zero otherwise.

First mention pension	An indicator variable taking the value one in the year when the external auditor initiates pension risk as an audit risk and zero otherwise.
Subsequent mention pension	An indicator variable taking the value one in the year when the external auditor reiterates pension as an audit risk and zero otherwise.
First drop pensions	An indicator variable taking the value one in the year when the external auditor drops pension as an audit risk and zero otherwise.
Pension committee risk	An indicator variable taking the value one if the firm's internal audit committee mentions pension as a business risk and zero otherwise.
Plan size	Natural logarithm of the fair value of pension assets.
Underfunding	Defined benefit obligations less fair value of pension assets scaled by projected benefit obligations.
Asset allocated to equity	Pension assets allocated to equity.
Asset allocated to bonds	Pension assets allocated to bonds.
Frozen	An indicator variable taking the value of one if service cost is zero, and zero otherwise.
Discount rate	Pension discount rate.
CFO volatility	Standard deviation of cash flow from operations over the prior five years scaled by book value of assets.

Appendix 3 : Top 20 IAS 36 bigrams

cash flow
cashgenerating unit
impairment loss
future cash
fair value
impairment test
cash inflow
unit group
discount rate
goodwill allocate
test impairment
group unit
intangible asset
unit goodwill
estimate future
business combination
cost sell
reversal impairment
exposure draft
cash generate

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Figure 1: Placebo test

This figure reports the results examining the effect of pseudo goodwill impairment audit risk on goodwill impairment related disclosure. We generate random pseudo goodwill impairment risk for all firm-year observations and re-estimate our baseline regression. We repeat this exercise 1,000 times and obtain the distribution of the coefficients from the regressions. The figure plots the distribution of these coefficients when using *ΔGWI note words* (*ΔGWI references*) as the dependent variable in Panel A (Panel B).

Panel A: Dependent variable – *ΔGWI note words*
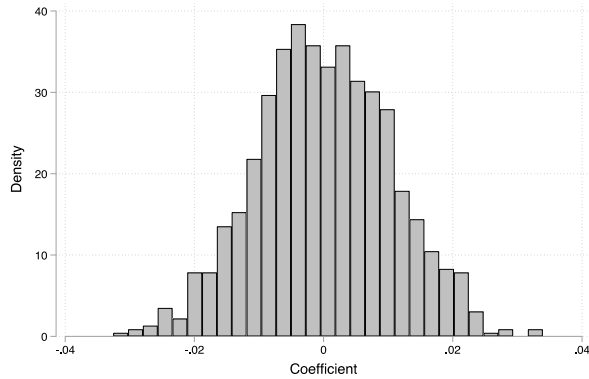
Panel B: Dependent variable – *ΔGWI references*
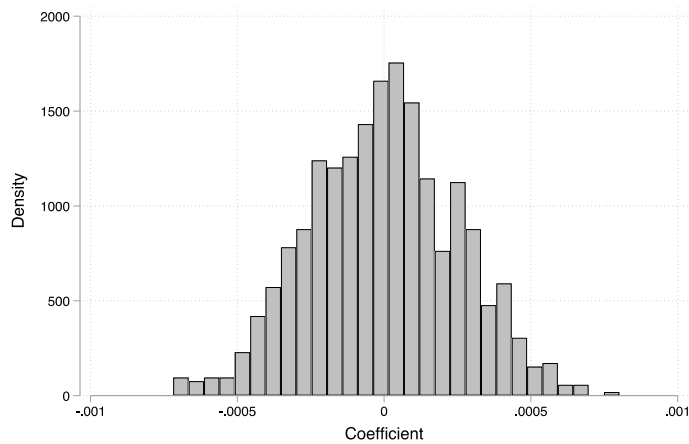
Table 1: Descriptive statistics

This table reports descriptive statistics of the variables used in the main model. Panel A provides the distributional properties of the variables in the full sample. Panels B-E present descriptive statistics for sub-samples where auditors initiate (Panel B), reiterate (Panel C), and eliminate (Panel D) goodwill impairment as a KAM, and where goodwill impairment is not identified as a KAM (Panel E). Panel F reports Pearson's correlation coefficients. * indicates that the coefficients are significantly different from zero at the 5% level in two-tailed tests. All continuous variables, except *GWI note words, Annual report words,* and *GWI references*, are winsorized at the 1st and 99th percentiles. Refer to Appendix 2 for variable definitions.

Panel A: Descriptive statistics

	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
(Unscaled) GWI note words	1,100	572.735	345.276	327	500	734
(Unscaled) GWI references	1,100	9.921	6.956	5	8	13
Annual report words	1,100	100,323.235	36,768.492	75,772	94,076	115,670
GWI audit risk	1,100	0.590	0.492	0	1	1
GWI committee risk	1,100	0.651	0.477	0	1	1
First mention	1,100	0.192	0.394	0	0	0
Subsequent mention	1,100	0.398	0.490	0	0	1
First drop	1,100	0.062	0.241	0	0	0
Total assets (£million)	1,100	8,011.412	23,630.001	397.174	1,234.850	4,387.164
Leverage	1,100	0.215	0.149	0.098	0.217	0.309
BTM	1,100	0.509	0.386	0.237	0.405	0.670
Loss	1,100	0.129	0.335	0	0	0
Goodwill (£million)	1,100	1,343.559	3,019.566	60.909	253.298	950.819
Goodwill impairment (£million)	1,100	8.707	36.728	0	0	0
#Analysts	1,100	11.268	7.402	5	10	17
#Segments	1,100	4.175	2.451	2	4	5

Panel B: Descriptive statistics for the sub-sample where *First mention*=1

	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
(Unscaled) GWI note words	211	601.047	308.532	379	563	739
(Unscaled) GWI references	211	11.455	7.185	7	10	14
Annual report words	211	94,770.450	35,903.556	70,659	88,387	108,498
GWI committee risk	211	0.858	0.350	1	1	1
Total assets (£million)	211	6,061.715	19,895.886	398.055	1,102	3,572.500
Leverage	211	0.225	0.145	0.118	0.233	0.313
BTM	211	0.524	0.398	0.243	0.421	0.677
Loss	211	0.137	0.345	0	0	0
Goodwill (£million)	211	1,112.236	2,429.284	89.880	272.048	993
Goodwill impairment (£million)	211	7.730	30.668	0	0	0
#Analysts	211	11.118	7.483	5	10	17
#Segments	211	4.280	2.369	3	4	6

Panel C: Descriptive statistics for the sub-sample where *Subsequent mention*=1

	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
(Unscaled) GWI note words	438	687.731	358.297	433	650	849
(Unscaled) GWI references	438	12.219	7.354	7	10	16
Annual report words	438	105,684.598	33,179.014	83,309	101,755	124,330
GWI committee risk	438	0.895	0.307	1	1	1
Total assets (£million)	438	7,045.665	18,274.571	571.900	1,615.884	5,188
Leverage	438	0.217	0.138	0.122	0.221	0.308
BTM	438	0.558	0.385	0.279	0.469	0.723
Loss	438	0.139	0.347	0	0	0
Goodwill (£million)	438	1,743.698	3,425.820	159.500	465.363	1,633.302
Goodwill impairment (£million)	438	16.953	52.445	0	0	0
#Analysts	438	11.066	7.154	5	10	16
#Segments	438	4.459	2.456	3	4	6

Panel D: Descriptive statistics for the sub-sample where *First drop*=1

	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
(Unscaled) GWI note words	68	486.426	222.187	330.500	452	650
(Unscaled) GWI references	68	8.941	7.660	5	7	10.500
Annual report words	68	97,470.735	39,098.247	74,784	90,196	107,851
GWI committee risk	68	0.529	0.503	0	1	1
Total assets (£million)	68	9,726.052	28,861.881	377.200	759.350	3,434.308
Leverage	68	0.216	0.156	0.091	0.199	0.316
BTM	68	0.421	0.277	0.205	0.347	0.573
Loss	68	0.162	0.371	0.	0	0
Goodwill (£million)	68	1,196.160	3,210.380	39.555	135.250	546.105
Goodwill impairment (£million)	68	1.638	8.157	0	0	0
#Analysts	68	11.029	7.132	4.500	10.500	15.500
#Segments	68	3.926	2.333	2	4.	5

Panel E: Descriptive statistics for the sub-sample where *First mention*=0, Subsequent mention=0, and *First drop*=0

	(1) N	(2) mean	(3) sd	(4) p25	(5) p50	(6) p75
(Unscaled) GWI note words	383	440.953	317.467	251	351	532
(Unscaled) GWI references	383	6.621	4.498	4	6	8
Annual report words	383	97,757.517	39,940.956	73,397	89,408	111,793
GWI committee risk	383	0.279	0.449	0	0	1
Total assets (£million)	383	9,885.533	29,213.996	289.100	1,013.500	3,125.100
Leverage	383	0.208	0.162	0.059	0.212	0.303
BTM	383	0.459	0.390	0.197	0.324	0.590
Loss	383	0.107	0.310	0	0	0
Goodwill (£million)	383	1,039.566	2,728.352	21.200	118	430.015
Goodwill impairment (£million)	383	1.069	7.737	0	0	0
#Analysts	383	11.624	7.692	5	10	17
#Segments	383	3.836	2.472	2	3	5

Panel F: Pearson correlation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1) *ΔGWI note words*	1											
(2) *ΔGWI references*	0.163*	1										
(3) *ΔGWI audit risk*	0.106*	0.175*	1									
(4) *ΔGWI committee risk*	0.032	0.145*	0.224*	1								
(5) *ΔSize*	-0.026	-0.010	0.031	0.040	1							
(6) *ΔLeverage*	0.046	0.028	0.055	0.038	0.181*	1						
(7) *ΔBTM*	0.049	-0.023	0.038	0.046	0.126*	-0.018	1					
(8) *ΔLoss*	0.044	0.045	-0.053	-0.026	-0.039	0.156*	0.081*	1				
(9) *ΔGoodwill*	0.249*	0.201*	0.083*	0.054	-0.119*	0.065*	0.030	0.095*	1			
(10) *ΔGoodwill impairment*	0.229*	0.273*	0.044	0.028	-0.077*	0.125*	0.004	0.065*	0.604*	1		
(11) *ΔLog(1+#Analysts)*	0.011	-0.036	0.020	-0.019	0.131*	0.058	-0.065*	0.002	-0.004	-0.019	1	
(12) *ΔLog(#Segments)*	-0.005	-0.004	-0.032	-0.017	0.123*	0.043	-0.049	0.006	0.042	0.006	0.009	1

Table 2: Manager's response to the identification of goodwill impairment as a KAM

This table presents the effect of the inclusion of goodwill impairment as a KAM in the expanded audit report on the level of goodwill impairment related disclosure. Columns (1) and (3) present results with *ΔGWI note words* as the dependent variable, and columns (2) and (4) present results with *ΔGWI references* as the dependent variable. Models are estimated using a pooled OLS regression specification over the period 2013-2019. All continuous variables, except *ΔGWI note words* and *ΔGWI references*, are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively, in two-tailed tests. We report standard errors clustered at the firm level in parentheses. Refer to Appendix 2 for variable definitions.

	(1) *ΔGWI note words*	(2) *ΔGWI references*	(3) *ΔGWI note words*	(4) *ΔGWI references*
ΔGWI audit risk	0.054***	0.002***		
	(0.018)	(0.001)		
First mention			0.044**	0.002***
			(0.018)	(0.001)
Subsequent mention			-0.001	0.000
			(0.014)	(0.000)
First drop			-0.056**	-0.001
			(0.026)	(0.001)
ΔGWI committee risk	-0.001	0.002***	0.001	0.002***
	(0.022)	(0.000)	(0.022)	(0.000)
ΔSize	-0.018	0.001	-0.017	0.001
	(0.054)	(0.001)	(0.054)	(0.001)
ΔLeverage	0.097	-0.003	0.101	-0.003
	(0.122)	(0.003)	(0.121)	(0.003)
ΔBTM	0.048	-0.001	0.048	-0.001
	(0.048)	(0.001)	(0.048)	(0.001)
ΔLoss	0.014	0.001	0.013	0.001
	(0.024)	(0.000)	(0.024)	(0.001)
ΔGoodwill	0.719***	0.005	0.745***	0.006*
	(0.227)	(0.003)	(0.224)	(0.003)
ΔGoodwill impairment	1.185**	0.052***	1.163**	0.052***
	(0.478)	(0.010)	(0.484)	(0.010)
ΔLog(1+#Analysts)	0.017	-0.001	0.014	-0.001
	(0.047)	(0.001)	(0.047)	(0.001)
ΔLog(#Segments)	-0.012	-0.000	-0.015	-0.000
	(0.045)	(0.001)	(0.045)	(0.001)
Observations	1,100	1,100	1,100	1,100
Auditor FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.076	0.114	0.076	0.111
Test: *First mention - Subsequent mention* = 0			**p=0.031**	**p=0.009**

Table 3: Cross-sectional analyses

This table presents the moderating role of analyst following (columns (1) and (2)) and independent directors (columns (3) and (4)) on the level of goodwill impairment related disclosure. Columns (1) and (3) present results with *ΔGWI note words* as the dependent variable, and columns (2) and (4) present results with *ΔGWI references* as the dependent variable. Models are estimated using a pooled OLS regression specification over the period 2013-2019. All continuous variables, except *ΔGWI note words)* and *ΔGWI references*, are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively, in two-tailed tests. We report standard errors clustered at the firm level in parentheses. Refer to Appendix 2 for variable definitions.

	(1) *ΔGWI note words*	(2) *ΔGWI references*	(3) *ΔGWI note words*	(4) *ΔGWI references*
ΔGWI audit risk × High analysts	0.066*	-0.001		
	(0.039)	(0.001)		
ΔGWI audit risk × High independent directors			0.110**	0.002
			(0.044)	(0.001)
Controls	Yes	Yes	Yes	Yes
Observations	1,100	1,100	855	855
Auditor FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.077	0.115	0.065	0.114

Table 4: Endogeneity concerns

This table presents results addressing endogeneity concerns on the estimation of the main model in Table 2. Panel A presents the results using a sub-sample of firms with no change in goodwill impairment between two consecutive years in columns (1) and (2), and a sub-sample of firms with no change in goodwill between two consecutive years in columns (3) and (4). Panel B presents the results from estimating equation (1) after implementing entropy balancing to identify a control sample based on the covariates in equation (1). Models are estimated using a pooled OLS regression specification over the period 2013-2019. All continuous variables, except *ΔGWI note words* and *ΔGWI references*, are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively, in two-tailed tests. We report standard errors clustered at the firm level in parentheses. Refer to Appendix 2 for variable definitions.

Panel A – Sub-samples of firms with no change in goodwill impairment and goodwill, respectively

	ΔGoodwill impairment=0		ΔGoodwill=0	
	(1)	(2)	(3)	(4)
	ΔGWI note words	*ΔGWI references*	*ΔGWI note words*	*ΔGWI references*
ΔGWI audit risk	0.045**	0.001**	0.065**	0.004*
	(0.018)	(0.001)	(0.032)	(0.002)
Controls	Yes	Yes	Yes	Yes
Observations	850	850	174	174
Auditor FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.0276	0.0316	0.00762	0.0677

Panel B – Entropy balancing

	Entropy balancing	
	(1)	(2)
	ΔGWI note words	*ΔGWI references*
ΔGWI audit risk	0.057***	0.002***
	(0.017)	(0.001)
Controls	Yes	Yes
Observations	1,100	1,100
Auditor FE	Yes	Yes
Year FE	Yes	Yes
Adjusted R-squared	0.128	0.167

Table 5: Disclosure compliance and audit risk disclosure

This table presents the effect of the inclusion of goodwill impairment as a KAM in the expanded audit report on goodwill impairment disclosure compliance. The model is estimated using a pooled OLS regression specification over the period 2013-2019. All continuous variables, except *ΔGWI disclosure compliance*, are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively, in two-tailed tests. We report standard errors clustered at the firm level in parentheses. Refer to Appendix 2 for variable definitions.

	(1) *ΔGWI disclosure compliance*
ΔGWI audit risk	0.007***
	(0.002)
Controls	Yes
Observations	1,096
Auditor FE	Yes
Year FE	Yes
Adjusted R-squared	0.037

Table 6: Manager's response to the identification of pension as a KAM – alternative setting

This table presents results using an alternative KAM—pension. Panel A provides the distributional properties of the variables included in the regressions presented in Panel B. Panel B presents the effect of the inclusion of pension as a KAM in the expanded audit report on the level of pension related disclosure. Columns (1) and (3) present results with *ΔPension note words* as the dependent variable, whereas columns (2) and (4) present results with *ΔPension references* as the dependent variable. Models are estimated using a pooled OLS regression specification over the period 2013-2019. All continuous variables, except *ΔPension note words* and *ΔPension references*, are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively, in two-tailed tests. We report standard errors clustered at the firm level in parentheses. Refer to Appendix 2 for variable definitions.

Panel A: Descriptive statistics

	(1) N	(2) Mean	(3) Sd	(4) p25	(5) p50	(6) p75
Pension note words	777	1,602.681	737.309	1,062	1,464	2,047
Pension references	777	92.003	40.294	63	87	115
Annual report words	777	110,918.268	38,065.951	86,353	105,968	126,710
Pension audit risk	777	0.360	0.480	0	0	1
First mention pension	777	0.099	0.299	0	0	0
Subsequent mention pension	777	0.261	0.440	0	0	1
First drop pension	777	0.031	0.173	0	0	0
Pension committee risk	777	0.497	0.500	0	0	1
Plan size	777	13.145	1.992	11.754	13.145	14.632
Underfunding	777	0.102	0.160	-0.004	0.088	0.184
Asset allocation to equity	777	0.308	0.167	0.191	0.294	0.409
Asset allocation to bonds	777	0.405	0.210	0.246	0.410	0.559
Frozen	777	0.051	0.221	0	0	0
Discount rate	777	3.185	1.175	2.500	2.900	3.600
Total assets (£million)	777	11,531.140	30,898.702	833.200	2,295.385	6,108.700
Leverage	777	0.252	0.144	0.161	0.249	0.342
CFO volatility	777	0.084	0.114	0.032	0.049	0.084
BTM	777	0.508	0.469	0.228	0.401	0.630

Panel B: Manager's response to the identification of pension as a KAM

	(1) *ΔPension note words*	(2) *ΔPension references*	(3) *ΔPension note words*	(4) *ΔPension references*
ΔPension audit risk	0.165***	0.007*		
	(0.040)	(0.004)		
First mention pension			0.091*	0.003
			(0.049)	(0.003)
Subsequent mention pension			0.008	0.002
			(0.025)	(0.001)
First drop pension			-0.188***	-0.005
			(0.042)	(0.004)
ΔPension committee risk	-0.052	-0.000	-0.031	0.001
	(0.038)	(0.003)	(0.034)	(0.003)
ΔPlan size	-0.032	-0.007	-0.058	-0.007
	(0.136)	(0.006)	(0.140)	(0.007)
ΔUnderfunding	0.103	0.010	0.097	0.009
	(0.210)	(0.015)	(0.209)	(0.016)
ΔAsset allocation to equity	0.009	-0.003	0.011	-0.003
	(0.151)	(0.010)	(0.153)	(0.010)
ΔAsset allocation to bonds	0.086	-0.015**	0.079	-0.015**
	(0.119)	(0.007)	(0.120)	(0.007)
ΔFrozen	-0.002	-0.010**	0.007	-0.009**
	(0.053)	(0.004)	(0.051)	(0.004)
ΔDiscount rate	-0.008	0.001	-0.003	0.001
	(0.021)	(0.001)	(0.022)	(0.001)
ΔSize	-0.132	-0.009*	-0.144	-0.010*
	(0.105)	(0.006)	(0.103)	(0.006)
ΔLeverage	-0.019	-0.003	0.013	-0.003
	(0.216)	(0.013)	(0.214)	(0.014)
ΔCFO variability	-0.087	-0.005	-0.099	-0.005
	(0.104)	(0.004)	(0.106)	(0.004)
ΔBTM	0.077	-0.002	0.065	-0.003
	(0.074)	(0.004)	(0.072)	(0.004)
Observations	777	777	777	777
Auditor FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.037	0.056	0.029	0.049
Test: *First mention pension- Subsequent mention pension= 0*			**p=0.156**	**p=0.487**

Table 7: Goodwill impairment reporting

This table presents regression results regarding goodwill impairment reporting over the period 2013-2019. Panel A present the results using a lead-leag specification and Panel B present the results using a contemporaneous specification. All continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance level at the 1%, 5%, and 10% level, respectively, in two-tailed tests. We report standard errors clustered at the firm level in parentheses. Refer to Appendix 2 for variable definitions.

Panel A: Lead-lag specification

	(1) $Impair_{t+1}$	(2) $Impair_{t+1}$	(3) $Material\ impair_{t+1}$	(4) $Material\ impair_{t+1}$
ΔGWI audit risk$_t$	0.048*		0.052**	
	(0.026)		(0.023)	
First mention$_t$		0.083**		0.118***
		(0.032)		(0.030)
Subsequent mention$_t$		0.066**		0.061**
		(0.029)		(0.025)
First drop$_t$		-0.037		-0.012
		(0.032)		(0.026)
ΔGWI committee risk$_{t+1}$	0.005	0.009	0.012	0.018
	(0.027)	(0.028)	(0.023)	(0.023)
Size$_t$	-0.001	-0.003	0.005	0.004
	(0.011)	(0.011)	(0.011)	(0.010)
Leverage$_t$	0.027	0.031	0.039	0.038
	(0.078)	(0.076)	(0.076)	(0.074)
Goodwill$_t$	0.097**	0.067	0.116***	0.087**
	(0.043)	(0.044)	(0.043)	(0.044)
BTM$_t$	0.042	0.037	0.051	0.047
	(0.042)	(0.041)	(0.038)	(0.037)
Loss$_t$	0.028	0.036	0.021	0.028
	(0.046)	(0.045)	(0.049)	(0.049)
ROA$_t$	-0.058	0.017	-0.250	-0.163
	(0.172)	(0.170)	(0.166)	(0.168)
Big bath$_{t+1}$	0.139***	0.137***	0.165***	0.162***
	(0.034)	(0.034)	(0.031)	(0.031)
Years impair$_{t+1}$	0.335***	0.327***	0.211***	0.205***
	(0.024)	(0.024)	(0.033)	(0.033)
Log(1+#Analysts)$_t$	-0.001	0.004	-0.018	-0.012
	(0.026)	(0.026)	(0.025)	(0.024)
Log(#Segments)$_t$	0.017	0.012	0.028*	0.024
	(0.019)	(0.019)	(0.016)	(0.015)
Observations	808	808	808	808
Auditor FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.245	0.251	0.198	0.210
Test: *First mention - Subsequent mention* = 0			p=0.633	p=0.095

Panel B: Contemporaneous specification

	(1) Impair$_{t+1}$	(2) Impair$_{t+1}$	(3) Material impair$_{t+1}$	(4) Material impair$_{t+1}$
ΔGWI audit risk$_{t+1}$	**0.026**		**-0.001**	
	(0.031)		**(0.026)**	
First mention$_{t+1}$		**0.083**		**0.049**
		(0.056)		**(0.044)**
Subsequent mention$_{t+1}$		**0.103*****		**0.096*****
		(0.023)		**(0.021)**
First drop$_{t+1}$		**0.018**		**0.036**
		(0.037)		**(0.033)**
ΔGWI committee risk$_{t+1}$	0.003	0.001	0.013	0.011
	(0.027)	(0.027)	(0.023)	(0.023)
Size$_t$	-0.001	-0.006	0.006	0.001
	(0.011)	(0.011)	(0.011)	(0.010)
Leverage$_t$	0.026	0.039	0.037	0.051
	(0.078)	(0.076)	(0.076)	(0.074)
Goodwill$_t$	0.099**	0.049	0.120***	0.072*
	(0.043)	(0.044)	(0.043)	(0.043)
BTM$_t$	0.043	0.039	0.051	0.048
	(0.042)	(0.042)	(0.038)	(0.037)
Loss$_t$	0.024	0.032	0.018	0.025
	(0.046)	(0.045)	(0.048)	(0.048)
ROA$_t$	-0.061	0.046	-0.248	-0.146
	(0.171)	(0.171)	(0.167)	(0.168)
Big bath$_{t+1}$	0.137***	0.131***	0.164***	0.157***
	(0.034)	(0.034)	(0.031)	(0.031)
Years impair$_{t+1}$	0.335***	0.323***	0.211***	0.200***
	(0.024)	(0.025)	(0.033)	(0.033)
Log(1+#Analysts)$_t$	-0.001	0.010	-0.019	-0.008
	(0.026)	(0.026)	(0.025)	(0.024)
Log(#Segments)$_t$	0.017	0.011	0.027*	0.022
	(0.019)	(0.019)	(0.016)	(0.015)
Observations	808	808	808	808
Auditor FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.243	0.255	0.195	0.208
Test: *First mention - Subsequent mention* = 0			**p=0.747**	**p=0.333**