The Power of Words: An Empirical Analysis of the Communicative Value of Extended Auditor Reports[*]

Andreas Seebeck

University of Erlangen-Nuremberg

Devrimi Kaya

Ruhr University Bochum

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Abstract

We examine the communicative value of extended auditor reports in the United Kingdom (UK), where ISA 700 (UK and Ireland) requires auditors to disclose the risks of material misstatement that had the greatest effect on the audit—key audit matters (KAM). By using methods from computational linguistics, we find that different proxies for communicative value (i.e., readability, evaluative content, visual aids, and specificity) improve in post-ISA 700 periods. Cross-sectional tests show that the improvement differs across audit firms and audit clients as well as KAM disclosure characteristics. Finally, broadly consistent with concurrent studies, we find no evidence that several proxies for communicative value are informative to investors. However, we find initial evidence that a more specific description of KAM is significantly and positively associated with capital market reactions, suggesting that investors value precise information. Overall, this study directly responds to the call for more research on how KAM are worded.

Keywords: extended auditor reporting, communicative value, key audit matters (KAM), critical audit matters (CAM), textual analysis, specificity

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1. Introduction

Auditors help reduce agency costs by enhancing the credibility of financial statements (Healy & Palepu, 2001; Jensen & Meckling, 1976). The auditor report is the auditor's primary means of communication with a firm's investors and stakeholders. Historically, the binary *pass/fail model* of auditor reports has been characterized by generic language (i.e., boilerplate reporting), rather than by firm-specific disclosures. The literature largely supports the view that this model provides little information to financial statement users (e.g., Gray, Turner, Coram, & Mock, 2011; Lennox, Schmidt, & Thompson, 2019).

Recently, several standard setters, including the UK Financial Reporting Council (FRC), the International Auditing and Assurance Standards Board (IAASB), and the Public Company Accounting Oversight Board (PCAOB), released revised auditor reporting standards, which expand the auditor report by requiring more client-specific information (FRC, 2013a; IAASB, 2015; PCAOB, 2017). For instance, ISA 700 (UK and Ireland) requires auditors to disclose and describe the risks of material misstatement that had the greatest effect on the audit—key audit matters (KAM).[1] The FRC's requirements aim to increase the communicative value of auditor reports for financial statement users, by providing greater insight into financial reporting risks, and thus to reduce information asymmetries (FRC, 2013b). These theoretical arguments may seem convincing. Yet empirical archival evidence supporting them is scarce.

In this paper, we examine the communicative value of extended auditor reports in the UK. Auditor reports have communicative value when they contain useful information that can be processed by *different* financial statement users. In this vein, communicative value is apparent if the information provided by the creator is received by the user (Smith & Smith, 1971). This

[1] ISA 700 applies to all premium listed companies and is effective for audits of financial statements for periods commencing on or after October 1, 2012. The FRC's requirements in ISA 700 and ISA 701 resemble those of the IAASB in ISA 701 (IAASB, 2015) and those of the PCAOB in audit reporting standard (AS) 3101 (PCAOB, 2017).

broad definition of our construct is consistent with the evidence in recent papers examining the economic consequences of extended auditor reports beyond equity markets.[2]

We use several measures to examine the communicative value of auditor reports and KAM sections,[3] including (1) readability, (2) evaluative content, (3) number of visual aids, and (4) specificity.[4] A major motivation to focus on textual characteristics is that overseeing bodies, standard setters and regulators have explicitly emphasized the importance of language used in extended auditor reports. For instance, the PCAOB expects "the auditor's communication of critical [key]audit matters in the auditor's report would be presented in language and in a format that is clear, concise, and understandable to a financial statement user" (PCAOB, No. 2013-005, p. A5–35).[5] Thus, the textual assessment of UK extended auditor reports helps us to understand whether the intended outcome (i.e., enhancing the communicative value) has been achieved.[6]

A growing body of research uses textual analysis to examine qualitative characteristics of corporate reports, conference call transcripts and earnings press releases, among others. However, evidence on the corpus "extended auditor report" is still limited. ISA 700 is a significant change to the prior reporting practice, likely to cause major challenges for auditors. Hence, extended auditor reports are likely to vary in readability, evaluative content, use of visual elements, and specificity in the beginning and over time.

Prior research based on pre-ISA 700 periods finds that auditor reports are inherently difficult to understand, due to low levels of readability. More readable auditor reports around the implementation of ISA 700 are likely to make the information more accessible to financial

[2] For instance, Porumb et al. (2021) provide evidence that extended auditor reports contain useful information for lenders in loan contracting.
[3] Smith (2019) uses communication value as a construct and examines similar textual attributes (i.e., readability and tone) of extended auditor reports as in our study. Zeng et al. (2021) find that textual attributes such as readability and length of KAM reporting are related to audit quality and infer that communicative value of KAM has improved.
[4] All measures are described in the Appendix.
[5] Similar statements can be found in ISA 701.A34.
[6] ISA 701.2 notes that "the purpose of communicating key audit matters is to enhance the communicative value of the auditor's report by providing greater transparency about the audit that was performed".

statement users (e.g., Campbell, Chen, Dhaliwal, Lu, & Steele, 2014; De Franco, Hope, Vyas, & Zhou, 2015; Loughran & McDonald, 2014), and thus increase communicative value.

Prior papers also apply word lists to the corpus of interest to capture content-related attributes of business communication (Henry, 2008; Loughran & McDonald, 2011). We argue that auditors' assessment of the most significant risks of material misstatement will particularly share common sentiments (i.e., the use of uncertain and negative words), which suggests that extended auditor reports do not include boilerplate language only and instead capture the level of risk-related content (i.e., evaluative content). This in turn can enhance financial statement users' understanding of the audit process and thus processing of relevant information.

Further, document structure and composition, that is, the presence of visual materials (i.e., number of visual aids) is likely to enhance the ability of the reader to understand and process the intended message in the extended auditor report (e.g., Beattie & Jones, 1992; Loughran & McDonald, 2016), thereby improving the communicative value.

Finally, following Hope, Hu, & Lu (2016), we introduce a measure to quantify the level of specificity of auditor risk disclosures in post-ISA 700 periods. Specificity is defined as a higher level of detail provided in the descriptions of the KAM, conditional on auditors' decision to disclose a particular risk. In particular, specificity is defined based on qualitative categories such as (a) names of persons, (b) names of locations, and (c) names of organizations, as well as quantitative categories expressed in (a) percentages, (b) money values, (c) times, and (d) dates.[7] The higher the value of specificity, the more precise the KAM are, and thus the more communicative value they provide.[8]

[7] Following Hope et al. (2016), we use the Stanford NER tool (version 3.8.0) by Finkel, Grenager, & Manning (2005) to extract specific words. NER is a powerful technique for understanding the semantics of plain text and has been found to produce near-human performance in financial disclosure processing.

[8] Computing specificity for the pre-ISA 700 auditor report is infeasible as it contains mainly boilerplate information. Using specificity for the entire auditor report in post-ISA 700 periods is also infeasible because the entire auditor

We use hand-collected auditor report data from all non-finance companies with premium listings of equity shares on the London and Irish stock exchanges. To test our hypotheses our empirical strategy is twofold. First, in an initial pre-post analysis, we examine how the communicative value of the auditor reports changed, due to the implementation of ISA 700.[9] In addition, we analyze how the communicative value of auditor reports (KAM sections) changes over the first three years of ISA 700 implementation, because the language of auditors is likely to evolve. Ex-ante auditors have incentives to improve their reporting over time (i.e., supply of auditor risk disclosures) if the information in auditor reports is perceived as useful by different financial statement users (i.e., demand for auditor risk disclosures). Empirical evidence on the development of different textual measures is scarce, and thus this analysis directly speaks to review initiatives of the FRC (FRC, 2015; FRC, 2016).

Second, we narrow the scope of our empirical analyses and examine capital market effects of auditor risk disclosures in the KAM sections. Concurrent studies in the UK setting do not find evidence that investors benefit from KAM reporting (e.g., Gutierrez, Minutti-Meza, Tatum, & Vulcheva, 2018; Lennox et al., 2019). Thus, even if we would find in our initial analyses that communicative value improves over time, ex-ante it is not clear whether our proxies for communicative value are informative to the specific group of equity investors. For instance, investors may simply not change their prior expectations that auditor reports have low readability, although actual readability might have improved with ISA 700 implementation. To

report would be significantly biased by 'specific words' in boilerplate sections (Kaya & Seebeck, 2018). See Figure 1 for an overview of our research approach and further explanation.

[9] An important benefit of our setting is that audit firms are less likely to apply ISA 700 with a reliance on standardized templates in the first year of implementation, suggesting that our identification strategy is powerful.

summarize, inferences about capital market reactions of extended auditor reports are limited and inconclusive.[10]

Our main findings are as follows. First, the three measures readability, evaluative content, and number of visual aids of auditor reports are significantly higher in the first year of post-ISA 700 implementation than in the year immediately before implementation. Consistent with Smith (2019), this initial pre-post finding supports the notion that the extended auditor report provides communicative value. Second, in line with the learning curve theory, we find that the communicative value of extended auditor reports (KAM sections) improves over the first three years of implementation. Our cross-sectional results suggest that this improvement is more pronounced for Big 4 audit firms and prestigious audit clients listed on the FTSE 100 Index. Further, the improvement is generally stronger in subsamples where auditors disclose a higher number of KAM relative to the industry median and when a going concern KAM is disclosed.

Third, broadly consistent with concurrent studies, we find no evidence that several proxies for communicative value of KAM are informative to equity investors. However, we find evidence that KAM with greater specificity are significantly and positively associated with higher abnormal trading volume and higher absolute cumulative abnormal returns around the financial statement release dates. The evidence is robust to the inclusion of other proxies for communicative value and several characteristics from prior studies such as the number of KAM and the length of the auditor report (KAM section). The results suggest that a higher specificity of KAM leads to greater investor attention and positive market reactions due to more precise information.

We make several contributions to the literature. First, we add to the auditing literature by expanding the use of text mining techniques to extended auditor reports. In this vein, our study

[10] However, experimental research suggests that extended auditor reports are useful to users (e.g., Brasel et al., 2016; Christensen et al., 2014; Gimbar et al., 2016).

explicitly addresses the call for more research on how KAM are worded (Bédard, Coram, Espahbodi, & Mock, 2016) and therefore should be of importance. For instance, Smith (2019) finds that textual measures such as readability and tone of auditor reports change in the first year of ISA 700 implementation. She also finds some evidence that the language of auditors evolves in the second year of implementation. Our study differs in that we examine multiple measures of communicative value for the *entire* auditor report as well as the *KAM* section and provide new cross-sectional evidence that the improvement of communicative value varies across audit firms and audit clients as well as KAM disclosure characteristics.

Second, we find that a higher level of specificity in KAM is positively and significantly associated with short-window capital market reactions. Thus, we provide evidence that KAM sections are incrementally informative for investors—beyond other available information sources—while concurrent studies fail to provide evidence of capital market consequences (e.g., Bédard, Gonthier-Besacier, & Schatt, 2019; Gutierrez et al., 2018; Lennox et al., 2019). The evidence suggests that it is important to apply new measures to the corpus "extended auditor report". For instance, compared to other attributes of the auditor risk disclosures such as readability, specificity appears to better reflect communicative value to equity investors.

Third, our results should matter to regulators and standard setters worldwide. For example, the IAASB is committed to ensuring the success of the revised reporting standards of ISA 701 by undertaking post-implementation reviews. Our findings suggest that auditors continue to improve communicative value of their reports over time and short-term market reactions are contingent on the content-specific description of KAM. The results of this study can contribute to the future improvement of reporting requirements.

2. Institutional Background and Hypothesis Development

2.1. Institutional Background

Recently, regulators and standard setters worldwide, including the FRC, IAASB, and PCAOB have extended their auditor reporting standards, requiring auditors to disclose company-specific information in the auditor report. In the UK, the FRC has issued ISA (UK and Ireland) 700 "The Independent Auditor's Report on Financial Statements" (Revised June 2013). According to ISA 700.19A auditors of firms with a premium listing of equity shares on the London Stock Exchange (LSE) Main Market for periods commencing on or after October 1, 2012 shall "describe those assessed risks of material misstatement that were identified by the auditor and which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team."[11] Following ISA 700.19B the new disclosures are not intended to qualify the auditor's opinion. Instead, KAM shall be described "so as to enable a financial statement user to understand their relevance in the context of the audit as a whole and not as discrete opinions on separate elements of the financial statements." ISA standards in the UK are subject to continuous revisions. On January 14, 2020 the FRC has released eight updated ISA including ISA 700 and 701, the standards that regulate extended auditor reporting in the UK. The new standards are more precise in how auditors shall determine KAM. The release indicates the relevance of ongoing improvement in extended auditor reporting.

2.2. Hypothesis Development

Methods from computational linguistics can help assess the extent to which financial statement users can assimilate the information in auditor reports. According to the "standard view of communication" information is sent from a sender (emissor) to a receiver (destination) using a medium (Shannon & Weaver, 1949). Communication occurs if the meanings intended by the

[11] ISA 700 also requires auditors to disclose materiality thresholds.

sender are assigned to the message by the receiver. We consider linguistic characteristics (i.e., readability, evaluative content, number of visual aids as well as specificity) to examine whether auditor reports (medium) convey communicative value to financial statement users.

Prior research based on pre-ISA 700 periods finds that auditor reports are inherently difficult to understand, due to low levels of readability (e.g., Pound, 1981). In addition, their language is standardized and generic. As a consequence, the linguistic characteristics of pre-ISA 700 auditor reports resemble those of law-related texts (i.e., unspecific, difficult to understand, and characterized by boilerplate), and preparers of financial statements expressed concerns that auditors might lack the expertise to provide accurate disclosures (Carver & Trinkle, 2017).

ISA 700 aims to improve the communicative value by making the reports less generic and requiring more firm-specific information (FRC, 2013a). This is a significant change to the prior reporting practice, likely to cause major challenges for auditors, as many of them may not have experience in preparing firm-specific reports. Hence, the linguistic characteristics of auditor risk disclosures are likely to vary in the beginning. For instance, by using traditional readability indices, Smith (2019) finds that the readability of the reports has improved, due to ISA 700, making the information more accessible to financial statement users.

However, opponents argue that inappropriate application of the new standards could result in extended boilerplate reporting. If audit firms rely on standardized templates for KAM disclosures, the communicative value of extended auditor reports would likely remain on a low level, as standardized phrases do not convey firm-specific information. Further, the new reporting requirements might result in higher litigation risk. To protect themselves, auditors may use unspecific and difficult to understand boilerplate reporting. Standard forms of presentation would also limit the use of firm and risk-specific visual aids which make auditor reports easier to read and more appealing. Finally, the FRC announced ISA 700 less than four months before the

effective date providing little preparation time for auditors in the first post-ISA 700 period. Due to these concerns, the effect of ISA 700 on communicative value of auditor reports remains unclear. Our first hypothesis, in alternative form is as follows.

H1: The communicative value of auditor reports is higher in the first year of post-ISA 700 implementation than in the pre-ISA 700 period.

Bédard et al. (2019) highlight that the implementation of extended auditor reporting can be viewed as a new procedure imposed on auditors. However, it remains unclear whether extended auditor reports improve over time or develop towards standardized texts. On the one hand, based on the learning curve theory, auditors are expected to learn from their experiences. The learning curve theory is widely used in management science (e.g., Argote, McEvily, & Reagans, 2003; Morrison, 2008; Wiersma, 2007), suggesting that knowledge can be learned by individuals and organizations over time. Ex-ante auditors have incentives to improve their reporting over time (i.e., supply of auditor risk disclosures) if the information in auditor reports is perceived as useful by different financial statement users (i.e., demand for auditor risk disclosures). For instance, Porumb et al. (2021) provide evidence that extended auditor reports contain useful information for lenders in loan contracting.

On the other hand, boilerplate language can arise because professional practice teams within audit firms may provide guidance on how certain KAM should be worded. In addition, it can arise because auditors can "mimick" peers' communication of the most significant risks of material misstatement, consistent with a learning channel (i.e., interfirm learning). If auditors use publicly available extended auditor reports of peer audit firms, then they plausibly learn about and mimic the wording, structure and content of KAM (Bernard, Kaya, & Wertz, 2021). In this vein, the development of linguistic characteristics in post-ISA 700 periods provides a unique setting to study the learning curve of auditors.

To summarize, even in the light of potential reasons for a development towards boilerplate reporting, auditors are likely to use their learned skills to improve reporting. As auditors become more familiar with firm-specific reporting, the communicative value is likely to increase over time. Therefore, our second hypothesis in alternative form is as follows.

H2: The communicative value of auditor reports (KAM sections) increases over time in post-ISA 700 periods.

According to prior disclosure literature, reports that contain less specific information are associated with less transparency (Brown & Tucker, 2011; Lang & Stice-Lawrence, 2015). Furthermore, less specific information is more difficult to handle for investors, who make trade-offs when analyzing and processing information (e.g., Bozanic, Roulstone, & Van Buskirk, 2018; Hirshleifer & Teoh, 2003). Consequently, investors find it difficult to extract useful information from extended auditor reports, when risk disclosures consist of boilerplate information (Lennox et al., 2019). Yet there is also evidence that greater specificity in management risk disclosures can significantly improve investors' ability to analyze and verify information, and thus improve their decision-making (e.g., Campbell et al., 2014; Hope et al., 2016). For instance, Hope et al. (2016) find that more specific risk-factor disclosures benefit users of financial statements, that is, capital market reactions to specific risk disclosures in 10-K filings are positively and significantly associated.

We apply this intuition to our setting. ISA 700 leaves it to the audit firm and audit partner's professional judgment to determine the level of detail disclosed in the KAM description. Higher specificity of KAM might lead to greater assimilation of the information, which is likely to facilitate the incorporation of information into stock prices, resulting in stronger market reactions. This prediction follows support theory from psychology (e.g., Tversky & Koehler, 1994), which has been applied to different settings in auditing. Support theory suggests that individuals do not

assess the probability of an event directly but the separate pieces of evidence and details describing that event. Thus, higher specificity in describing the KAM can result in higher investor expectations that the described risks occur, suggesting the disclosed information is more accurate and more verifiable ex post.

On the other hand, firms disclose key risks via different information channels, such as annual reports, conference calls and ad hoc disclosures. Thus, investors may find that auditor risk disclosures do not add useful information, suggesting that the disclosures are redundant and not incrementally informative. Further, investors may perceive audit risk disclosures as not informative because auditors conduct a variety of procedures during the audit to reduce the assessed risks of material misstatement to an acceptable level (Lennox et al., 2019). Moreover, several concurrent empirical archival studies fail to provide evidence for capital market reactions of extended auditor reports (e.g., Gutierrez et al., 2018; Lennox et al., 2019). For instance, Gutierrez et al. (2018) find that the capital market reacts to neither the length of extended auditor reports nor the length of KAM sections nor the number of KAM reported. Notwithstanding the higher source credibility of auditor reports over management disclosures, concurrent studies infer from failing to provide evidence that the information contained in KAM is not incrementally informative to investors, suggesting "investors were already informed about the risks before the risks were disclosed by the auditor" (Lennox et al., 2019). Prior literature also documents inattention of investors which is confirmed by statements in the FRC review that publication of financial statements do not move the market (FRC, 2017). Thus, it is unclear whether investors perceive specific auditor risk disclosures as incrementally informative. However, given the evidence in related areas of investors' response to specific firm risk disclosures (Hope et al., 2016), we state our third hypothesis in alternative form, as follows.

H3: The level of specificity in KAM sections is positively associated with capital market reactions.

3. Sample, Communicative Value Measures, and Research Design

3.1. Sample

To create our sample, we start with the list of companies with a premium listing on the London Stock Exchange (LSE) as of August 31, 2016. We exclude non-UK companies whose auditor reports are not subject to ISA 700 reporting standards, those with reports showing file security issues, and financial institutions and investment funds. These procedures result in 1,393 firm-year observations for 389 unique firms.

The regulatory cut-off date results in two groups: pre-ISA 700 auditor reports (year commencing before October 1, 2012) and post-ISA 700 auditor reports. Table 1 presents a detailed sample selection and distribution. Out of the 1,393 auditor reports in our sample, 328 belong to the pre-ISA 700 period, 350 to the first year, 362 to the second year, and 353 to the third year of the post-ISA 700 reporting period. For our multivariate analyses, we further require firm-year observations to have non-missing financial data for all control variables available on Datastream. This results in a final sample of 534 firm-year observations for the pre-post analysis (Hypothesis 1), 733 firm-year observations for the time-series analysis of post-ISA filings (Hypothesis 2), and 661 (664) observations for the analysis of capital market effects of the three-day abnormal trading volumes (abnormal returns) around the filing date (Hypothesis 3).[12]

- Table 1 -

[12] Our results for Hypotheses 1 and 2 remain robust when using balanced samples.

The PDF annual reports of the LSE premium listed firms, which include the auditor reports, are hand-collected from investor relations websites.[13] We manually extract the KAM section, the auditor as well as the financial statement and report date. We further manually count the number of visual aids contained in each auditor report. We then convert all PDF documents to text files, which allows for automated processing using common parsing and text-mining techniques.

3.2. Communicative Value Measures

Based on prior accounting and auditing literature, we identify different methods from computational linguistics that provide information about the communicative value of auditor reports (KAM sections), including readability, evaluative content, number of visual aids, and specificity.[14] In the following, we explain our motivation to examine these measures and point out how they convey communicative value to financial statement users.[15]

Readability

According to ISA 701.A34 (Revised 2016) the auditor is required to provide useful information in an understandable form to enable users to access the information. Higher readability can help intended users to better understand the basis for auditors' focus on particular matters during the audit. For instance, limiting the use of highly technical and complex words results in higher readability. Prior accounting literature also identifies readability as an important measure for communication (e.g., De Franco et al., 2015; Li, 2008; Loughran & McDonald,

[13] To separate the auditor reports from the annual reports, we cut documents straight after the date of the opinion. This approach excludes footnotes to the auditor report. Within the KAM sections we manually extract the risk descriptions.

[14] We use Python natural language processing package and StyleWriter 4 to measure readability and the text-mining software RapidMiner to measure text length and evaluative content. Visual aids are counted manually. Specificity is measured based on the Stanford NER tool.

[15] In the multivariate regression analysis, we use percentile rankings in place of interval measures for the linguistic characteristics, as they are easier to interpret and do not require monotonic association between linguistic measures and the independent variables (Loughran & McDonald, 2014). Furthermore, the use of percentiles allows us to aggregate different linguistic characteristics. In additional analyses, we use interval measures instead of percentile rankings for the communicative value variables. We continue to find similar results.

2014; Smith, 2019). We argue that higher readability of auditor reports (KAM sections) results in less time needed to process the information.

Readability scores, such as the Gunning-Fog Index (FOG), the Flesch Reading Ease score (FLESCH), and the Flesch-Kincaid Grade Level Index (KINCAID),[16] have been widely used in accounting research (e.g., De Franco et al., 2015; Lawrence, 2013; Li, 2008; Rennekamp, 2012; Twedt & Rees, 2012). However, literature also notes that these measures have weaknesses (e.g., Loughran & McDonald, 2014). Therefore, in additional analyses, we apply an advanced measure of readability, which has been recently used in disclosure literature by Bonsall, Leone, Miller, & Rennekamp (2017)—the BOG Index (BOG). BOG is calculated using a pre-programmed algorithm, based on a more comprehensive set of factors, capturing attributes specifically measured in the SEC Plain English Handbook, such as sentence length, passive voice, weak verbs, overused words, complex words, and jargon (SEC, 1998).[17] In our analyses, we consider each readability index individually as well as an aggregate measure (READABILITY). To construct the aggregate measure, we compute percentile ranks for each index and then average the values.[18]

Evaluative content

Since the auditor report is the auditor's primary means of communication with financial statement users, the use of appropriate words in the report and how information is written are likely to influence users. Prior papers apply word lists to the corpus of interest to capture content-related attributes of business communication (Henry, 2008; Loughran & McDonald, 2011;

[16] All measures are described in the Appendix. Lower values of FOG and KINCAID indicate better readability. FLESCH values are allocated on a scale of 1 to 100, where higher values indicate better readability.

[17] BOG is computed as the sum of three components: BOG Index = Sentence Bog + Word Bog – Pep. *Sentence Bog* measures readability issues resulting from sentence length, whereas *Word Bog* identifies readability issues stemming from plain-English style problems and word difficulty, which is determined based on a proprietary list of 200,000 complex words, rather than on the number of syllables in the words. In contrast, Pep identifies linguistic attributes that facilitate readability. Lower BOG values indicate more readable texts (Bonsall et al., 2017; Wright, 2009).

[18] Our results remain qualitatively the same when using principal component analysis for aggregation.

Seebeck & Vetter, 2021; Smith, 2019). We argue that the sentiment of auditor reports is likely to change with the implementation of ISA 700. Auditors' evaluation regarding the most significant risks of material misstatement will be particularly reflected by uncertain and negative words, which suggests that extended auditor reports do not include boilerplate language only and instead capture risk-related content (i.e., measure evaluative content). This in turn can enhance financial statement users' understanding of the audit process and thus processing of relevant risk information.

Following the bag-of-words model, we use financial word dictionaries developed by Loughran & McDonald (2011). We focus on negative, positive, and uncertainty words in the auditor reports (KAM sections) resulting in three variables: frequency of positive words (REL_POS), frequency of negative words (REL_NEG), and frequency of uncertainty words (REL_UNCERT).[19] We calculate the variables by dividing the number of words in each category by the total number of words in the text.[20]

Visual aids

According to the ICAEW (2017), visual aids can make auditor reports more insightful and more accessible for financial statement users, since they can reduce the time and effort required to process information. A well-known saying, "A picture is worth a thousand words," emphasizes the value and efficiency of visual communication. While prior literature often focuses on textual characteristics of qualitative information, Loughran & McDonald (2016) note that future studies should also explicitly consider document structure and composition, that is, the presentation of pictures, graphs, and tables. The presence of visual materials (i.e., number of visual aids) is likely

[19] See https://sraf.nd.edu/textual-analysis/resources/#LM%20Sentiment%20Word%20Lists, accessed 19.06.2021.
[20] We use the frequency of content words (REL_CONT) as an alternative proxy. In linguistics, content words name objects and their qualities, including mainly nouns as well as certain verbs, adjectives, and adverbs. Content words transport the information of a sentence. The calculation of REL_CONT resembles the calculation of word frequency described above. We separate content words from function words, such as pronouns, conjunctions, prepositions, and auxiliary verbs, by using a "filter stopwords" operator. Our results remain qualitatively the same.

to enhance the ability of the reader to understand and process the information. Visual aids can simplify information and data, facilitate comparisons between disclosures, and help users to conceptualize and remember relationships. Along with auditors' writing style, visual aids (VISUAL) highlight important aspects graphically and often convey incremental information to users (Beattie & Jones, 1992; SEC, 1998). Hence, examining the use of visual aids allows us to provide evidence on whether ISA 700 meets its objectives to increase communicative value. To construct the measure VISUAL, we manually count the number of visual aids (tables, graphics) used in the auditor report (KAM section).

Specificity

According to ISA 701.16-2, the explanations of the matters required to be set out in the auditor report shall be described "in a way that enables them to be related directly to the specific circumstances of the entity and are not, therefore, generic or abstract matters expressed in standardized language."

Hope et al. (2016) introduce a computing algorithm that measures the specificity of firm risk-factor disclosures based on seven dimensions. The premise is that more specific disclosure implies greater informative content, and thus greater communicative value. They find that more specific risk-factor disclosure benefits users of financial statements. We use a similar approach to examine whether the specificity of risk descriptions in the KAM sections is associated with capital market reactions. For each of the seven dimensions of specificity, we create a dummy variable on KAM level, which equals one if the risk description contains at least one specific information in the relevant dimensions and zero otherwise. For instance, if a KAM contains the name of a person, a money value and a date specification, three of the seven categories equal one and the remaining four categories equal zero. Accordingly, the specificity of the KAM is 3/7

(42.9%). We compute the mean specificity on report level (SPECIFICITY) by averaging the results for each KAM description contained in the report.[21]

3.3. Research Methodology

Pre-post analysis (Hypothesis 1)

We apply the following multivariate regression model presented in Eq. 1 to the subsample of the last year pre-ISA 700 and the first year post-ISA 700 observations presented in Table 1 Panel B to examine whether there is a change in communicative value of auditor reports.

$$\begin{aligned} COMMVAL = {} & \beta_0 + \beta_1 \mathbf{NEWOPINION}_{i,t} + \beta_2 \mathrm{SIZE}_{i,t} + \beta_3 \mathrm{ROA}_{i,t} + \beta_4 \mathrm{MB}_{i,t} + \beta_5 \mathrm{LEV}_{i,t} + \beta_6 \mathrm{MOWN}_{i,t} \\ & + \beta_7 \mathrm{LOSS}_{i,t} + \beta_8 \mathrm{CFO}_{i,t} + \beta_9 \mathrm{USLIST}_{i,t} + \beta_{10} \mathrm{DELAY}_{i,t} + \beta_{11} \mathrm{BIGN}_{i,t} + \beta_{12} \mathrm{CHAUD}_{i,t} \\ & + \beta_{13} \mathrm{EXPERT}_{i,t} + \beta_{14} \mathrm{BUSY}_{i,t} + \beta_{15} \mathrm{LENGTH}_{i,t} + \mathrm{IndustryFE} + \varepsilon \end{aligned} \quad (1)$$

By focusing strictly on reports issued around the one-year period ISA 700 was mandated, we can examine the merits of the new disclosure requirements on the communicative value. Our variable of interest is NEWOPINION, which is an indicator variable that equals one if the auditor report was issued under new ISA 700 requirements and zero otherwise. We expect a significant and positive coefficient for ß$_1$, suggesting that the communicative value is higher for post-ISA 700 reports.

The dependent variable in this regression is communicative value (COMMVAL), measured by readability, evaluative content, and visual aids. Specificity is not included in the pre-post analysis, as we cannot compute the specificity for pre-ISA 700 periods, due to missing KAM sections. See Figure 1 for an overview of our research approach and further explanation.

The linguistic characteristics of auditor reports are likely to be a function of variables that measure characteristics at the firm and the auditor level. In line with Gutierrez et al. (2018), we include the following control variables in our multivariate regression model: firm size (SIZE),

[21] For instance, for a KAM section that contains two KAM, one with a specificity of 3/7 and the other with 5/7, the mean specificity is 4/7 (57.1%). Auditor and client names as well as financial statement dates are not considered.

profitability (ROA), occurrence of a loss (LOSS), market-to-book ratio (MB), leverage (LEV), cash flow from operations (CFO), cross listing in the US (USLIST), an indicator variable that equals one if fiscal year-end is between December and March and zero otherwise (BUSY), and Big 4 audit firm (BIGN). We control for concentration of ownership of outstanding shares using an indicator variable that equals 'one' if the majority of shares is held by major shareholders, and 'zero' otherwise (MOWN) (Lennox et al., 2019). Our list of control variables further includes the following variables: the number of calendar days between a firm's fiscal year-end and auditor report date (DELAY), the change in auditor (CHAUD) (Bédard et al., 2019) as well as industry expertise of the auditor (EXPERT) (Francis, Reichelt, & Wang, 2005). Finally, we expect that text length influences our communicative value measures.[22] Hence, we consider the length of auditor reports ($LENGTH_{AR}$),[23] measured as the natural logarithm of total word count (Hope et al., 2016), as a control variable. Industry fixed effects are included (Smith, 2019).[24]

Ex-ante the relations between firm-specific controls and the tested outcomes remain often unclear. For instance, major investors (MOWN) may request more precise information and question auditor risks more critically, likely resulting in more extensive reporting. On the other hand, they may have better access to alternative information sources. As another example, firms with high market-to-book (MB) ratios are likely being overvalued. On the opposite, high MB ratios could indicate that the company has healthy future profit projections.

Time-series analysis (Hypothesis 2)

The regression model presented in Eq. 2 examines the development of the communicative value over the first three years of post-ISA 700 reporting. We apply the model to the subsample

[22] The increase in length due to implementation of ISA 700 is simply mechanical given that ISA 700 extends the required reporting elements of auditors (e.g., Gutierrez et al., 2018; Lennox et al., 2019). We also use file size as an alternative measure for text length (e.g., Loughran & McDonald, 2014). Our results remain qualitatively unchanged.
[23] For KAM sections, we use the natural logarithm of total word count of KAM sections ($LENGTH_{KAM}$).
[24] In additional analyses, we replace the BIGN variable with auditor fixed effects. We also use firm fixed effects instead of industry fixed effects. Our results remain qualitatively similar.

of post-ISA 700 observations presented in Table 1 Panel C, to test Hypothesis 2. The dependent variable in this regression is communicative value (COMMVAL), measured by readability, evaluative content, and visual aids for the analysis of the development of the entire auditor report over time. For KAM sections, we also include specificity. Using specificity for the entire auditor report in post-ISA 700 periods is infeasible because the report would be significantly biased by 'specific words' contained in many boilerplate parts (see for further explanation Figure 1).

$$\begin{aligned} COMMVAL = {} & \beta_0 + \beta_1 \textbf{TIMESREP}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{ROA}_{i,t} + \beta_4 \text{MB}_{i,t} + \beta_5 \text{LEV}_{i,t} + \beta_6 \text{MOWN}_{i,t} + \beta_7 \text{LOSS}_{i,t} \\ & + \beta_8 \text{CFO}_{i,t} + \beta_9 \text{USLIST}_{i,t} + \beta_{10} \text{DELAY}_{i,t} + \beta_{11} \text{BIGN}_{i,t} + \beta_{12} \text{CHAUD}_{i,t} + \beta_{13} \text{EXPERT}_{i,t} \\ & + \beta_{14} \text{BUSY}_{i,t} + \beta_{15} \text{LENGTH}_{i,t} + \text{IndustryFE} + \varepsilon \end{aligned} \quad (2)$$

Our variable of interest is TIMESREP, which is a categorical variable with the possible values 1, 2, or 3, reflecting the number of times an extended auditor report has been issued under new ISA 700 requirements. The dependent and control variables are the same as in Eq. 1. We expect a significant and positive coefficient for ß1, suggesting that the communicative value of post-ISA 700 reports increases over time, consistent with learning theory.

Capital market reactions (Hypothesis 3)

Hypothesis 3 predicts that the specificity of KAM is positively related to capital market reactions. We apply a fixed effects regression model to mitigate the effect of time-invariant firm characteristics.[25]

$$\begin{aligned} REACTION = {} & \beta_0 + \beta_1 \textbf{SPECIFICITY}_{i,t} + \beta_2 \text{REPORT\_DISCL}_{i,t} + \beta_3 \text{SIZE}_{i,t} + \beta_4 \text{ROA}_{i,t} \\ & + \beta_5 \text{MB}_{i,t} + \beta_6 \text{LEV}_{i,t} + \beta_7 \text{CHNI}_{i,t} + \beta_8 \text{STDRET}_{i,t} + \beta_9 \text{INCORP}_{i,t} + \beta_{10} \text{DELAY}_{i,t} \\ & + \beta_{11} \text{BIGN}_{i,t} + \text{FirmFE} + \text{TimeFE} + \varepsilon \end{aligned} \quad (3)$$

In our regression models, t-statistics are calculated using standard errors clustered at the firm level. We winsorize all continuous variables at the 1% and 99% levels, to mitigate the effects of outliers.

[25] In robustness analyses, we also include auditor fixed effects. Our results remain qualitatively the same.

The dependent variable is the reaction of the capital markets (REACTION), using two different proxies. First, in line with Gutierrez et al. (2018), we proxy for investors' reactions by examining the sum of the three-day abnormal trading volume around the report filing date (ABVOL). Second, following prior disclosure literature (e.g., Brown & Tucker, 2011; Hope et al., 2016), we examine the absolute value of the three-day abnormal returns around the filing date of the annual report (|CAR|).[26]

Following Gutierrez et al. (2018), we consider REPORT_DISCL in our regression model which is one of the following independent variables: natural logarithm of the total number of words in the auditor report ($LENGTH_{AR}$), natural logarithm of the total number of words in the KAM section ($LENGTH_{KAM}$), number of KAM disclosed in the auditor report (KAM_{no}), readability (READABILITY), evaluative content (EVAL_CONT), and number of visual aids (VISUAL). In addition, we add several control variables based on concurrent studies (e.g., Bédard et al., 2019; Gutierrez et al., 2018), such as the change in net income (CHNI), the standard deviation of daily stock returns (STDRET), the number of years since incorporation (INCORP), the time between a firm's fiscal year-end and auditor report date (DELAY), and an indicator variable for Big 4 auditors (BIGN).[27]

4. Empirical Results

4.1. Descriptive Statistics

Table 2 presents descriptive statistics for the variables used in our empirical analyses, separated by entire auditor report (Panel A) and KAM section (Panel B). By research design,

[26] We note that the date of completion of the auditor reports often do not coincide with the filing dates, when reports become publicly available (e.g., Gutierrez et al., 2018). We focus on short-window capital market reactions around the *filing date* as provided by Thomson Reuters database as well as the London Stock Exchange website.

[27] In additional analyses (results are untabulated), we rerun Eq. 3 with largely the same control variables as in Gutierrez et al. (2018). Our results remain qualitatively the same. Further, the results hold when running a slightly amended regression model as used in Lennox et al. (2019). However, due to data limitations, we were unable to collect reliable information about the variables total number of subsidiaries and accounting problem. Given these limitations we note that the results of this analysis should be interpreted with caution.

about three-fourths of the sample observations belong to post-ISA periods and one-fourth to the year immediately before implementation of ISA 700. Nearly 92% of the annual reports are audited by Big 4 auditors. About 5% of the firms are cross-listed in the US. The mean length of an auditor report is 2,314 words, thereof 1,050 words belonging to the KAM section. Auditors use on average 1.245 visual aids per report. The mean KAM section contains 3.797 KAM. We further note that the average readability of both auditor reports and KAM sections is relatively low, compared to other business texts.[28]

- Table 2 -

Table 3 presents a test of overall differences in means of linguistic measures, one year before and three years after implementation of ISA 700 for both entire auditor reports and KAM sections. The results for auditor reports show that the mean of linguistic characteristics is higher in the first year of post-ISA 700 reporting than in the year immediately beforehand. The results presented in the third and fourth column also show that the increase in communicative value continues in the second year of post-ISA 700 reporting but stagnates in the third year. For a few linguistic measures mean differences remain statistically significant (e.g., FOG, VISUAL), but often the difference between the second and third year of post-ISA 700 implementation is statistically not significant. We observe similar patterns when examining the KAM sections only. The results show statistically significant mean differences for most linguistic measures before and after (first year) ISA 700. However, we find that mean differences are generally not statistically significant when we compare the third year with the second year of post-ISA 700 periods.

- Table 3 -

[28] For instance, 10-K filings between 2003 to 2011 show a FOG of 18.94 (Loughran & McDonald, 2014), *Wall Street Journal* articles show a FOG of 19.39 (Li, 2008), and analyst reports show a FOG of 18.71 (De Franco et al., 2015).

In additional analyses (untabulated), we examine the convergence of auditor risk disclosures over time. The mean differences for the change in evaluative content (REL_NEG_change, REL_POS_change, and REL_UNCERT_change) are negative and statistically significant in the second and third year of post-ISA 700 reporting. This suggests that the reports converge.

4.2. Correlations

Table 4 Panel A reports the Pearson correlations between the linguistic characteristics used as dependent variables in our multivariate regression analysis for the KAM sections. The correlations range between 0.006 (between EVAL_CONT and SPECIFICITY) and 0.574 (between READABILITY and VISUAL). Table 4 Panel B presents the Pearson correlations between the dependent variables and independent variables used in Eq. 2 for the KAM sections. The coefficients indicate no potential biases resulting from multicollinearity. We conduct additional variance inflation factor (VIF) collinearity tests for each multivariate regression equation. The mean VIFs are 2.35 for the pre-post regression analysis and 2.01 for the time-series analysis (results are untabulated).

- Table 4 -

4.3. Multivariate Results

H1: Pre-Post comparison

Table 5 shows coefficients and t-statistics for our pre-post analysis conducted to test Hypothesis 1. The dependent variable is the linguistic characteristic, as displayed in the column heading. We base our regression on a subsample covering all auditor reports immediately before and after (first year) ISA 700 implementation. Consistent with Hypothesis 1, we find that our variable of interest NEWOPINION is positive and statistically significant ($p<0.01$) in all specifications. This indicates that the communicative value of auditor reports is higher in the post

period. The result is robust using different linguistic measures, such as readability, evaluative content, and visual aids. Consistent with prior studies (e.g., Smith, 2019), firm and auditor controls are generally not significant. For instance, the results indicate that the change of the auditor (CHAUD) does not influence our measures. However, the length of the auditor report ($LENGTH_{AR}$) is positively and significantly related to all communicative value measures.

- Table 5 -

H2: Learning Curve

Table 6 Panel A documents the results for the time-series analysis of extended auditor reports. Hypothesis 2 suggests an increase in communicative value over post-ISA 700 reporting periods. Controlling for firm and auditor characteristics as well as for the length of auditor reports, we find a positive and statistically significant coefficient ($p<0.01$) for TIMESREP in all specifications. Thus, auditors learn from their experiences with ISA 700 reporting and improve the communicative value of their reports. For two of our communicative value measures (i.e., readability and visual aids), the coefficient of Big 4 auditors (BIGN) is positive and significant.

Table 6 Panel B presents the results of the multivariate analysis of the KAM sections. The results are generally consistent with the results presented in Panel A, and with the notion that there is an increase in communicative value of KAM sections over post-ISA 700 reporting periods. The coefficient of TIMESREP is positive and statistically significant for all four measures ($p<0.01$ for readability, evaluative content, and specificity; $p<0.1$ for visual aids). The results with respect to specificity (SPECIFICITY) suggest that auditors provide more precise risk disclosures in KAM sections over time.

- Table 6 -

4.4. Cross-sectional Results

In this section, we examine four sources of cross-sectional heterogeneity. Audit firms are likely to provide training and guidance for their statutory auditors on how to prepare extended auditor reports. In addition, inter-organizational exchange of experiences between auditors as well as exchange with standard setters comparing and commenting on reporting practices, such as the FRC's review initiatives (FRC, 2015, 2016), are likely to support the learning mechanism. We expect Big 4 audit firms to have more intra-company training, greater resources and exchange of experiences in professional organizations resulting in cross-sectional variation in the improvement of communicative value measures of auditor reports (KAM sections) among different audit firms.

Table 7 shows that the improvement in communicative value measures over time is generally more pronounced for auditor reports (Panel A) and KAM sections (Panel B) issued by Big 4 auditors than by non-Big 4 auditors. We include the full set of control firms in both splits. For instance, for KAM sections, the results show that the coefficient of TIMESREP for the measures READABILITY and SPECIFICITY is positive and significant for BIGN auditors ($p<0.01$), while insignificant for non-BIGN auditors. The comparison of regression coefficients across subsamples often shows a significant difference. Our findings are consistent with the assumption that Big 4 firms have more professional training and greater resources fostering the learning effect.[29]

Moreover, FTSE 100 firms are the most renowned firms in our sample and prestigious clients for audit firms. Their media coverage is higher than for non-FTSE 100 firms (Kaya & Seebeck, 2019), resulting in higher public visibility of the auditor reports as well. High quality auditor

[29] We note that a high proportion of both FTSE 100 firms (96.4%) and non-FTSE 100 firms (92.8%) in the sample are audited by Big4 auditors. The correlation coefficient between BIGN and FTSE 100 client is 0.1927 ($p<0.01$), suggesting that FTSE and BIGN sample splits are likely not capturing the same construct.

reports of FTSE 100 clients can serve as best practice within and across audit firms. For instance, in the UK, the Investment Association awarded auditor reports of FTSE 100 clients.[30] Thus, a signaling effect can result from extended auditor reports of prestigious FTSE 100 clients (e.g., Brasel et al., 2016). Therefore, we expect the improvement of communicative value measures of auditor reports (KAM sections) in post-ISA 700 periods to be more pronounced for FTSE 100 clients than for non-FTSE 100 clients.

The results in Table 7 support this prediction. As shown in Panel A, readability, evaluative content, and visual aids of FTSE 100 auditor reports significantly increase over time ($p<0.01$), while they do not show significant improvements for non-FTSE 100 firms (except for visual aids, $p<0.05$). Panel B provides similar results for the KAM sections. While the textual characteristics including specificity significantly increase over time, their improvement is insignificant for non-FTSE 100 clients (except for readability, $p<0.01$).

Next, we examine cross-sectional variation in KAM disclosure characteristics. We expect that audit effort and costs are likely to vary with the number of KAM. For instance, the time and effort incurred to prepare auditor reports and discuss accounting issues with the audit committee are increasing with the number of KAM (e.g., Bernard, Burgstahler, & Kaya, 2018). Auditors who report a higher number of KAM compared to the median of the industry are likely to put a stronger emphasis on KAM reporting, suggesting they attempt to improve communicative value over time. The results in Table 7 Panel A and B show that in both subsamples the coefficient for TIMESREP is often positive and significant. However, there is a significant difference in the coefficient size across subsamples. The effect is stronger in the subsample where auditors disclose a higher number of KAM relative to the median of the industry.

[30] See https://www.theia.org/media/press-releases/investment-association-announces-winners-its-second-auditor-reporting-awards, accessed 19.06.2021.

Finally, we examine whether communicative value measures differ over time when auditors disclose a going concern KAM. The intuition is that auditors may be under greater regulatory and public scrutiny and face higher litigation risk when disclosing a going concern KAM. Such attention is likely to influence communicative value measures. However, ex-ante the directional effect is unclear. For instance, auditors who disclose a going concern KAM may use unspecific and difficult to understand boilerplate reporting to protect themselves from higher litigation risk. We create a subsample based on whether a going concern KAM was reported at least once for a firm in the first three years after implementation of ISA 700. The results in Table 7 Panel A and B show that in both subsamples the coefficient for TIMESREP is positive and significant. However, there is a significant difference in the coefficient size across subsamples; the effect is generally stronger in the subsample where auditors disclose a going concern KAM.

- Table 7 -

4.5. Capital Market Reactions

Next, we test Hypothesis 3 and apply a firm fixed effects regression model on our sample of post-ISA 700 auditor reports, controlling for numerous variables used in the literature. We follow Hope et al. (2016) and study the level of specificity of KAM disclosure (SPECIFICITY). Auditor risk disclosures are likely to be informative to investors if auditors provide specific disclosures. Our main prediction is that more specific information implies greater communicative value, which is likely to lead to investor attention and facilitate the incorporation of information into stock prices.

Table 8 Panel A presents the results for the three-day abnormal trading volume around the filing date and Panel B for the absolute value of three-day abnormal returns around the filing date. In Panel A, the coefficients for SPECIFICITY are positive and statistically significant

($p<0.01$), which suggests that investors find specific auditor risk disclosures incrementally informative (Hypothesis 3). When we stepwise include any of the remaining measures for communicative value as well as certain characteristics of extended auditor reports from concurrent studies (i.e., number of KAM (KAM_{no}), length of the auditor report ($LENGTH_{AR}$), and length of the KAM section ($LENGTH_{KAM}$)), we find that the significant results on SPECIFICITY hold. However, we do not find that other measures for communicative value (i.e., readability, evaluative content, visual aids) are associated with significant capital market reactions. With respect to control variables, we find that the coefficients of BIGN and INCORP are positive and significant (BIGN, $p<0.05$; INCORP, $p<0.01$). In Panel B, results are similar: while the coefficient of SPECIFICITY is positive and statistically significant in all specifications, we do not find that other measures for communicative value are associated with abnormal returns three days around the filing date.[31]

- Table 8 -

In additional analyses (untabulated), we examine which components of specificity (quantitative vs. qualitative categories) are more informative to investors. Consistent with Hope et al. (2016), we find that the coefficient of specificity of *quantitative* components (i.e., money, percentage, date, and time) is positive and significant ($p<0.05$), for both ABVOL and |CAR|, while the coefficient of *qualitative* components (i.e., names of persons, locations, and organizations) is statistically not significant. Thus, for investors quantitative auditor risk disclosures seem to be more important than qualitative ones. Overall, the evidence is consistent with theoretical research which suggests that numerical disclosures convey more precise and

[31] A higher specificity of KAM is only useful for investors if the risk disclosed actually reflects a major risk faced by the firm. In additional analyses (untabulated), we provide evidence that KAM meaningfully reflect the risks firms face, which comports with the findings of Lennox et al. (2019).

easier to verify information than disclosures with more qualitative information (Liberti & Petersen, 2017).

4.6. Further Discussion of Results

The empirical analyses for testing Hypotheses 1 and 2 suggest that all four proxies for communicative value improve around ISA 700 implementation and over time. However, when we narrow the scope of our empirical analysis to investor reactions in Hypothesis 3, we only find some evidence that specificity of auditor-risk disclosures is associated with significant capital market reactions.

One potential explanation for the insignificant market response tests for the measure readability is that investors may find less readable KAM sections difficult to process which will reduce the ability of investors to incorporate information into stock prices (You & Zhang, 2009). Table 3 shows that in the immediate year prior to ISA 700 implementation the FOG value of auditor reports is around 30 (i.e., less readable auditor reports). Thus, investors as message recipients may simply not change their prior expectations and judgements with respect to perceived readability, although actual readability of auditor reports (KAM sections) has improved with ISA 700 implementation (see Table 3). Further, auditor reports became substantially longer due to ISA 700 implementation (e.g., Gutierrez et al., 2018; Lennox et al., 2019) and prior research finds that longer annual reports are more difficult to process (Li, 2008).

One potential explanation for the insignificant market response tests for the measure evaluative content is that the Loughran & McDonald (2011) word lists were developed by examining word usage in a large sample of 10-K filings. However, the use of words of auditors likely differs from the use of words by managers. Investors might place little value in positive words used by auditors in the KAM sections because they expect that auditor risk disclosures are negative and uncertain per se. Future studies could consider to adapt word lists to the corpus of

interest (e.g., Allee & DeAngelis, 2015) or to create new word lists for the sentiment analysis in auditor reports. Of course, any new word list suffers from researchers' subjectivity.

To summarize, consistent with statements in the FRC second-year review, there are several reasons to believe that investors are still "learning to decode and evaluate the language used by auditors in their reports" (FRC, 2016, p. 8).

So, why is it that *specificity* conveys communicative value to investors? Conceptionally, an important benefit of our measure specificity is that it captures both *quantitative* (money, percentage, date, and time) and *qualitative* categories (organization, person, and location) and thus is a more direct measure of information content going beyond auditors' writing style. Our results indicate that for investors quantitative auditor risk disclosures seem to be more important than qualitative ones. The evidence is also consistent with recent work in related contexts which provide evidence that investor uncertainty is lower when managers provide more numerical disclosures in quarterly earnings conference calls (Campbell, Zheng, & Zhou, 2020).

Empirically, specificity appears to better gauge the communicative value of auditor risk disclosures. More specific information is likely easier for investors to extract and process when auditor risk disclosures are otherwise less readable and share common sentiments (i.e., uncertain and negative). Thus, consistent with greater investor attention, the market should react more to precise information, as shown by the results in Table 8.

5. Conclusions

We empirically examine the communicative value of extended auditor reports around ISA 700 implementation. Our proxies for communicative value include readability, evaluative content, number of visual aids, and specificity. We provide evidence that the communicative value of auditor reports significantly increases over time, due to implementation of ISA 700. Cross-sectional tests show that the improvement differs across audit firms and audit clients as well as

KAM disclosure characteristics. Broadly consistent with concurrent studies, we do not find evidence that several proxies for communicative value are incrementally informative to investors (e.g., Gutierrez et al., 2018; Lennox et al., 2019). However, we find initial evidence that short-window capital market reactions increase with the specificity of KAM descriptions.

The results suggest that understanding specificity of KAM is critical to examining capital market reactions to auditor risk disclosures. Overall, this study is among the first that applies measures from computational linguistics on extended auditor reports (KAM sections) and directly responds to the call for more research on how KAM are worded (Bédard et al., 2016). The results suggest that the textual assessment of UK extended auditor reports helps us to understand whether the intended outcome of ISA 700—the improvement of communicative value of auditor reports—has been achieved.

Our study does have limitations. First, our results based on UK firms can only be interpreted as preliminary evidence. There are institutional differences that limit the generalizability of our results (Bédard et al., 2016). For instance, the UK is less litigious than the US (Lennox et al., 2019) and has divergent requirements for auditor reporting on internal controls. Second, our capital market tests suffer from relatively low sample sizes and thus statistical power. Third and finally, it is difficult to fully disentangle the market reaction to KAM disclosures from other disclosures in the financial reports (i.e., management risk disclosures). However, the higher source credibility of auditor reports over management reports suggests that KAM can be incrementally informative to financial statement users, even if the described risks are addressed in management risk disclosures (Sirois, Bédard, & Bera, 2018).

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Appendix: Variable definitions

Variable	Definition
Textual characteristics	
READABILITY	Aggregate readability measure, calculated as the average of the percentiles of FOG, FLESCH and KINCAID (1 to 100). FOG and KINCAID are multiplied by negative one to ensure that all components are increasing in readability.
FOG	The Gunning-Fog Index, calculated as: FOG = (words per sentence + percent of complex words) * 0.4.
FLESCH	The Flesch Reading Ease score, calculated as: FLESCH = 206.8 - (1.015 * words per sentence) - (84.6 * syllables per word).
KINCAID	The Flesch-Kincaid Grade Level Index, calculated as: KINCAID = (11.8 * syllables per word) + (0.39 * words per sentence) - 15.59.
BOG	The BOG Index calculated as: BOG = Sentence Bog + Word Bog – Pep. *Sentence Bog* measures readability issues resulting from sentence length. *Word Bog* identifies readability issues stemming from plain English style problems and word difficulty. *Pep* identifies linguistic attributes that facilitate readability of the text.
EVAL_CONT	Aggregate evaluative content measure, calculated as the average of the percentiles of REL_NEG, REL_POS, and REL_UNCERT (1 to 100).
REL_NEG	The proportion of negative words based on L&M wordlist (2011).
REL_POS	The proportion of positive words based on L&M wordlist (2011).
REL_UNCERT	The proportion of uncertain words based on L&M wordlist (2011).
REL_CONT	The proportion of content words including nouns, verbs, adjectives, and adverbs (alternative proxy).
VISUAL	Number of visual aids (*tables*, *graphics*) used in the auditor report (KAM section).
SPECIFICITY	The mean of seven indicator variables, which indicate the occurrence of specific words (*names of persons, locations, organizations*; *quantitative values in percentages, money values, times, dates*) in the KAM description. Each variable equals 'one' if the KAM description contains specific words from the respective dimension, 'zero' otherwise. Specific words are identified using the Stanford NER program.
Test variables	
NEWOPINION	An indicator variable that equals 'one' if the auditor report is released in the first year after implementation of new ISA 700 reporting standards, and 'zero' if released in the year immediately prior to ISA 700 implementation.
TIMESREP	The number of times the extended auditor report has been reported under new ISA 700 requirements.
Control variables	
	<u>FIRM CHARACTERISTICS</u>
SIZE	The natural logarithm of total assets at the end of the fiscal year.
ROA	The net income prior to financing costs divided by total assets at fiscal

	year-end.
LEV	The long-term debt divided by total equity at fiscal year-end.
MB	The market value divided by book value at fiscal year-end.
MOWN	An indicator variable that equals 'one' if the majority of shares is held by top ten investors, and 'zero' otherwise.
LOSS	An indicator variable that equals 'one' if net income is negative, and 'zero' otherwise.
CFO	Operating cash flow of a firm in the respective reporting period.
USLIST	An indicator variable that equals 'one' if the firm is cross-listed at the US stock exchange, and 'zero' otherwise.
DELAY	The number of calendar days between a firm's fiscal year-end and the date of the auditor report.
CHNI	Difference in net income before extraordinary items between year t and year t-1, divided by total assets in year t-1.
STDRET	Standard deviation of daily stock returns in year t.
INCORP	Number of years since incorporation.
	<u>AUDITOR and AUDITOR REPORT CHARACTERISTICS</u>
BIGN	An indicator variable that equals 'one' if the auditor is a Big4 firm *(Deloitte, EY, KPMG* or *PWC*), and 'zero' otherwise.
CHAUD	An indicator variable that equals 'one' if the firm changed its auditor compared to prior year, and 'zero' otherwise.
BUSY	An indicator variable that equals 'one' if the financial statement date is between December and March, and 'zero' otherwise.
EXPERT	An indicator variable that equals 'one' if the auditor is an industry expert, and 'zero' otherwise. We classify an auditor as industry expert if the auditor audits at least 50 percent of all firms in our sample that belong to a specific industry. We only consider those industries for which we have at least 4 firm-year observations.
LENGTH	The natural logarithm of total number of words in the auditor report (KAM section).
FILE_SIZE	The natural logarithm of the TXT document file size of the auditor report.
Stock market effects	
ABVOL	The natural logarithm of the three-day abnormal trading volume around the report filing date scaled by shares outstanding. Estimation period trading volume is measured over a 40 days trading period beginning 61 days before the earnings announcement date, following Gutierrez et al. (2018).
|CAR|	The absolute value of the sum of the three-day abnormal returns around the report filing date. Company returns are calculated using the formula: (Price Close$_t$ – Price Close$_{t-1}$)/Price Close$_{t-1}$ minus value-weighted same-day returns for prime listed firms on the London Stock Exchange (LSE), following Gutierrez et al. (2018).

Figure 1: Overview research design and communicative value measures

Hypothesis	Corpus	PRE-ISA 700	POST-ISA 700	Communicative value measures
H1	Auditor report	**Pre-post analysis**		readability, evaluative content, visual aids
H2	Auditor report		**Time-series analysis**	readability, evaluative content, visual aids
	KAM section		**Time-series analysis**	readability, evaluative content, visual aids, specificity
H3	KAM section		**Time-series analysis**	specificity

Notes: This figure provides a summary of the research design for testing the Hypotheses 1 to 3. The test of Hypothesis 1 focuses on auditor reports issued around the one-year period ISA 700 was mandated. This pre-post analysis focuses on the corpus "auditor report" because conducting a pre-post analysis for KAM sections, which are not required in the pre-ISA 700 period, is infeasible. For testing Hypothesis 1, we use three different measures to proxy for the communicative value of auditor reports (i.e., readability, evaluative content and number of visual aids).

The test of Hypothesis 2 is a time-series analysis in post ISA-700 periods for both auditor reports and KAM sections. Again, we use the three textual characteristics readability, evaluative content and number of visual aids to proxy for communicative value. For the analysis of the development of the communicative value over time in KAM sections, we apply a fourth measure called specificity (Hope et al., 2016). Computing specificity for the pre-ISA 700 auditor report is useless as it contains mainly boilerplate information. Using specificity for the entire auditor report in post-ISA 700 periods is also infeasible because the report would be significantly biased by 'specific words' contained in many boilerplate parts of the report. For instance, the dimension date would be distorted by the clients' financial statement date and/or report date, the dimension money values by audit fees, and the dimension names by engagement audit partner names, among others.

The test of Hypothesis 3 examines the effect of specificity on capital markets reactions. This test focuses on KAM sections available for post-ISA 700 periods only. For the reasons above, it is not useful to compute specificity for the entire auditor report. To show the robustness of our results for specificity, we include the other communicative value measures (i.e., readability, evaluative content, and visual aids) stepwise in the regressions.

Table 1: Sample selection and distribution

Panel A: Sample selection process	Firm-year observations				
	Pre-ISA	Post-ISA 700			Total
		1st	2nd	3rd	
LSE Premium listed companies traded in LSE Main Market (as of August 31, 2016)	880	880	880	880	3,520
- Less financial services industry	471	471	471	471	1,884
- Less missing auditor reports	49	35	25	41	150
- Less foreign auditor reports	12	14	13	8	47
- Less observations with file securities issues	20	10	9	7	46
Final sample (actual observations per period)	**328**	**350**	**362**	**353**	**1,393**
Panel B: Pre-post analysis (Hypothesis 1)					
Final sample (actual observations per period)	328	350	-	-	678
- Less missing complete data (Datastream)	80	64	-	-	144
Sub sample (pre-post analysis)	**248**	**286**	**-**	**-**	**534**
Panel C: Time-series analysis (Hypothesis 2)					
Final sample (actual observations per period)	-	350	362	353	1,065
- Less missing complete data (Datastream)	-	64	72	196	332
Sub sample (time-series analysis)	**-**	**286**	**290**	**157**	**733**
Panel D: Capital market reactions (Hypothesis 3)		**ABVOL**			**|CAR|**
Final sample (actual observations per period)		1,065			1,065
- Less missing complete data (Datastream)		404			401
Sub sample (capital market reactions)		**661**			**664**

Notes: This table shows the sample selection process (Panel A), the sub sample for the pre-post analysis based on company data for two years around the regulatory cut-off (Panel B), the sub sample for the time-series analysis of a learning effect in post-ISA 700 reporting (Panel C), and the sub sample for the analysis of capital market reactions in post-ISA 700 reporting for both ABVOL and |CAR| (Panel D). Some of the auditor reports of the LSE Premium listed companies (as of August 31, 2016) are missing due to later IPOs, later Premium listings, or changes in financial statement dates. We do not consider those auditor reports issued under foreign reporting standards (i.e., PCAOB, LUX, HGB).

Table 2: Descriptive statistics of key variables

Panel A: Auditor report

Variable	N	Mean	Std. Dev.	P25	Median	P75
Dependent variables						
READABILITY	1,393	0.500	0.277	0.268	0.506	0.739
FOG	1,393	25.57	3.335	22.96	24.97	28.24
FLESCH	1,393	27.11	7.063	22.89	28.40	32.06
KINCAID	1,393	18.59	2.648	16.60	18.00	20.10
BOG	1,393	89.39	20.01	78.00	87.00	97.00
EVAL_CONT	1,393	0.500	0.225	0.333	0.527	0.679
REL_NEG	1,393	0.015	0.006	0.012	0.016	0.019
REL_POS	1,393	0.003	0.001	0.002	0.003	0.004
REL_UNCERT	1,393	0.012	0.005	0.008	0.013	0.015
VISUAL	1,393	1.245	1.564	0	1	2
Test variables						
NEWOPINION	1,393	0.764	0.425	1	1	1
TIMESREP	1,393	1.531	1.108	1	2	3
Control variables						
SIZE	1,212	13.72	1.903	12.54	13.70	14.86
ROA	1,182	6.691	26.69	2.862	6.041	10.04
LEV	1,074	3.199	1.348	2.961	3.548	3.924
MB	1,203	4.891	40.02	1.306	2.279	4.058
MOWN	1,389	0.562	0.496	0	1	1
LOSS	1,393	0.116	0.321	0	0	0
CFO	1,136	11.35	1.933	10.25	11.37	12.51
USLIST	1,393	0.047	0.211	0	0	0
DELAY	1,393	67.26	24.49	55	64	75
BIGN	1,393	0.915	0.279	1	1	1
CHAUD	1,393	0.055	0.229	0	0	0
BUSY	1,393	0.595	0.491	0	1	1
EXPERT	1,393	0.118	0.323	0	0	0
$LENGTH_{AR}$	1,393	2,314	1,429	1,372	2,255	3,009

Table 2 (continued)

Panel B: KAM section

Variable	N	Mean	Std. Dev.	P25	Median	P75
Dependent variables						
READABILITY	1,065	0.500	0.271	0.267	0.518	0.718
FOG	1,065	25.47	3.935	23.06	24.78	26.88
FLESCH	1,065	28.11	9.959	24.00	29.38	34.6
KINCAID	1,065	16.79	3.243	14.80	16.00	17.90
BOG	1,065	88.22	20.69	78.00	86.00	96.00
EVAL_CONT	1,065	0.500	0.177	0.376	0.497	0.627
REL_NEG	1,065	0.021	0.008	0.016	0.020	0.025
REL_POS	1,065	0.005	0.003	0.003	0.004	0.007
REL_UNCERT	1,065	0.023	0.007	0.018	0.023	0.027
VISUAL	1,065	0.736	0.441	0	1	1
SPECIFICITY	1,065	0.211	0.181	0	0.143	0.286
Test variables						
NEWOPINION	1,065	0.998	0.043	1	1	1
TIMESREP	1,065	2.003	0.813	1	2	3
Control variables						
SIZE	889	13.77	1.875	12.58	13.73	14.93
ROA	868	7.279	25.47	2.785	5.965	9.960
LEV	787	3.219	1.350	2.982	3.559	3.943
MB	887	5.651	45.72	1.381	2.337	4.127
MOWN	1,062	0.566	0.496	0	1	1
LOSS	1,065	0.115	0.319	0	0	0
CFO	842	11.37	1.927	10.28	11.38	12.53
USLIST	1,065	0.047	0.212	0	0	0
DELAY	1,065	67.37	24.96	55	63	75
BIGN	1,065	0.917	0.275	1	1	1
CHAUD	1,065	0.072	0.259	0	0	0
BUSY	1,065	0.599	0.490	0	1	1
EXPERT	1,065	0.122	0.328	0	0	0
$LENGTH_{KAM}$	1,065	1,050	573	658	926	1,321
KAM_{no}	1,065	3.797	1.445	3	4	5

Notes: This table provides descriptive statistics for the key variables. Panel A presents descriptive statistics for the full sample covering pre- and post-ISA 700 auditor reports (n=1,393) and for the related test and control variables. Panel B presents descriptive statistics for the linguistic characteristics of the KAM sections issued during post-ISA 700 periods (n=1,065) and for the related test and control variables. KAM_{no} is the number of KAM per auditor report. The descriptive statistics for LENGTH are presented as total number of words for easier interpretation. The regression analyses however are based on their natural logarithms. All continuous variables are winsorized at the 1% and 99% levels.

Table 3: Univariate time-series analysis

	Pre-ISA 700 (n=328)		Post-ISA 700								
			1st year (n=350)			2nd year (n=362)			3rd year (n=353)		
	Mean Value	Std. Dev.	Mean Value	Std. Dev.	Mean Diff.	Mean Value	Std. Dev.	Mean Diff.	Mean Value	Std. Dev.	Mean Diff.
Auditor report	[1]		[2]		[2-1]	[3]		[3-2]	[4]		[4-3]
READABILITY	0.181	0.140	0.523	0.220	0.343***	0.622	0.230	0.098***	0.650	0.225	0.028
FOG	30.03	1.968	25.08	2.145	-4.954***	24.04	2.292	-1.041***	23.50	2.228	-0.534**
FLESCH	20.14	6.774	27.83	5.486	7.693***	29.63	5.704	1.797***	30.29	5.366	0.663
KINCAID	21.84	2.248	18.04	1.817	-3.803***	17.42	1.868	-0.619***	17.30	1.720	-0.119
BOG	104.0	6.843	86.38	6.665	-17.63***	82.93	6.551	-3.454***	80.99	6.500	-1.940
EVAL_CONT	0.220	0.137	0.553	0.176	0.333***	0.601	0.165	0.048***	0.605	0.162	0.004
REL_NEG	0.009	0.005	0.018	0.004	0.009***	0.017	0.004	-0.000	0.017	0.004	-0.000
REL_POS	0.002	0.001	0.003	0.001	0.001***	0.003	0.002	0.000***	0.003	0.002	-0.000
REL_UNCERT	0.005	0.002	0.013	0.003	0.008***	0.014	0.004	0.001**	0.014	0.003	0.000
VISUAL	0.061	0.252	0.757	0.909	0.696***	1.710	1.482	0.953***	2.351	1.883	0.641***
KAM section											
READABILITY	n/a	n/a	0.414	0.268	n/a	0.520	0.260	0.106***	0.565	0.265	0.045*
FOG	n/a	n/a	26.89	4.676	n/a	24.98	3.327	-1.905***	24.56	3.269	-0.426
FLESCH	n/a	n/a	24.85	11.97	n/a	29.07	8.455	4.218***	30.36	8.245	1.295
KINCAID	n/a	n/a	17.62	4.019	n/a	16.56	2.745	-1.061***	16.22	2.644	-0.333
BOG	n/a	n/a	86.02	8.351	n/a	80.00	7.989	-6.022***	78.78	6.511	-1.231
EVAL_CONT	n/a	n/a	0.515	0.185	n/a	0.500	0.169	-0.0150	0.486	0.175	-0.014
REL_NEG	n/a	n/a	0.022	0.008	n/a	0.021	0.007	-0.001	0.020	0.007	-0.001
REL_POS	n/a	n/a	0.005	0.004	n/a	0.005	0.003	0.000	0.005	0.003	0.000
REL_UNCERT	n/a	n/a	0.024	0.007	n/a	0.023	0.007	-0.002**	0.022	0.007	-0.000
VISUAL	n/a	n/a	0.671	0.470	n/a	0.751	0.433	0.080**	0.785	0.412	0.033
SPECIFICITY	n/a	n/a	0.122	0.145	n/a	0.228	0.181	0.106***	0.282	0.178	0.054***

Notes: This table presents the difference in mean values for the textual characteristics used in the main analyses for testing Hypotheses 1 and 2 compared to the prior period. ***, **, and * indicate statistical significance at the 1%, 5%, and 10% level, respectively.

Table 4: Correlations in KAM sections

Panel A: Pearson correlations of textual characteristics

	READABILITY	EVAL_CONT	VISUAL	SPECIFICITY
READABILITY	1			
EVAL_CONT	***0.471***	1		
	0.000			
VISUAL	***0.574***	***0.423***	1	
	0.000	0.000		
SPECIFICITY	***0.275***	0.006	***0.201***	1
	0.000	0.837	0.000	

Panel B: Pearson correlations between textual characteristics and independent variables

	READABILITY	EVAL_CONT	VISUAL	SPECIFICITY
TIMESREP	***0.280***	***0.125***	***0.401***	***0.584***
	0.000	0.000	0.000	0.000
SIZE	***0.111***	***0.130***	***0.158***	***-0.087***
	0.001	0.000	0.000	0.003
ROA	***-0.086***	***-0.107***	-0.053	-0.017
	0.010	0.002	0.117	0.555
LEV	0.023	***0.136***	0.085	0.012
	0.520	0.000	0.017	0.690
MB	-0.049	***-0.089***	-0.077	-0.005
	0.142	0.008	0.022	0.859
MOWN	0.003	-0.067	-0.043	-0.022
	0.918	0.030	0.162	0.416
LOSS	0.008	0.072	0.003	-0.028
	0.789	0.019	0.922	0.301
CFO	***0.111***	0.083	***0.145***	-0.071
	0.001	0.016	0.000	0.016
USLIST	0.004	0.004	***0.084***	-0.022
	0.889	0.885	0.006	0.407
BIGN	***0.156***	0.061	***0.145***	***0.120***
	0.000	0.045	0.000	0.000
DELAY	-0.061	-0.029	-0.045	0.028
	0.045	0.344	0.142	0.303
CHAUD	-0.043	-0.003	0.020	**-0.087**
	0.157	0.931	0.507	0.001
EXPERT	-0.050	-0.074	-0.047	-0.036
	0.078	0.015	0.129	0.182
BUSY	0.028	***0.102***	-0.029	-0.032
	0.368	0.001	0.338	0.238
$LENGTH_{KAM}$	***0.358***	***0.175***	***0.439***	***0.318***
	0.000	0.000	0.000	0.000

Notes: This table provides the Pearson correlation coefficients of key variables employed in our analyses of the KAM sections (two-tailed) in Eq. 2. Panel A presents the correlation results for the aggregate measures of linguistic characteristics used as dependent variables in the multivariate regression analysis (n=728). Panel B presents the correlation results for the dependent and independent variables (n=728). The results for the entire auditor report are qualitatively the same. Correlations significant at the 1% level are bolded and italicized.

Table 5: Pre-post analysis (Hypothesis 1)
Dependent variables: Textual characteristics of auditor reports

VARIABLES	READABILITY	EVAL_CONT	VISUAL
NEWOPINION	**0.338*** **	**0.316*** **	**0.633*** **
	(9.560)	**(10.00)**	**(4.573)**
SIZE	-0.005	0.025**	0.025
	(-0.428)	(2.419)	(0.611)
ROA	-0.002	0.001	0.010*
	(-1.411)	(0.579)	(1.754)
LEV	-0.004	0.003	0.006
	(-0.485)	(0.385)	(0.211)
MB	-0.001	0.000	-0.004***
	(-1.102)	(0.813)	(-3.020)
MOWN	0.002	-0.010	0.038
	(0.123)	(-0.647)	(0.486)
LOSS	-0.003	0.034	0.164
	(-0.097)	(1.213)	(1.477)
CFO	0.015	-0.015	0.031
	(1.371)	(-1.648)	(0.759)
USLIST	-0.051	-0.051	0.081
	(-1.210)	(-1.433)	(0.560)
BIGN	-0.052	0.046	0.153
	(-1.419)	(1.520)	(0.990)
DELAY	-0.000	-0.000	-0.000
	(0.188)	(-0.211)	(-0.100)
CHAUD	0.004	0.061	0.145
	(0.049)	(0.880)	(0.448)
EXPERT	-0.008	0.015	-0.352***
	(-0.240)	(0.451)	(-3.214)
BUSY	0.018	-0.018	-0.180**
	(1.024)	(-1.171)	(-2.568)
LENGTH$_{AR}$	0.105**	0.110***	0.473***
	(2.430)	(2.639)	(3.022)
Constant	0.149	0.0618	-0.831**
	(1.088)	(0.639)	(-1.981)
Observations	534	534	534
Industry FE	Yes	Yes	Yes
R-squared	0.506	0.557	0.316

Notes: This table presents the coefficients for the pre-post analysis including t-statistics in parentheses. All variables are described in detail in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 6: Time-series analysis (Hypothesis 2)
Panel A: Regression results for auditor reports
Dependent variables: Textual characteristics of auditor reports

VARIABLES	READABILITY	EVAL_CONT	VISUAL
TIMESREP	**0.064*** **	**0.029*** **	**0.712*** **
	(4.674)	**(3.033)**	**(6.922)**
SIZE	-0.022*	0.018**	-0.051
	(-1.855)	(2.137)	(-0.647)
ROA	-0.003***	0.000	0.016
	(-2.712)	(0.430)	(1.758)
LEV	-0.018**	0.013**	0.019
	(-2.365)	(2.535)	(0.493)
MB	0.000	0.000	-0.009***
	(0.435)	(0.513)	(-5.121)
MOWN	0.010	-0.013	-0.043
	(0.542)	(-0.863)	(-0.375)
LOSS	0.002	0.027	0.371*
	(0.072)	(1.131)	(1.817)
CFO	0.024**	-0.010	0.045
	(2.436)	(-1.391)	(0.626)
USLIST	-0.048	-0.059*	0.322
	(-1.322)	(-1.705)	(1.330)
BIGN	0.085**	0.013	0.592***
	(2.580)	(0.487)	(3.606)
DELAY	-0.000	-0.000	0.001
	(-0.916)	(-0.490)	(0.253)
CHAUD	-0.082*	0.001	-0.058
	(-1.985)	(0.054)	(-0.239)
EXPERT	-0.065	0.008	-0.453**
	(-1.321)	(0.328)	(-2.097)
BUSY	0.008	0.010	-0.167
	(0.459)	(0.648)	(-1.597)
$LENGTH_{AR}$	0.200***	0.076***	1.921***
	(5.002)	(2.694)	(8.193)
Constant	0.460***	0.439***	-1.125
	(3.774)	(5.302)	(-1.619)
Observations	733	733	733
Industry FE	Yes	Yes	Yes
R-squared	0.193	0.162	0.342

Table 6 (continued)
Panel B: Regression results for KAM sections
Dependent variables: Textual characteristics of KAM sections

VARIABLES	READABILITY	EVAL_CONT	VISUAL	SPECIFICITY
TIMESREP	**0.041*** **	**0.042*** **	**0.044***	**0.056*** **
	(2.887)	**(4.417)**	**(1.802)**	**(6.326)**
Observations	728	728	728	728
R-squared	0.217	0.177	0.152	0.356
Controls	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes

Notes: This table presents the coefficients for the time-series multivariate regression (Hypothesis 2). Panel A presents the coefficients for all control variables for the entire auditor report including t-statistics in parentheses. Panels B only shows the coefficients and t-statistics of TIMESREP. However, all controls from Eq. 2 and industry FE are included in the regression. All variables are described in detail in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 7: Cross-sectional analyses – sample splits
Panel A: OLS regression results for auditor reports
Dependent variables: Textual characteristics of auditor reports

VARIABLES	READABILITY		EVAL_CONT		VISUAL	
	BIGN	Non-BIGN	BIGN	Non-BIGN	BIGN	Non-BIGN
TIMESREP	**0.072*** **	**-0.059***	**0.030*** **	**0.045**	**0.740*** **	**0.361***
	(5.141)	**(-1.828)**	**(3.061)**	**(1.212)**	**(7.063)**	**(1.889)**
Observations	682	46	682	46	682	46
R-squared	0.210	0.824	0.155	0.756	0.335	0.847
χ^2 p-value	0.000***		0.001***		0.000***	
	FTSE 100	Non-FTSE 100	FTSE 100	Non-FTSE 100	FTSE 100	Non-FTSE 100
TIMESREP	**0.070*** **	**0.028**	**0.030*** **	**0.026**	**0.766*** **	**0.336** **
	(5.056)	**(1.076)**	**(2.806)**	**(1.253)**	**(7.360)**	**(2.165)**
Observations	169	559	169	559	169	559
R-squared	0.563	0.202	0.295	0.226	0.574	0.336
χ^2 p-value	0.030**		0.860		0.010**	
	Below median #KAM	Above median #KAM	Below median #KAM	Above median #KAM	Below median #KAM	Above median #KAM
TIMESREP	**0.045***	**0.069*** **	**0.032**	**0.051** **	**0.607*** **	**0.763*** **
	(1.681)	**(3.553)**	**(1.314)**	**(2.081)**	**(3.993)**	**(4.127)**
Observations	227	218	227	218	227	218
R-squared	0.254	0.213	0.316	0.218	0.377	0.298
χ^2 p-value	0.041**		0.033**		0.078*	
	Going concern KAM	No Going concern KAM	Going concern KAM	No Going concern KAM	Going concern KAM	No Going concern KAM
TIMESREP	**0.120*** **	**0.059*** **	**0.045*** **	**0.024*** **	**0.990*** **	**0.675*** **
	(6.348)	**(6.441)**	**(4.451)**	**(4.409)**	**(4.222)**	**(4.539)**
Observations	72	656	72	656	72	656
R-squared	0.583	0.217	0.542	0.221	0.500	0.289
χ^2 p-value	0.000***		0.038**		0.002***	

Panel B: OLS regression results for KAM sections
Dependent variable: Textual characteristics of KAM sections

VARIABLES	READABILITY		EVAL_CONT		VISUAL		SPECIFICITY	
	BIGN	Non-BIGN	BIGN	Non-BIGN	BIGN	Non-BIGN	BIGN	Non-BIGN
TIMESREP	**0.050*** **	**-0.030**	**0.043*** **	**0.050**	**0.038**	**0.194**	**0.062*** **	**-0.023**
	(3.398)	**(-0.633)**	**(4.380)**	**(1.290)**	**(1.509)**	**(1.681)**	**(6.628)**	**(-0.583)**
Observations	682	46	682	46	682	46	682	46
R-squared	0.224	0.717	0.168	0.755	0.161	0.697	0.349	0.754
χ^2 p-value	0.000***		0.047**		0.536		0.000***	
	FTSE 100	Non-FTSE 100	FTSE 100	Non-FTSE 100	FTSE 100	Non-FTSE 100	FTSE 100	Non-FTSE 100
TIMESREP	**0.035** **	**0.032*** **	**0.041*** **	**0.042**	**0.056***	**0.032**	**0.057*** **	**0.032**
	(2.074)	**(3.108)**	**(3.764)**	**(1.507)**	**(1.986)**	**(0.616)**	**(5.897)**	**(1.404)**
Observations	169	559	169	559	169	559	169	559
R-squared	0.343	0.238	0.304	0.237	0.345	0.218	0.439	0.409
χ^2 p-value	0.289		0.535		0.042**		0.025**	
	Below median # KAM	Above median # KAM	Below median # KAM	Above median # KAM	Below median # KAM	Above median # KAM	Below median # KAM	Above median # KAM
TIMESREP	**0.050***	**0.078*** **	**0.056** **	**0.082** **	**0.067*** **	**0.085*** **	**0.046*** **	**0.066*** **
	(1.921)	**(2.993)**	**(2.079)**	**(2.116)**	**(3.392)**	**(3.241)**	**(2.814)**	**(5.325)**
Observations	227	218	227	218	227	218	227	218
R-squared	0.350	0.262	0.330	0.232	0.301	0.225	0.433	0.357
χ^2 p-value	0.002***		0.036**		0.004***		0.014**	
	Going concern KAM	No Going concern KAM	Going concern KAM	No Going concern KAM	Going concern KAM	No Going concern KAM	Going concern KAM	No Going concern KAM
TIMESREP	**0.071*** **	**0.039*** **	**0.060*** **	**0.041*** **	**0.043*** **	**0.042***	**0.096** **	**0.051*** **
	(3.242)	**(3.876)**	**(4.448)**	**(3.492)**	**(5.968)**	**(1.789)**	**(2.121)**	**(5.356)**
Observations	72	656	72	656	72	656	72	656
R-squared	0.598	0.232	0.517	0.240	0.564	0.291	0.668	0.280
χ^2 p-value	0.000***		0.085*		0.529		0.013**	

Notes: This table presents the coefficients of the multivariate regression for sample splits based on BIGN, FTSE 100, industry median number of KAM, and going concern KAM disclosed by the auditor. Panel A shows the coefficients for auditor reports and Panel B for the KAM sections. T-statistics are included in parentheses. Controls and industry FE are included in all regressions. The comparison of regression coefficients across groups is based on seemingly unrelated estimation (SUEST). All variables are described in detail in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Table 8: Specificity of KAM and stock-market reactions (Hypothesis 3)

Panel A: Three-day abnormal trading volume around the filing date
Dependent variable: ABVOL

VARIABLES							
SPECIFICITY	**0.872*** **	**0.870*** **	**0.872*** **	**0.873*** **	**0.839*** **	**0.782*** **	**0.864*** **
	(3.137)	**(3.050)**	**(3.085)**	**(3.145)**	**(2.948)**	**(2.845)**	**(3.128)**
$LENGTH_{KAM}$		-0.003					
		(-0.029)					
$LENGTH_{AR}$			-0.002				
			(-0.012)				
KAM_{no}				0.037			
				(0.744)			
READABILITY					-0.125		
					(-0.469)		
EVAL_CONT						-0.429	
						(-1.143)	
VISUAL							-0.044
							(-1.310)
SIZE	-0.446*	-0.448*	-0.446*	-0.451*	-0.468*	-0.478**	-0.500**
	(-1.804)	(-1.814)	(-1.804)	(-1.831)	(-1.859)	(-1.972)	(-2.046)
ROA	-0.228	-0.230	-0.228	-0.150	-0.249	-0.331	-0.217
	(-0.212)	(-0.214)	(-0.213)	(-0.141)	(-0.232)	(-0.313)	(-0.196)
MB	0.005	0.005	0.005	0.005	0.005	0.005	0.005
	(0.448)	(0.449)	(0.448)	(0.426)	(0.475)	(0.436)	(0.453)
LEV	0.004	0.005	0.004	0.004	0.004	0.002	0.012
	(0.043)	(0.045)	(0.042)	(0.033)	(0.042)	(0.024)	(0.118)
CHNI	0.075	0.076	0.075	0.006	0.084	0.169	0.053
	(0.091)	(0.092)	(0.090)	(0.008)	(0.102)	(0.206)	(0.065)
STDRET	-2.070	-2.085	-2.075	-2.741	-2.218	-2.047	-1.812
	(-0.266)	(-0.266)	(-0.266)	(-0.356)	(-0.283)	(-0.264)	(-0.231)
INCORP	0.264***	0.265**	0.264***	0.274***	0.272***	0.288***	0.298***
	(2.627)	(2.527)	(2.608)	(2.759)	(2.621)	(3.010)	(2.795)
DELAY	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002
	(-0.976)	(-0.976)	(-0.962)	(-0.931)	(-1.018)	(-0.856)	(-1.016)
BIGN	0.692**	0.692**	0.692**	0.711**	0.693**	0.690**	0.700**
	(2.302)	(2.309)	(2.304)	(2.349)	(2.306)	(2.373)	(2.307)
Constant	-6.491	-6.481	-6.485	-7.029	-6.434	-6.878	-7.202
	(-1.283)	(-1.289)	(-1.271)	(-1.392)	(-1.268)	(-1.438)	(-1.360)
Observations	661	661	661	661	661	661	661
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.045	0.045	0.045	0.046	0.045	0.048	0.049

Panel B: Absolute value of three-day abnormal returns around the filing date
Dependent variable: |CAR|

VARIABLES							
SPECIFICITY	**0.026****	**0.024***	**0.029****	**0.026****	**0.030****	**0.031****	**0.027****
	(2.000)	**(1.904)**	**(2.222)**	**(1.996)**	**(2.154)**	**(2.284)**	**(2.038)**
$LENGTH_{KAM}$		-0.003					
		(-0.519)					
$LENGTH_{AR}$			0.008				
			(1.169)				
KAM_{no}				0.001			
				(0.477)			
READABILITY					0.013		
					(1.041)		
EVAL_CONT						0.022	
						(1.405)	
VISUAL							0.002
							(1.259)
SIZE	-0.005	-0.006	-0.004	-0.005	-0.003	-0.003	-0.002
	(-0.366)	(-0.465)	(-0.292)	(-0.372)	(-0.188)	(-0.240)	(-0.166)
ROA	0.007	0.005	0.009	0.009	0.009	0.012	0.007
	(0.124)	(0.088)	(0.155)	(0.159)	(0.167)	(0.218)	(0.119)
MB	0.001	0.001	0.001	0.001	0.001	0.001	0.001
	(1.167)	(1.175)	(1.149)	(1.146)	(1.104)	(1.201)	(1.161)
LEV	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006*
	(-1.578)	(-1.569)	(-1.518)	(-1.553)	(-1.628)	(-1.496)	(-1.650)
CHNI	0.009	0.011	0.009	0.007	0.008	0.004	0.010
	(0.236)	(0.271)	(0.245)	(0.182)	(0.208)	(0.110)	(0.265)
STDRET	1.560***	1.546***	1.583***	1.542***	1.575***	1.560***	1.549***
	(3.542)	(3.538)	(3.588)	(3.458)	(3.591)	(3.536)	(3.544)
INCORP	0.006	0.007	0.005	0.007	0.005	0.005	0.005
	(0.707)	(0.779)	(0.591)	(0.731)	(0.600)	(0.568)	(0.532)
DELAY	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.449)	(0.439)	(0.269)	(0.455)	(0.514)	(0.245)	(0.507)
BIGN	-0.021	-0.021	-0.020	-0.020	-0.021	-0.021	-0.021
	(-1.409)	(-1.426)	(-1.350)	(-1.360)	(-1.416)	(-1.430)	(-1.444)
Constant	-0.198	-0.189	-0.225	-0.211	-0.195	-0.186	-0.167
	(-0.497)	(-0.474)	(-0.580)	(-0.530)	(-0.489)	(-0.456)	(-0.429)
Observations	664	664	664	664	664	664	664
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.078	0.079	0.081	0.078	0.081	0.082	0.082

Notes: This table presents the coefficients for the time-series multivariate regression analysis of capital market reactions including robust t-statistics in parentheses. The dependent variables are ABVOL (Panel A) and |CAR| (Panel B). All variables are described in detail in the Appendix. ***, **, * denote statistical significance at the 1%, 5%, and 10% levels, respectively.