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The determinants of linguistic features in key audit matters: Empirical evidence from Europe

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This study investigates the determinants and dynamics of the linguistic features of key audit matters (KAMs) in European countries. Using natural language processing algorithms, including FINBERT, I quantify stylistic and content-based text characteristics at the KAM level and find that KAM length, readability, sentiment, quantitative density, specificity, the degree of forward-looking statements, and the extent of boilerplate language are associated with the type of KAM topics, client attributes, and audit firm characteristics. In additional analyses, I also find early empirical evidence of a time trend in these linguistic features. Since their introduction in 2016, KAMs are becoming longer, more quantitative, more specific, but also include more boilerplate phrases. Collectively, the results of the study contribute to a more nuanced understanding of the determinants and dynamics of KAM disclosures.

KEYWORDS
determinants, key audit matter, linguistic features, natural language processing, time trend

1 | INTRODUCTION

To improve the communicative value of audit reports, standard-setters worldwide mandate the reporting of so-called key audit matters (KAMs) for financial statement audits of public interest entities (e.g. FRC, 2013; IAASB, 2015; PCAOB, 2017). KAMs are specific to the client's audit and comprise the most significant matters, aiming to improve understanding of financial statement risks and the auditors' work for users of financial statements. The introduction of KAMs represents the most substantial change in audit reporting for over 70 years (e.g. Doty, 2017), requiring auditors to communicate their work to the public. As the audit report is an important document which is used for decision-making purposes in financial markets (e.g. Church et al., 2008; Mock et al., 2013), it is essential to establish the factors that influence the *stylistic* and *content-based characteristics* of the language used in KAM disclosures. Understanding the determinants of these linguistic features could enrich our understanding of the underlying factors that shape the informativeness and effectiveness of KAMs. While prior research predominantly investigates the determinants for the number (e.g. Pinto & Morais, 2019), length (e.g. Abdelfattah et al., 2021; Rousseau & Zehms, 2023) and type of KAMs (Bepari et al., 2022; Sierra-García et al., 2019), research exploring the determinants of KAM linguistic features is scarce.

This paper aims to fill this gap by quantifying a variety of linguistic features on a large-scale European sample using natural language processing (NLP) methods and shedding light on the following two research questions: (1) What audit firm and client characteristics are associated with the linguistic features of KAMs? (2) Are there differences in linguistic features between KAM topics that focus on specific line items in the financial statements (*account-level KAMs*) and those that address broader topics affecting the whole entity (*entity-level KAMs*)?

To investigate these research questions, I focus on the European market where KAMs have been widely effective since 2016, offering a comprehensive dataset. I use all available KAM data from the Audit Analytics Europe database from 2016 to 2022 and merge it with important client and audit firm data from Compustat. Based on those 17,241 observations on KAM level, I calculate linguistic features that

capture important stylistic and content-based text characteristics identified in prior accounting literature (e.g. Blankespoor, 2019; Bozanic et al., 2018; Cassell et al., 2019; Dyer et al., 2017; Hope et al., 2016). More specifically, I quantify the length of KAMs, their readability, their evaluative content, their quantitative density, their specificity, their degree of forward-looking statements, and their degree of boilerplate language. These linguistic features serve as the dependent variables in my multivariate regressions. As independent variables, I employ several audit firm and client characteristics identified in prior accounting literature influencing narrative disclosures such as size, expertise, risk, performance, leverage, capital market exposure and asset structure (e.g. Dyer et al., 2017; Lang & Stice-Lawrence, 2015). Additionally, I incorporate a variable that indicates whether the KAM represents an account-level or entity-level type (Bepari et al., 2022; Sierra-García et al., 2019). To control for year-to-year, country-to-country, and industry-to-industry differences, I include year, country, and industry fixed effects.

In response to the first research question, empirical evidence reveals that audit firm and client characteristics are systematically associated with the linguistic features of KAMs. For audit firm characteristics, I find that most linguistic features of KAMs are associated with the size of the auditor, that is, whether the KAM is reported by a Big 4 auditor or not. Additionally, the linguistic features of KAMs vary with factors such as the occurrence of a first-time audit, the magnitude of audit fees, non-audit fee levels, the duration of the audit report lag and the auditor's industry specialisation. For client characteristics, I find empirical evidence that firm size, whether a firm recognises a loss, leverage, firm performance, the asset structure of a firm, the growth opportunities of a firm, the received audit opinion, capital market visibility, and volatility are associated with the linguistic features of KAMs. Overall, these findings underscore that KAMs' linguistic features are reflective of both audit firm and client characteristics.

Regarding the second research question, the multivariate regression analysis reveals distinct variations in all linguistic features between entity-level and account-level KAMs. On average, entity-level KAMs are shorter, less readable, contain more evaluative content, have more quantitative density, more client-specific information, less forward-looking information, and fewer boilerplate phrases than account-level KAMs. This indicates that auditors employ distinct linguistic strategies when reporting on entity-level versus account-level topics.

I conduct several sensitivity checks to investigate the robustness of these main findings. In particular, I (i) run regressions for the description and response sections of the KAMs separately; (ii) control for time-invariant firm, audit firm, and KAM topic characteristics; (iii) run fractional regression models to address the bounded nature of dependent variables; (iv) address multiple testing by calculating sharpened two-stage q-values; and (v) use different specifications for quantifying boilerplate language. Collectively, the findings of these robustness tests are mainly consistent with the main inferences.

In additional analyses, I examine whether the investigated linguistic features changed since the European-wide introduction of KAMs in 2016.[1] By including a time-series trend variable in the multivariate regression models, I find early evidence of a time trend in certain linguistic features of KAMs. Specifically, the data indicate a trend towards lengthier KAMs that are increasingly quantitative and contain more specific information. At the same time, I observe an increased use of boilerplate language, defined as 4-gram phrases occurring more frequently than the average in the sample. In general, the trends in linguistic features appear largely unaffected by the type of KAM. An interesting pattern emerges when examining the period since the beginning of the COVID-19 pandemic: while the trends for most linguistic features continue, there is a reduction in boilerplate language starting from 2019. Moreover, the increase in client-specific information becomes more pronounced for entity-level KAMs. In general, the findings indicate a trend in certain linguistic features, with a notable shift regarding boilerplate language during the COVID-19 pandemic.

The paper makes four contributions to the literature. First, it responds to previous studies that emphasised the need to investigate determinants of the communication style in KAMs (e.g. Bepari et al., 2022; Velte & Issa, 2019). While prior studies investigate the determinants of the number of KAMs (e.g. Pinto & Morais, 2019) or KAM types (Bepari et al., 2022; Sierra-García et al., 2019), this study provides empirical evidence for audit firm and client determinants for a wide range of linguistic features. The results reveal distinct associations between typical audit firm and client characteristics identified in prior literature and various linguistic features of KAMs. This enhances our understanding of the linguistic features within KAM disclosures, which are key components of expanded audit reports.

Second, this study provides fine-grained evidence about the textual characteristics of KAMs on a large-scale sample. Prior studies that quantify KAM disclosures predominantly focus on the number of KAMs (Camacho-Miñano et al., 2023; Liao et al., 2022), their type (Bepari et al., 2022; Sierra-García et al., 2019), their length (Burke et al., 2023; Gutierrez et al., 2018; Klevak et al., 2022), their readability (Abdelfattah et al., 2021; Seebeck & Kaya, 2022; Smith, 2023), tonality (Smith, 2023) and boilerplate language (Carlé et al., 2023; Seebeck, 2023). This study provides evidence for additional textual characteristics, such as forward-looking information and quantitative density therefore providing deeper insight into the KAM reporting behaviour. From a regulatory perspective, the findings also indicate considerable variation in these textual characteristics, thereby alleviating concerns from stakeholders about standardised language in KAMs (e.g. Kachelmeier et al., 2020).

Third, this study demonstrates the linguistic differences between KAM types. While prior studies investigate the determinants for the provision of entity-level and account-level KAMs (Bepari et al., 2022; Sierra-García et al., 2019), this study shows that all textual characteristics are different between account-level KAMs and entity-level KAMs. This highlights the importance for future studies to account for the heterogeneity in linguistic features of KAM types when investigating their consequences.

Fourth, it is among the first empirical studies to find an early time trend in multiple linguistic features of KAM disclosures. While prior studies predominantly focussed on first-time adoption effects of KAMs (e.g. Burke et al., 2023; Gutierrez et al., 2018; Klevak

et al., 2022), dynamics of KAM linguistic features over time are largely ignored. Notable exceptions are the studies by Seebeck and Kaya (2022) and Seebeck (2023). They focus on the UK and find improvements in terms of readability and evaluative content 3 years after the implementation of extended audit reports in the UK, but also an increase in boilerplate language over time.[2] I extend these findings by demonstrating a time trend for additional linguistic features in a broader sample comprising multiple European countries. From a theoretical perspective, my finding indicates that auditors adjust their communication with their reporting experience according to the principles of the learning curve theory. While the results have to be interpreted with caution because of the still limited time span, they might provide a valuable starting point for future research.

2 | BACKGROUND AND RESEARCH QUESTIONS

Standard setters around the world have extended the content of auditor reports to increase their communicative value (e.g. FRC, 2013; IAASB, 2015; PCAOB, 2017). In Europe, public interest entities are required to have an extended audit report that includes the so-called KAMs under the European Union's Regulation No. 537/2014. According to the International Standard of Auditing (ISA) 701, KAMs are defined as '*those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period* (ISA 701.8).[3] They typically include areas of higher financial statement risk, such as significant judgements, accounting estimates, and significant events or transactions (ISA 701.9). Importantly, KAMs are not intended to substitute original information provided by the client or for modified auditor opinions; rather, they represent disclosures about selected topics that aim to help users better understand the client-specific financial statement risks, judgements and the auditor's work (ISA 701.2). In particular, each year, auditors must select which KAMs to include in their report. Moreover, they need to report why the identified matter was considered significant to the audit and provide a reference to where the matter is disclosed in the financial statements in the description section of the KAM (ISA 701.A42-45). In the response section, the auditor needs to elaborate on how the matter was addressed in the financial statement audit. This includes the auditors' approach, the procedures performed, the outcomes of those procedures, any important observations and a conclusion (ISA 701.A46-51).

Because of the recent introduction of KAM disclosure, research investigating its determinants is still in its early stages.[4] As the decision to report a KAM is based on the professional judgement of the auditor and it is the most visible aspect of the auditor's report, studies primarily focus on the determinants for the number of KAMs disclosed (e.g. Pinto & Morais, 2019). In general, studies find that the number of KAMs increases with client risk and complexity (e.g. Camacho-Miñano et al., 2023; Klevak et al., 2022; Pinto & Morais, 2019; Smith, 2023). In contrast, there is inconsistent evidence for audit firm characteristics such as size, industry expertise and level of client dependence influencing the number of KAMs (e.g. Bepari et al., 2022; Pinto & Morais, 2019; Rousseau & Zehms, 2023; Sierra-García et al., 2019).

A limited but growing body of research explores the linguistic determinants at the KAM level, aiming to unravel the factors influencing auditors' reporting content and style in relation to selected KAM topics.[5] In their study, Rousseau and Zehms (2023) examine KAMs' length and readability, uncovering notable differences between audit firms and individual audit partners. Their findings suggest that audit partners have a more pronounced impact on KAMs than the audit firms. In addition, Abdelfattah et al. (2021) find that auditor gender influences the quantity, readability and sentiment of KAM disclosures. They find that female auditors report more KAMs that are less optimistic and less readable than their male counterparts. Additionally, two studies specifically address the determinants of boilerplate language in KAMs. Focussing on Germany, Carlé et al. (2023) find that auditors frequently use similar language in consecutive years when disclosing KAMs, with this similarity negatively correlated to audit firm changes and positively correlated to the financial stability of client firms. For the UK, Seebeck (2023) provides evidence for an increasing trend in boilerplate language over time and find that, on average, Big 4 auditors do report more boilerplate phrases. Collectively, these studies highlight how various factors, including audit firm and auditor characteristics, might shape the linguistic features of KAM disclosures.

From a theoretical perspective, auditors might adjust the linguistic features of KAMs to mitigate litigation risks and manage their reputation. Prior studies show that KAM disclosure can influence an auditor's litigation risk. Specifically, KAMs can act as a 'disclaimer' mitigating the perceived auditors' liability for subsequent audit failures (e.g. Brasel et al., 2016; Kachelmeier et al., 2020). As such, it can be assumed that auditors adjust their language according to the risk profile of the client to mitigate litigation risks. However, in line with the auditor reputation hypothesis (Watts & Zimmerman, 1983), auditors have incentives to signal higher audit quality services (e.g. Bergner et al., 2020). Accordingly, the linguistic features in KAM disclosures might also mirror diverse audit firm characteristics, serving as indicators of their expertise and overall audit quality.

Collectively, the linguistic features in KAMs might be used as strategic elements for auditors to navigate the nuanced landscape of standard compliance, litigation risks and reputation management. There remains a gap in understanding the broader spectrum of audit firm and client characteristics that influence these textual features. Addressing this gap, the following research question is proposed:

Research Question (RQ) 1: What audit firm and client characteristics are associated with the linguistic features of KAMs?

KAMs encompass a diverse range of topics, with existing literature underscoring the necessity to distinguish between account-level and entity-level KAMs (Bepari et al., 2022; Sierra-García et al., 2019). While account-level KAMs relate to specific line items in the financial statements (such as intangible assets or revenues), entity-level KAMs comprise broader topics that affect the risk of the whole entity (such as internal control or information technology). Considering these

inherent differences, the linguistic features of these KAMs might also differ. This aligns with prior research on narrative disclosures that demonstrate that linguistic features differ depending on the reported topics (e.g. Dyer et al., 2017). As such, my second research question reads as follows:

Research Question (RQ) 2: Do linguistic features differ between account-level and entity-level KAM topics?

3 | DATA AND RESEARCH DESIGN

3.1 | Sample selection

To investigate the research questions, I utilise a sample of European firms with available KAM text data, audit firm and client variables. First, I retrieve all available English KAM text data from the Audit Analytics Europe database from 2016 to 2022, resulting in 59,172 observations.[6] Next, I delete all observations with missing text data (3012 observations). Then, I merge the KAM-level data with audit firm-level data from Audit Analytics and client-level data from Compustat, leading to a sample of 17,241 observations.[7] This sample comprises KAMs from 2178 unique client firms and 33 unique auditor network firms.[8] To calculate the readability measure, at least 100 words for a text sequence have to be included in the calculation (e.g. Flesch, 1948), resulting in a sample of 10,550 observations that meet this requirement. With regard to sample distribution, I note that most observations stem from the UK, Germany, and Sweden.[9] The sample selection and distribution are reported in Table 1.

TABLE 1 Sample selection and distribution.

Panel A: Sample selection	
Sample selection criteria	**Total observations**
Audit Analytics Europe (2016–2022)	59,172
(–) Missing text-data within KAMs	3012
(=) Available KAM text sequences	56,160
(–) Missing data for audit and client firm-level variables	38,919
(=) Final sample for linguistic features (excl. Readability)	**17,241**
(–) KAM text-sequences with less than 100 words	6691
(=) Final sample Readability	**10,550**

Panel B: Sample distribution by country				
Country	**Obs. for linguistic features (excl. Readability)**	**In percent**	**Obs. for Readability**	**In percent**
Austria	393	2.3	309	2.9
Belgium	361	2.1	253	2.4
Denmark	659	3.8	341	3.2
Finland	1271	7.4	463	4.4
Germany	2375	13.8	2085	19.8
Greece	287	1.7	224	2.1
Ireland	389	2.3	217	2.1
Italy	256	1.5	182	1.7
Luxembourg	114	0.7	93	0.9
Netherlands	837	4.9	566	5.4
Norway	836	4.8	491	4.7
Poland	171	1.0	114	1.1
Spain	602	3.5	527	5.0
Sweden	1601	9.3	797	7.6
Switzerland	1271	7.4	783	7.4
United Kingdom	4678	27.1	2377	22.5
Other countries	1140	6.6	728	6.9
Total	**17,241**	100.00	**10,550**	100.00

3.2 | Linguistic features of KAM disclosures

In order to explore the KAM linguistic features, I calculate a broad range of textual characteristics using natural language processing algorithms.[10] In particular, I calculate the following linguistic features of KAMs that comprise both stylistic and content-based characteristics of auditor language: length, readability, evaluative content, quantitative density, specificity, the degree of forward-looking statements, and boilerplate language. I focus on these linguistic features because they have been predominantly used in prior accounting literature to assess the clarity and informativeness of disclosures which I elaborate on in more detail below.

Prior studies investigating textual properties of KAMs predominantly focus on the length of KAM disclosures (e.g. Abdelfattah et al., 2021; Gutierrez et al., 2018; Liao et al., 2022; Zeng et al., 2021). The length of KAMs provides an indication of how much information the auditor conveys about the identified financial statement risks. Thus, the length could indicate the depth and comprehensiveness of the KAM disclosures. However, providing too much information might also make KAMs inaccessible for the financial statement user (as shown in the information overload literature, e.g. Lawrence, 2013). To proxy the length of KAMs, I follow prior studies and use the natural logarithm of the total number of words (*LN Words*).

In line with processing fluency theory, several studies demonstrate the effect of more readable disclosures on stakeholder decisions (e.g. Cassell et al., 2019; Rennekamp, 2012; Tan et al., 2014). Audit reports are the central communication vehicle between the auditor and the public. As such, the readability of KAM disclosures is important to effectively convey the information to the financial statement user and assess the accessibility of KAM disclosures (Abdelfattah et al., 2021; Rousseau & Zehms, 2023; Seebeck & Kaya, 2022). For the readability of KAMs, I follow Seebeck and Kaya (2022) and calculate a score based on the Gunning Fog Index, the Flesch–Kincaid and the Flesch Index (*Readability*) to provide a more robust measure for readability. The index ranges from 0 to 1, where 1 represents the highest readability.

Another aspect of audit reports highlighted by prior studies is the sentiment of KAM disclosures as it indicates their evaluative content (e.g. Abdelfattah et al., 2021; Seebeck & Kaya, 2022; Smith, 2023). The sentiment of KAMs can reveal the extent to which auditors engage in qualitative judgements in their reports, which might provide valuable signals for stakeholders as already demonstrated in other contexts (e.g. Davis et al., 2015). To proxy the sentiment of KAM disclosures, I calculate a score that captures the percentage of sentences conveying either positive or negative sentiment *(Sentiment)*. In order to classify sentences as being positive, negative or neutral, I employ the pre-trained language model FINBERT by Huang et al. (2022). This state-of-the-art language model outperforms prior 'bag-of-words' methods because of its ability to capture the context within sentences rather than individual words (e.g. Siano & Wysocki, 2021).

Prior literature also demonstrates the importance of providing quantitative numbers within narrative disclosures (e.g. Blankespoor, 2019; Siano & Wysocki, 2018). More quantitative information indicates more concreteness in KAM disclosures which is also supported by the intention of standard setters (e.g. ISA 701.A29 and A41). Quantitative information can support financial statement user in assessing the individual financial statement risks of a client. Therefore, I follow Dyer et al. (2017) and include a proxy for the level of quantitative information within KAMs that I calculate as the total number of numerical values scaled by the total number of words (*HardInfo*).

Another intended objective of KAM introduction was the provision of more client-specific information (e.g. FRC, 2013). The level of specificity in the auditors' language might reveal the auditors intent to enable better risk assessments of the client by highlighting client-specific peculiarities. Therefore, I follow Hope et al. (2016) and proxy the level of specificity with the number of entities (such as organisation names, people, locations and dates) identified by the Stanford Named Entity Recognizer, scaled by the total number of words (*Specificity*).

While prior accounting studies show the importance of forward-looking information within corporate disclosures (e.g. Bozanic et al., 2018; Muslu et al., 2015), this linguistic feature has been neglected so far in the context of KAMs. While KAM disclosures deal with the last financial statement audit, the auditor is also expected to highlight potential risks arising in the future for each identified topic. Therefore, I also analyse the degree of forward-looking statements captured by the percentage of sentences that contain forward-looking information (*FLS*). Analysing forward-looking statements in KAMs can provide insights into the auditors' perspective on future risks and uncertainties. I classify sentences as containing forward-looking information using the pre-trained 'FLS' language module of FINBERT by Huang et al. (2022).

Since the introduction of KAMs, concerns have been raised about the possibility of audit firms using boilerplate language in their disclosures (e.g. Minutti-Meza, 2021).[11] Therefore, I include a proxy for the degree of boilerplate language within KAMs (*Boilerplate*) by counting the occurrence of common N-grams. This approach aligns with the methods used in studies in large-scale sample settings (e.g. Dyer et al., 2017; Lang & Stice-Lawrence, 2015), where focussing on N-grams offers a computationally efficient strategy to identify generic phrases recurring across the sample.[12] Specifically, I measure boilerplate language as the number of 4-grams that occur more frequently than the average across all sample KAMs. This measure follows the logic outlined in Seebeck (2023), that the selection of 4-grams strikes a balance between computational simplicity and the preservation of meaningful context.[13] In the robustness section, I also test the sensitivity of the main results by using different specifications for *Boilerplate*. For a detailed variable description, please refer to Appendix A.

3.3 | Model specification and variable description

To investigate my research questions, I estimate the following regression model(s) on *KAM level*:

$$Text_{i,j,t} = \alpha + \beta_1 ELKAM_{i,t} + \beta_2 W_{j,t} + \beta_3 X_{j,t} + \tau_j + \omega_t + \varphi_j + \varepsilon \quad (1)$$

where *i* stands for KAM, *j* for client, and *t* for time indices. Text is replaced with one of the textual variables *LN Words*, *Readability*, *Sentiment*, *HardInfo*, *Specificity*, *FLS* and *Boilerplate*. ELKAM is an indicator variable that equals 1 if a KAM represents an entity-level topic and 0 if it represents an account-level topic. I classify KAM topics as being entity-level KAMs when they belong to the category 'other' in audit analytics. An overview of the KAM topics in my sample is displayed in Appendix B.

W is a vector of audit firm control variables. Following prior studies that investigate the determinants of KAM disclosures (e.g. Bepari et al., 2022; Pinto & Morais, 2019; Sierra-García et al., 2019), I include the size of the audit firm (*Big 4*), whether it is a first-time audit for the auditor (*New Auditor*), audit risk (*Audit Fees*),[14] a proxy for audit independence (*NAF Ratio*), audit report delay (*AR Lag*) and whether the auditor is an industry specialist (*Specialist*).

X is a vector of client control variables. Following prior studies that investigate firm determinants of narrative disclosures (e.g. Dyer et al., 2017; Hope et al., 2016), I include the size of a firm (*Firm Size*), an indicator whether the firm recognises negative income (*Loss*), leverage (*Leverage*), firm performance (*ROA*), the firm's asset structure (*PPE*), its market-to-book ratio (*MTB*), the auditor's opinion (*Opinion*), capital market visibility (*Indices*) and its inherent price risk (*Volatility*). Finally, while all text data are in English, there might be a potential bias resulting from the translation from originally non-English KAMs. While computational linguistic research demonstrates that translation differences are dependent on the genre, there is still a universal phenomenon that the original language shimmers through a translated text (Teich, 2003). Consistent with other cross-country studies that investigate linguistic features (e.g. Hummel & Szekely, 2022; Lang & Stice-Lawrence, 2015), I control for country-fixed effects.[15] In addition, I also control for observations stemming from countries that are native English speaking (*English*) to account for any potential peculiarities for non-English speaking countries (e.g. Volansky et al., 2015).[16] A detailed variable description can be found in Appendix A.

The variables τ_j, ω_t and φ_j represent industry-, time-, and country-fixed effects. In line with prior KAM studies, standard errors are

clustered on firm level (e.g. Andreicovici et al., 2023; Gutierrez et al., 2018). I base the industry classification on the two-digit SIC code. All continuous variables are winsorised at extreme percentiles. Throughout the regression models, I use standardised variables to make coefficients comparable.

4 | EMPIRICAL RESULTS

4.1 | Descriptive statistics

Table 2 presents the descriptive statistics for the variables used in this study for the full sample and separately for account-level and entity-level KAM topics. Regarding the linguistic features of KAMs, I find considerable variation in the sample. For example, the length of KAMs ranges from 64 to 786 words, and the percentage of evaluative content ranges from 0% to 80% (untabulated). The average KAM comprises 316 words and has a readability score of 50%.[17] Furthermore, it contains 8% evaluative sentences, 2% numbers, 7% specific words, 6% forward-looking sentences, and 55% boilerplate language. While there is a considerable amount of boilerplate language within KAMs, the overall variability in the other linguistic features demonstrates that KAM disclosures are more dynamic than anticipated by critics. I also find univariate support for differences in linguistic features between account-level and entity-level KAMs. Specifically, account-level KAMs are generally longer and more readable, containing less evaluative and

TABLE 2 Descriptive statistics.

	Full sample						ELKAM = 0		ELKAM = 1		Diff.
Variable	Mean	SD	p25	Median	p75	*N*	Mean	*N*	Mean	*N*	*t*-stat
Linguistic features											
Words	316	139	215	290	390	17,241	320	13,944	295	3297	9.35***
Readability	0.50	0.28	0.27	0.51	0.74	10,550	0.51	8,795	0.46	1755	6.89***
Sentiment	0.08	0.11	0.00	0.04	0.12	17,241	0.07	13,944	0.10	3297	−16.16***
HardInfo	0.02	0.02	0.01	0.02	0.03	17,241	0.02	13,944	0.02	3297	−10.24***
Specificity	0.07	0.07	0.02	0.05	0.09	17,241	0.06	13,944	0.08	3297	−8.96***
FLS	0.06	0.08	0.00	0.00	0.10	17,241	0.06	13,944	0.05	3297	10.15***
Boilerplate	0.55	0.33	0.23	0.58	0.87	17,241	0.59	13,944	0.41	3297	28.24***
KAM type											
ELKAM	0.19	0.39	0.00	0.00	0.00	17,241	-	-	-	-	-
Audit firm variables											
Big 4	0.85	0.35	1.00	1	1	17,241	0.87	13,944	0.81	3297	8.32***
New auditor	0.08	0.28	0.00	0.00	0.00	17,241	0.08	13,944	0.09	3297	−0.59
Audit Fees	13.34	1.64	12.14	13.20	14.48	17,241	13.36	13,944	13.27	3297	2.86**
NAF Ratio	0.23	0.18	0.09	0.19	0.31	17,241	0.23	13,944	0.24	3297	−2.36**
AR Lag	75.90	27.77	57.00	72	88	17,241	74.58	13,944	81.49	3297	−12.91***
Specialist	0.28	0.45	0.00	0.00	1	17,241	.29	13,944	0.25	3297	4.25***
Client firm variables											
Firm Size	20.59	2.19	19.11	20.64	22.17	17,241	20.64	13,944	20.38	3297	6.20***
Loss	0.24	0.43	0.00	0.00	0.00	17,241	0.23	13,944	0.30	3297	−9.49***
Leverage	0.58	0.23	0.42	0.59	0.74	17,241	0.58	13,944	0.57	3297	1.63
ROA	0.04	0.13	0.01	0.05	0.09	17,241	0.04	13,944	0.01	3297	12.52***
PPE	0.20	0.21	0.03	0.13	0.31	17,241	0.21	13,944	0.19	3297	2.82***
MTB	14.09	1.24	13.41	14.21	14.90	17,241	14.07	13,944	14.18	3297	−4.68***
Opinion	0.00	0.04	0.00	0.00	0.00	17,241	0.00	13,944	0.00	3297	−0.59
Indices	0.59	0.59	0.00	0.69	1.10	17,241	0.59	13,944	0.60	3297	−0.64
Volatility	8.42	21.14	0.35	1.57	6.43	17,241	8.81	13,944	6.76	3297	5.02***
English	0.32	0.47	0.00	0.00	1	17,241	28.56	13,944	46.65	3297	−20.25***

Note: All continuous variables are winsorised at extreme percentiles. For a definition of variables, I refer to Appendix A. The variable *Words* is rounded to whole numbers.

*Statistically significant at the 0.1 level.

**Statistically significant at the 0.05 level.

***Statistically significant at the 0.01 level.

specific content, fewer quantitative details, but more forward-looking information and boilerplate language. I also visualise the distribution of linguistic features for each KAM topic at a more granular level, further supporting the notion of considerable differences between KAM topics (I refer to Appendix C).[18]

Regarding audit firm and client variables, the descriptive statistics are comparable to other studies (Bepari et al., 2022; Seebeck & Kaya, 2022). The results also suggest that account-level KAMs are more common for Big 4 auditors, with lower audit report delay, and when the auditor is an industry specialist. When clients are smaller, recognise a loss, have lower firm performance, a lower MTB and lower volatility, entity-level KAMs are more common.

Table 3 presents the Pearson correlation matrix. In general, it demonstrates that the linguistic features capture separate aspects of KAM disclosures as there is no high correlation between these variables. Unsurprisingly, on examining the overall correlation among the explanatory variables, I note a high correlation between *Firm Size* and *Exchanges* (0.778, *p*-value: 0.000) and *Firm Size* and *Audit Fees* (0.816, *p*-value: 0.000).[19]

4.2 | Multivariate regression results

Table 4 presents the results of the main regression models with each linguistic feature as a separate dependent variable in columns (1)–(7). Regarding the KAM type (*ELKAM*), I find differences for *all* linguistic features of KAM disclosures. In particular, the results indicate that entity-level KAMs are associated with fewer words, lower readability, more evaluative content, more quantitative and specific information, less forward-looking information, and less boilerplate language. As entity-level KAMs are typically focussed on broader issues related to the entity, rather than specific accounts, they may require more evaluation and analysis of the overall control environment and risk of the entity. This could be associated with more evaluative content and quantitative and specific information within KAMs. In contrast, account-level KAMs could require more descriptive information to be included in the KAM, which could be associated with higher word counts. Additionally, account-level KAMs may be more forward looking in nature, as they may involve risks that could impact specific accounts in future reporting periods. Moreover, account-level KAMs may involve more boilerplate language, as they may require a more standardised approach to reporting because of the similarity of accounts. In contrast, entity-level KAMs may be more tailored to the specific risks and challenges faced by the entity, associated with less reliance on boilerplate language. In terms of relative magnitude, the results also indicate that *ELKAM* is the most decisive determinant for *HardInfo*, *FLS* and *Boilerplate*.

Regarding audit firm characteristics, the results indicate that the size of the auditor (*Big 4*) is a consistent determinant for most linguistic features. On average, KAMs of Big 4 auditors are longer; less readable; and contain less evaluative content, fewer specific information and more boilerplate phrases. These results indicate a very nuanced relationship between auditor size and the linguistic features of KAM disclosures. On the one hand, the results align with the idea that Big 4 auditors are more sensitive to potential litigation risks (e.g. Palmrose, 1986, 1988) that might arise from specific and evaluative information in KAMs. On the other hand, the findings are also in line with Big 4 auditors addressing stakeholder expectations to provide more information in their KAMs. Regarding readability, the negative association might also stem from higher complexity in the reported topics. The results indicate that *Big 4* is the most important determinant for the length of KAMs and their specificity.

Auditors performing a first-time audit of the client (*New Auditor*), report less specific information in their KAMs but with less boilerplate language. This might indicate that new auditors have a lack of experience with the client and its operations. As a result, the new auditor may be more cautious in their reporting to avoid making incorrect or potentially misleading statements.

In line with prior studies (e.g. Abdelfattah et al., 2021; Rousseau & Zehms, 2023), auditors assessing a higher audit risk (*Audit Fees*) tend to report KAMs that are longer, less readable and contain less boilerplate language. In particular, the results indicate that audit fees are the most important determinant for the readability of KAMs. This might reflect the increased complexity and level of effort required to audit companies with higher risk profiles. This increased level of effort could result in KAMs that are longer and less readable as auditors may need to provide more detailed and technical information to explain their findings and conclusions. In addition, I also find that higher audit risk is associated with more evaluative content in KAMs.

Auditors earning a higher level of non-audit fees (*NAF Ratio*) report KAMs that, on average, contain more evaluative content, are less quantitative and have less boilerplate language. Despite some empirical evidence for non-audit fees compromising auditor independence (e.g. Ferguson et al., 2004), it is also possible that auditors who earn a higher level of non-audit fees may be more likely to have long-standing relationships with their clients, which could provide them with a greater understanding of the client's operations and financial reporting processes. This could enable them to identify more contextualised information about the client's operations, which could contribute to more evaluative content in KAMs reported with less generic language.

Auditors that take longer to issue the audit report (*AR Lag*) are associated with less readable KAMs. As the audit report lag indicates higher complexity of the client, this complexity might be reflected in lower readability of the reported KAM topics. All other linguistic features are not associated with the audit report lag.

KAMs reported by industry specialists (*Specialist*) are longer and more readable. As industry specialists should have in-depth knowledge and experience in the given industry, they may be more effective in communicating complex information in a clear and understandable way.

Regarding the client characteristics, the results indicate that auditors adjust their language in KAMs according to the risk profile of clients. On average, KAMs for clients with negative income (*LOSS*) are longer, less readable, contain more evaluative content, and less

TABLE 3 Pearson correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) ELKAM	-												
(2) LN Words	**−0.071**	-											
(3) Readability	**−0.067**	**−0.072**	-										
(4) Sentiment	**0.122**	**−0.036**	0.013	-									
(5) HardInfo	**0.078**	**−0.032**	**0.114**	**−0.091**	-								
(6) Specificity	**0.068**	**−0.375**	**0.021**	**0.102**	0.011	-							
(7) FLS	**−0.077**	0.003	**0.041**	**0.261**	**−0.139**	**0.040**	-						
(8) Boilerplate	**−0.210**	**−0.035**	**0.020**	**−0.136**	**−0.117**	−0.005	−0.002	-					
(9) Big 4	**−0.063**	**0.140**	**−0.054**	**−0.175**	**−0.043**	**−0.174**	**−0.050**	**0.161**	-				
(10) New Auditor	0.004	**0.016**	**−0.036**	0.004	−0.009	**−0.038**	0.002	**−0.104**	**−0.021**	-			
(11) Audit Fees	**−0.022**	**0.279**	**−0.160**	**−0.092**	**−0.074**	**−0.142**	**−0.060**	**0.083**	**0.434**	0.001	-		
(12) NAF Ratio	**0.018**	**−0.079**	**0.020**	**0.016**	**−0.021**	**−0.016**	0.004	**−0.067**	**0.018**	**−0.038**	**−0.179**	-	
(13) AR Lag	**0.098**	**−0.082**	**0.045**	**0.116**	**0.087**	**0.093**	**0.049**	**−0.142**	**−0.442**	0.008	**−0.439**	**0.026**	-
(14) Specialist	**−0.032**	**0.055**	**0.060**	**−0.055**	**−0.021**	**−0.058**	**−0.021**	**0.057**	**0.253**	**−0.017**	**0.166**	**0.045**	**−0.149**
(15) Firm Size	**−0.047**	**0.243**	**−0.141**	**−0.140**	**−0.085**	**−0.121**	**−0.054**	**0.122**	**0.453**	−0.002	**0.816**	**−0.051**	**−0.537**
(16) Loss	**0.072**	**−0.055**	**−0.039**	**0.128**	**0.066**	**0.055**	**0.031**	**−0.112**	**−0.228**	−0.006	**−0.238**	**0.059**	**0.323**
(17) Leverage	−0.012	**0.171**	**−0.086**	**−0.108**	**−0.029**	**−0.101**	**−0.087**	**0.055**	**0.272**	**0.026**	**0.451**	0.003	**−0.246**
(18) ROA	**−0.095**	**0.073**	**0.038**	**−0.108**	**−0.075**	**−0.097**	**−0.042**	**0.119**	**0.246**	−0.011	**0.234**	**−0.050**	**−0.331**
(19) PPE	**−0.021**	**0.048**	**−0.019**	−0.003	**0.040**	**−0.043**	**−0.039**	**−0.019**	0.015	−0.002	**−0.018**	**−0.065**	**0.015**
(20) MTB	**0.036**	0.013	**−0.051**	**0.112**	**−0.047**	**0.057**	**0.046**	**−0.060**	**−0.079**	−0.004	**−0.021**	**−0.041**	**−0.081**
(21) Opinion	0.004	−0.005	−0.016	0.001	**0.020**	0.005	**−0.019**	**−0.033**	**−0.058**	0.003	**−0.031**	−0.013	**0.052**
(22) Exchanges	0.005	**0.208**	**−0.197**	**−0.054**	**−0.060**	**−0.108**	**−0.053**	**0.035**	**0.282**	**0.025**	**0.693**	**−0.080**	**−0.398**
(23) Volatility	**−0.038**	**−0.026**	**0.030**	**−0.080**	**−0.034**	0.013	**−0.017**	**0.112**	**0.087**	**−0.019**	**0.053**	0.006	**−0.099**
(24) English	**0.152**	**−0.079**	**0.046**	**0.282**	0.008	**0.083**	**0.067**	**−0.237**	**−0.285**	**0.027**	**−0.137**	0.013	**0.238**

Note: Correlations with a significance at 5% level are highlighted in bold. For a definition of variables, I refer to Appendix A.

TABLE 3 (Continued)

Variables	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
(1) ELKAM										
(2) LN Words										
(3) Readability										
(4) Sentiment										
(5) HardInfo										
(6) Specificity										
(7) FLS										
(8) Boilerplate										
(9) Big 4										
(10) New Auditor										
(11) Audit Fees										
(12) NAF Ratio										
(13) AR Lag										
(14) Specialist	-									
(15) Firm Size	**0.162**	-								
(16) Loss	**−0.052**	**−0.386**	-							
(17) Leverage	**0.076**	**0.284**	**−0.097**	-						
(18) ROA	**0.077**	**0.368**	**−0.574**	**0.059**	-					
(19) PPE	0.003	0.011	**0.034**	**−0.048**	**0.074**	-				
(20) MTB	**−0.019**	**0.130**	**−0.016**	**−0.054**	**0.073**	**−0.035**	-			
(21) Opinion	**−0.023**	**−0.046**	**0.042**	−0.013	**−0.024**	**0.034**	**−0.032**	-		
(22) Exchanges	**0.110**	**0.778**	**−0.265**	**0.256**	**0.236**	−0.012	**0.130**	**−0.030**	-	
(23) Volatility	**0.054**	**0.210**	**−0.128**	**−0.035**	**0.154**	0.007	**−0.060**	−0.008	**0.071**	
(24) English	**−0.055**	**−0.218**	**0.140**	**−0.196**	**−0.100**	**−0.024**	**0.252**	0.010	**−0.035**	**−0.240**

Note: Correlations with a significance at 5% level are highlighted in bold. For a definition of variables, I refer to Appendix A.

TABLE 4 Determinants of KAM linguistic features.

	(1) LN Words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
ELKAM	−0.079***	−0.056***	0.071***	0.069***	0.054***	−0.088***	−0.170***
	(0.010)	(0.012)	(0.013)	(0.013)	(0.013)	(0.011)	(0.012)
Big 4	0.137***	−0.044**	−0.055***	−0.006	−0.112***	−0.013	0.056***
	(0.019)	(0.021)	(0.018)	(0.021)	(0.019)	(0.018)	(0.018)
New Auditor	0.010	−0.011	0.000	−0.009	−0.031***	0.007	−0.095***
	(0.008)	(0.010)	(0.008)	(0.010)	(0.008)	(0.009)	(0.009)
Audit Fees	0.099***	−0.151***	0.071**	−0.023	−0.082*	0.015	−0.090***
	(0.036)	(0.040)	(0.031)	(0.039)	(0.044)	(0.031)	(0.033)
NAF Ratio	0.000	−0.006	0.028**	−0.028**	−0.012	−0.002	−0.058***
	(0.013)	(0.015)	(0.012)	(0.013)	(0.016)	(0.013)	(0.012)
AR Lag	−0.017	−0.046**	−0.014	0.003	0.028	−0.006	−0.019
	(0.022)	(0.022)	(0.023)	(0.022)	(0.030)	(0.023)	(0.018)
Specialist	0.033**	0.054***	−0.011	0.000	−0.005	−0.019	0.006
	(0.014)	(0.018)	(0.012)	(0.015)	(0.009)	(0.014)	(0.015)
Firm Size	0.130***	0.033	−0.092**	−0.016	0.031	0.009	0.092**
	(0.039)	(0.045)	(0.037)	(0.045)	(0.062)	(0.037)	(0.037)
Loss	0.027**	−0.061***	0.037***	0.026*	−0.005	−0.003	−0.032**
	(0.013)	(0.016)	(0.014)	(0.015)	(0.014)	(0.016)	(0.014)
Leverage	0.044**	0.032	−0.045***	−0.011	−0.023	−0.044**	0.028
	(0.018)	(0.022)	(0.017)	(0.021)	(0.015)	(0.019)	(0.018)
ROA	0.035**	0.021	−0.039*	−0.035*	−0.063	−0.046**	0.047***
	(0.018)	(0.022)	(0.020)	(0.018)	(0.048)	(0.018)	(0.017)
PPE	0.030*	0.013	0.027*	0.034*	−0.027**	−0.025	−0.043***
	(0.018)	(0.020)	(0.016)	(0.018)	(0.013)	(0.016)	(0.016)
MTB	−0.059***	−0.018	0.010	−0.001	0.046**	0.058***	−0.038*
	(0.021)	(0.026)	(0.020)	(0.026)	(0.022)	(0.021)	(0.022)
Opinion	0.005	−0.010	−0.009**	0.009	0.001	−0.014**	−0.018**
	(0.009)	(0.009)	(0.004)	(0.009)	(0.008)	(0.006)	(0.007)
Exchanges	−0.076***	−0.091***	0.006	0.003	0.005	−0.035	0.027
	(0.025)	(0.031)	(0.024)	(0.027)	(0.025)	(0.026)	(0.027)
Volatility	−0.020	0.007	0.030**	−0.051***	−0.005	−0.010	0.011
	(0.017)	(0.017)	(0.014)	(0.019)	(0.011)	(0.013)	(0.013)
English	−0.805***	0.649***	−0.129	−0.316	0.379	0.127	0.015
	(0.064)	(0.061)	(0.145)	(0.205)	(0.309)	(0.100)	(0.067)
Constant	0.446	−1.500***	−0.522***	−0.357*	−0.632	−0.986***	−2.871***
	(0.657)	(0.134)	(0.150)	(0.213)	(0.454)	(0.271)	(0.289)
Industry FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Highest VIF	6.470	6.170	6.470	6.470	6.470	6.470	6.470
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.278	0.209	0.133	0.060	0.291	0.048	0.206

Note: This tables presents the estimation results of Equation (1). For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardised. Standard errors are clustered on firm level.

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

boilerplate language. This is in line with a greater linguistic complexity of 'bad news' (e.g. Bushee et al., 2018) which is associated with lower readability and indicates that auditors put more emphasis on the evaluative content of disclosures. This is also reflected in the results for *ROA* and *Volatility*. It appears that a higher firm performance is associated with longer KAMs that contain more boilerplate language, whereas higher volatility is associated with more evaluative but less quantitative content.

Complementary, KAMs contain less evaluative content, fewer forward-looking statements and less boilerplate language when clients receive a qualified opinion (*Opinion*). This indicates that auditors avoid making disclosures about the future in situations of higher uncertainty. In addition, the results indicate that the asset structure of a client (*PPE*) also affects the linguistic features of KAMs. Clients with a higher ratio of property, plant, and equipment are associated with KAMs that are less specific but have less boilerplate language. Because physical assets typically involve clear-cut and well-established accounting treatments, they may lead to a diminished necessity for in-depth client-specific explanations in KAMs, while allowing auditors to adopt less standardised approach in their reporting, moving away from generic boilerplate language. Clients with a higher *MTBs* are associated with shorter KAMs that containing more specific and forward-looking information, along with more boilerplate language. Clients with a higher capital market visibility (*Exchanges*) are associated with shorter and less readable KAMs. This might indicate that auditors anticipate the higher scrutiny of the capital market and adjust their linguistic features of KAMs accordingly.

The analysis also allows to delve deeper into the most important factors shaping each linguistic feature of KAMs. The length of KAMs is most importantly determined by the size of the audit firm; Big 4 auditors are the most important factor associated with lengthier KAMs, while entity-level KAMs, which are the principal determinant for brevity, reflect a need for concise and focussed reporting because of their broader scope. The readability of KAMs is most profoundly associated with audit fees, associated with less readable disclosures. In contrast, the most important factor enhancing readability is the presence of auditor specialists, whose expertise likely aids in clearly articulating complex information. The sentiment within KAMs is primarily enhanced in entity-level KAMs, mirroring their more evaluative nature, but this is most notably tempered in reports for larger client firms, suggesting a more neutral language. Quantitative information in KAMs is less prevalent in entity-level disclosures, highlighting their role as the main determinant, whereas *Volatility* is the main determinant for less quantitative KAMs. The specificity in KAMs is predominantly observed in entity-level KAMs, emphasising their role in providing client-specific insights, while the generalisation seen in Big 4 auditors' KAMs, the most important factor associated with less specificity, might be a strategy to mitigate litigation risks. The presence of forward-looking information is most prevalently linked to firms with higher MTBs, indicating their future growth opportunities, but is notably less prevalent in entity-level KAMs, where the current, broader entity issues are apparently more important. Lastly, the use of boilerplate language in KAMs is most commonly associated with larger client firms, indicating standardised reporting practices, in contrast to the lesser prevalence in entity-level KAMs, where a more customised reporting language is evident.

While the R^2 values for most models align with prior KAM studies (e.g. Abdelfattah et al., 2021; Seebeck & Kaya, 2022), ranging between 13% and 28%, the models for *HardInfo* and *FLS* exhibit comparatively lower R^2 values, explaining only about 5–6% of the variation. This lower explanatory power suggests that these two linguistic features of KAM disclosures may possess inherent complexities that are not fully captured by the models. This perspective is further supported by studies in non-KAM contexts, which also report R^2 values below 10% for models examining forward-looking information (e.g. Henry et al., 2023). This reinforces the notion that factors influencing *HardInfo* and *FLS* in KAM disclosures are multifaceted and extend beyond the variables used in this study.

Collectively, the results of the multivariate regression models demonstrate that the linguistic features of KAM disclosures vary depending on audit firm and client characteristics as well as KAM type. These systematic differences highlight the considerable discretion that auditors exercise when reporting KAMs and underscore the importance of considering these individual circumstances when evaluating the consequences of KAM disclosures.

4.3 | Additional analyses

The results of the main analyses demonstrate that there are systematic differences in the linguistic features of KAMs. However, as KAM disclosures became effective for most countries in Europe as of 2016, it remains an open question whether the linguistic features of KAM disclosures changed over time.

In Figure 1, I plot the evolution of the linguistic feature over this 7-year period, which reveals distinct patterns: while *Readability*, *Sentiment*, and *FLS* remain relatively stable, other textual characteristics exhibit notable changes. For example, there is a significant 28% increase in the average word count. Noteworthy are the fluctuations in *Specificity* between 2019 and 2021, potentially reflecting the impact of the COVID-19 pandemic on KAM reporting.

To further investigate a potential time trend, I added a time-series trend variable to the regression (Equation 1). The variable, called *Trend*, represents the passage of time and starts at 0 in 2016, increasing by 1 each year until reaching 6 in 2022. To investigate a potential effect of the COVID-19 pandemic on KAM reporting behaviour, I also investigate this time period separately. The results of the multivariate regression are tabulated in Table 5 and largely confirm the visual indications of Figure 1. In particular, the results for the full time period indicate that *ceteris paribus*, KAMs are becoming longer and contain more quantitative information, more specific and more boilerplate language. I find no time trend regarding the evaluative content of KAM disclosures, the extent of forward-looking statements, and readability. Investigating the time period since the beginning of the COVID-19 pandemic in 2019, I do find consistent results regarding a positive time trend for KAM length, quantitative information and

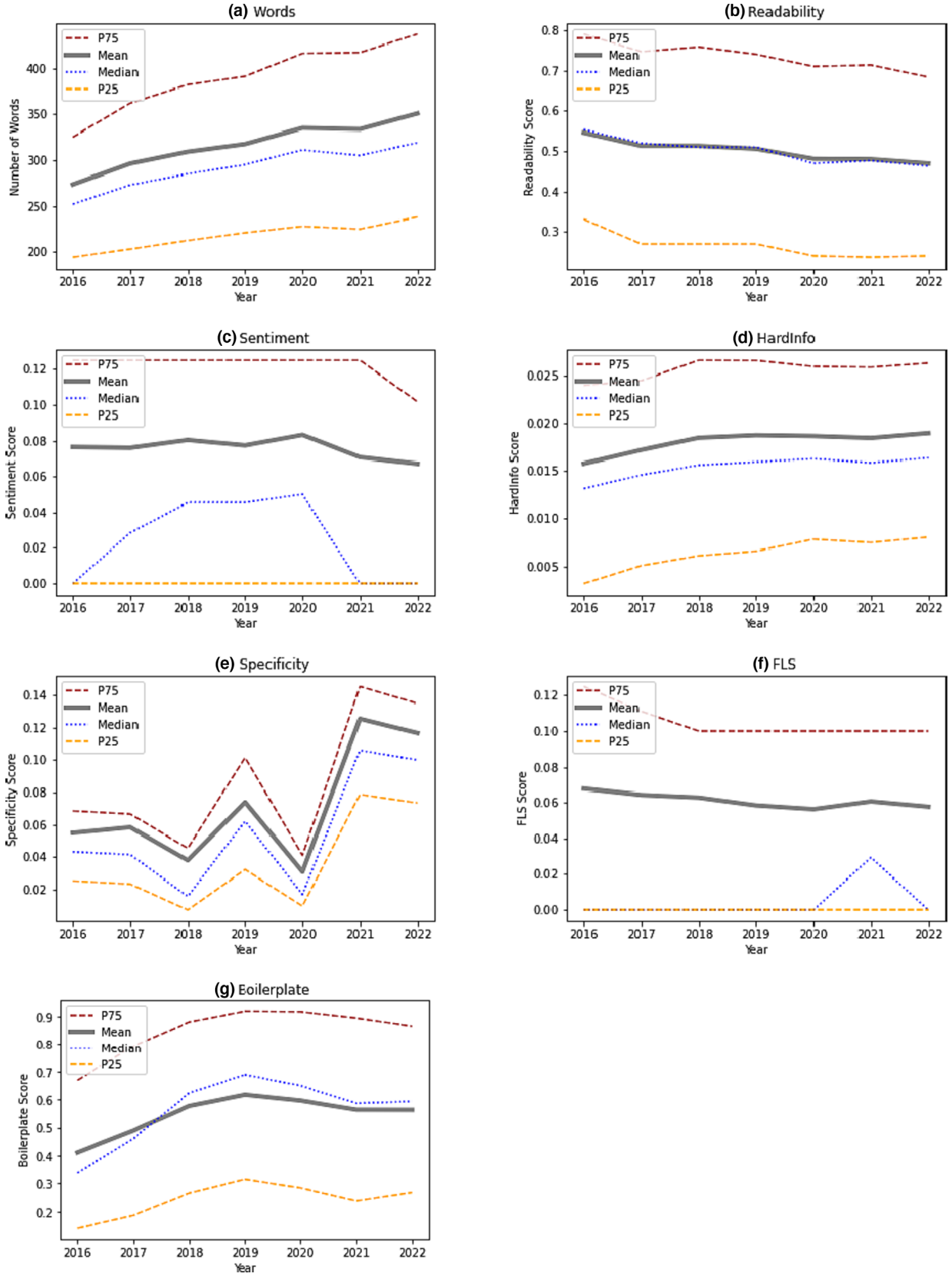

FIGURE 1 Time trends in KAM linguistic features. [Colour figure can be viewed at wileyonlinelibrary.com]

TABLE 5 Is there a time trend in KAM linguistic features?

Panel A: Full time period from 2016 to 2022							
	(1) LN Words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
Trend	**0.114*** **	**−0.012**	**−0.010**	**0.076*** **	**0.273*** **	**−0.018***	**0.122*** **
	(0.012)	**(0.014)**	**(0.011)**	**(0.012)**	**(0.018)**	**(0.011)**	**(0.012)**
Controls	YES	YES	YES	YES	YES	YES	YES
Industry-, country-, year FE	YES	YES	YES	YES	YES	YES	YES
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.278	0.209	0.133	0.060	0.291	0.048	0.206
Panel B: Time period since COVID-19 pandemic 2019–2022							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
Trend	**0.045*** **	**−0.012**	**−0.002**	**0.036*** **	**0.218*** **	**0.006**	**−0.124*** **
	(0.011)	**(0.013)**	**(0.011)**	**(0.012)**	**(0.026)**	**(0.010)**	**(0.011)**
Controls	YES	YES	YES	YES	YES	YES	YES
Industry-, country-, year FE	YES	YES	YES	YES	YES	YES	YES
Observations	9585	6312	9585	9585	9585	9585	9585
R-squared	0.301	0.224	0.155	0.071	0.345	0.058	0.218

Note: This tables presents the estimation results of Equation (1) including the time trend variable (*Trend*). For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardised. Standard errors are clustered on firm level.
*Statistically significant at the 0.1.
**Statistically significant at the 0.05.
***Statistically significant at the 0.01.

client-specific information.[20] However, in contrast to the full time period, I find a *negative* time trend for boilerplate language, indicating that since 2019 KAMs are becoming less generic. These results extend the findings by Seebeck (2023) who finds a positive time trend for boilerplate language for UK firms from 2012 to 2018. The shift in trend since the onset of the COVID-19 pandemic suggests a reactive change in KAM reporting styles, potentially driven by the unique challenges and uncertainties introduced by the pandemic. This change might reflect an increased need for non-generic language within KAMs, emphasising the association of external factors with boilerplate language. All other variables are similar in terms of coefficient and level of significance compared to the main results in Table 4.

In Table 6, I further investigate whether the identified time trend depends on the KAM type (*ELKAM*). Therefore, I insert an interaction term *Trend* × *ELKAM* in my regression models. It shows that the observed time trend is independent of the KAM type. However, when looking at the time period since 2019, I note a positive coefficient of the interaction term for *Specificity*. This indicates that since the beginning of the pandemic, the positive time trend of KAMs getting more specific is more pronounced for entity-level KAMs.

Collectively, the results of the additional analysis suggest an early time trend for the linguistic features in KAM disclosures since their broad implementation in 2016. This indicates that auditors adjust the language within KAMs over time, demonstrating the dynamic nature of KAM disclosures.

5 | ROBUSTNESS

To investigate the sensitivity of the main results, I conduct several robustness tests. First, as KAMs consist of two separate parts, I start by estimating my regression models for the description and response section separately. The results are displayed in Table 7. While the vast majority of inferences remain very similar to the inferences made on the full KAM text sequence, I find interesting differences for *ELKAM* and *Specialist*. When looking at the full KAM text sequence, I find that entity-level KAMs provide on average less forward-looking information. Looking at the separate parts of KAMs, however, I find a more nuanced relationship. While I find a negative coefficient for the description section (Table 7, Panel A), I find a positive one for the response section of the KAM (Table 7, Panel B). A test for equality of the coefficients reveals a significant difference between them (*z*-statistic: −14.55; *p*-value: <0.01). This indicates that auditors provide more forward-looking information in their risk response part, which might be related to the kind of audit procedures required for entity-level KAMs such as business combinations. Regarding *Specialist*, I find no associations with *Sentiment* and *FLS*. In the separate analysis, however, I find a negative association in the description section and a positive association in the response section. Again, this difference is significant (*FLS*: *z*-statistic: −5.10; *p*-value: <0.01; *Sentiment*: *z*-statistic: −5.88; *p*-value: <0.01). This might indicate that auditor expertise is predominantly revealed in the way auditors communicate

TABLE 6 Do time trends in KAM linguistic features depend on KAM topics?

Panel A: Full time period from 2016 to 2022							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
Trend	0.114***	−0.011	−0.009	0.076***	0.275***	−0.019*	0.122***
	(0.012)	(0.014)	(0.011)	(0.012)	(0.019)	(0.011)	(0.012)
ELKAM	−0.079***	−0.057***	0.071***	0.069***	0.054***	−0.088***	−0.170***
	(0.010)	(0.012)	(0.013)	(0.013)	(0.012)	(0.011)	(0.012)
Trend × ELKAM	**−0.001**	**0.015**	**0.004**	**0.004**	**0.037***	**−0.007**	**−0.003**
	(0.008)	**(0.011)**	**(0.010)**	**(0.010)**	**(0.022)**	**(0.009)**	**(0.008)**
Controls	YES	YES	YES	YES	YES	YES	YES
Industry-, country-, year FE	YES	YES	YES	YES	YES	YES	YES
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.278	0.209	0.133	0.060	0.292	0.048	0.206
Panel B: Time period since COVID-19 pandemic 2019–2022							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
Trend	0.045***	−0.012	−0.003	0.036***	0.219***	0.006	−0.124***
	(0.011)	(0.013)	(0.011)	(0.012)	(0.026)	(0.010)	(0.011)
ELKAM	−0.072***	−0.048**	0.107***	0.095***	−0.018	−0.082***	−0.190***
	(0.016)	(0.023)	(0.020)	(0.020)	(0.025)	(0.016)	(0.019)
Trend × ELKAM	**−0.016**	**0.002**	**−0.036***	**−0.035**	**0.127****	**−0.008**	**0.026**
	(0.017)	**(0.021)**	**(0.020)**	**(0.021)**	**(0.053)**	**(0.015)**	**(0.016)**
Controls	YES	YES	YES	YES	YES	YES	YES
Industry-, country-, year FE	YES	YES	YES	YES	YES	YES	YES
Observations	9585	6312	9585	9585	9585	9585	9585
R-squared	0.301	0.224	0.155	0.071	0.350	0.058	0.218

Note: This tables presents the estimation results of Equation (1) including the time trend variable (*Trend*) and the interaction term *Trend* × *ELKAM*. For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardised. Standard errors are clustered on firm level. All variables are standardised.

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

their response to the identified risks and not in the descriptive part of the KAM.

Second, to account for unobservable, time-invariant client firm, audit firm and KAM topic-specific characteristics, I estimate an audit firm, client firm and KAM topic fixed effects model.[21] The results are displayed in Table 8. Regarding the firm-fixed effects models, displayed in Panel A, I note considerable increase in R^2 throughout my models. This indicates that a notable part of the linguistic features can be explained by time-invariant client firm characteristics. Consequently, these characteristics absorb much of the variability in the data, affecting the statistical significance of certain variables. Regarding the audit firm fixed effects models displayed in Table 8, Panel B, I also find a considerable increase in R^2 throughout the models, albeit to a lesser extent than the inclusion of client firm fixed effects. In general, this indicates that the linguistic features of KAMs can be predominantly explained by time-invariant client firm characteristics. I find that most inferences are qualitatively very similar to the main findings in Table 4. Table 8, Panel C, reports the findings of my regression models when including KAM topic fixed effects. Again, the inferences remain very similar to the ones displayed in Table 4.

Third, to account for the bounded nature of most of my linguistic feature variables, which by construction vary within a fixed range, I follow Papke and Wooldridge (1996) and run a fractional regression model. OLS regression assumes the dependent variable is unbounded and measured on an interval scale, leading to potential issues when applied to bounded variables. In contrast, fractional regression, akin to ordered logit regression but with the flexibility of handling continuous dependent variables within a bounded range, circumvents these problems. It maintains the integrity of predictions within the logical bounds and ensures the reliability of statistical tests.[22] The results are reported in Table 9 with qualitatively very similar results to the ones reported in Table 4. This indicates that the main results are not driven by issues stemming from the bounded nature of the dependent variables.

TABLE 7 Results for each KAM section.

Panel A: Description section							
	(1) LN Words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
ELKAM	−0.063***	−0.071***	0.058***	0.046***	0.049***	−0.099***	−0.172***
	(0.010)	(0.013)	(.013)	(.013)	(.013)	(.011)	(0.012)
Big 4	0.122***	−0.029	−0.056***	0.001	−0.113***	−0.017	0.038**
	(0.018)	(0.020)	(0.019)	(0.022)	(0.020)	(0.018)	(0.018)
New Auditor	0.016*	−0.006	−0.002	−0.006	−0.031***	0.007	−0.088***
	(0.008)	(0.009)	(0.008)	(0.010)	(0.008)	(0.009)	(0.009)
Audit Fees	0.074**	−0.082**	0.068**	−0.034	−0.069	0.017	−0.113***
	(0.035)	(0.037)	(0.032)	(0.040)	(0.044)	(0.032)	(0.033)
NAF Ratio	−0.002	−0.016	0.026**	−0.040***	−0.007	0.000	−0.062***
	(0.012)	(0.014)	(0.012)	(0.013)	(0.016)	(0.013)	(0.012)
AR Lag	0.007	−0.035*	−0.016	0.008	0.049	−0.008	−0.023
	(0.021)	(0.021)	(0.023)	(0.022)	(0.033)	(0.023)	(0.019)
Specialist	0.025*	0.025	−0.026**	0.000	−0.007	−0.025*	0.000
	(0.014)	(0.016)	(0.013)	(0.016)	(0.009)	(0.014)	(0.015)
Firm Size	0.099**	0.000	−0.085**	−0.011	0.032	0.011	0.110***
	(0.038)	(0.043)	(0.038)	(0.046)	(0.063)	(0.037)	(0.037)
Loss	0.014	−0.036**	0.048***	0.021	−0.002	−0.005	−0.028**
	(0.014)	(0.016)	(0.015)	(0.016)	(0.015)	(0.016)	(0.014)
Leverage	0.05***	−0.005	−0.052***	−0.009	−0.025	−0.039**	0.037**
	(0.018)	(0.020)	(0.017)	(0.022)	(0.016)	(0.019)	(0.018)
ROA	0.016	0.021	−0.031	−0.039**	−0.050	−0.043**	0.047***
	(0.018)	(0.021)	(0.022)	(0.019)	(0.048)	(0.018)	(0.017)
PPE	0.019	0.034*	0.029*	0.031*	−0.028**	−0.024	−0.046***
	(0.017)	(0.018)	(0.016)	(0.019)	(0.013)	(0.017)	(0.016)
MTB	−0.037*	0.002	0.018	−0.012	0.042*	0.056***	−0.046**
	(0.021)	(0.025)	(0.020)	(0.027)	(0.022)	(0.021)	(0.021)
Opinion	0.016*	−0.017	−0.005	0.002	−0.007	−0.016***	−0.018***
	(0.009)	(0.010)	(0.005)	(0.007)	(0.004)	(0.005)	(0.007)
Exchanges	−0.067**	−0.089***	0.005	0.009	0.001	−0.036	0.022
	(0.027)	(0.029)	(0.025)	(0.028)	(0.025)	(0.027)	(0.027)
Volatility	−0.017	−0.012	0.028**	−0.039**	−0.009	−0.009	0.014
	(0.016)	(0.018)	(0.013)	(0.020)	(0.011)	(0.013)	(0.013)
English	−0.854***	0.624***	−0.209	−0.402**	0.327	0.148	0.099
	(0.142)	(0.058)	(0.133)	(0.167)	(0.325)	(0.103)	(0.158)
Constant	0.585	−1.386***	−0.442***	−0.182	−0.693*	−0.999***	−1.476***
	(0.701)	(0.133)	(0.134)	(0.162)	(0.418)	(0.274)	(0.140)
Industry FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.238	0.193	0.125	0.048	0.222	0.048	0.178

TABLE 7 (Continued)

Panel B: Response section							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
ELKAM	−0.078***	−0.015	0.053***	0.086***	0.049***	0.059***	−0.155***
	(0.010)	(0.013)	(0.013)	(0.012)	(0.010)	(0.013)	(0.012)
Big 4	0.123***	−0.05**	−0.011	−0.020	−0.070***	0.022	0.068***
	(0.019)	(0.023)	(0.015)	(0.018)	(0.015)	(0.015)	(0.018)
New Auditor	0.005	−0.007	0.007	−0.011	−0.020**	−0.001	−0.093***
	(0.008)	(0.011)	(0.009)	(0.008)	(0.009)	(0.007)	(0.009)
Audit Fees	0.098***	−0.163***	0.026	0.019	−0.089**	−0.015	−0.059*
	(0.037)	(0.041)	(0.028)	(0.033)	(0.035)	(0.026)	(0.033)
NAF Ratio	0.007	−0.001	0.014	0.022*	−0.019	−0.012	−0.050***
	(0.013)	(0.015)	(0.011)	(0.011)	(0.013)	(0.013)	(0.012)
AR Lag	−0.032	−0.035	0.002	−0.011	−0.039**	0.010	−0.015
	(0.021)	(0.023)	(0.017)	(0.019)	(0.016)	(0.018)	(0.018)
Specialist	0.036**	0.061***	0.036***	0.001	0.001	0.033***	0.010
	(0.014)	(0.018)	(0.013)	(0.013)	(0.010)	(0.012)	(0.014)
Firm Size	0.119***	0.053	−0.044	−0.017	0.017	−0.011	0.070*
	(0.040)	(0.045)	(0.031)	(0.038)	(0.047)	(0.027)	(0.038)
Loss	0.029**	−0.064***	−0.017	0.021	−0.011	0.011	−0.035**
	(0.013)	(0.017)	(0.013)	(0.014)	(0.012)	(0.013)	(0.014)
Leverage	0.030	0.058**	0.005	−0.008	−0.011	−0.029**	0.016
	(0.019)	(0.023)	(0.016)	(0.017)	(0.015)	(0.013)	(0.018)
ROA	0.046***	0.021	−0.031**	−0.003	−0.075**	−0.021	0.041**
	(0.017)	(0.024)	(0.016)	(0.016)	(0.033)	(0.017)	(0.018)
PPE	0.028	−0.012	0.002	0.019	−0.015	−0.008	−0.037**
	(0.018)	(0.020)	(0.014)	(0.016)	(0.012)	(0.013)	(0.016)
MTB	−0.067***	−0.036	−0.018	0.029	0.041**	0.012	−0.028
	(0.022)	(0.026)	(0.019)	(0.023)	(0.020)	(0.016)	(0.022)
Opinion	−0.013	0.000	−0.013***	0.022	0.021	0.011	−0.017**
	(0.011)	(0.008)	(0.003)	(0.017)	(0.018)	(0.011)	(0.008)
Exchanges	−0.064**	−0.073**	0.003	−0.014	0.013	0.005	0.029
	(0.027)	(0.032)	(0.021)	(0.025)	(0.021)	(0.019)	(0.027)
Volatility	−0.012	0.024	0.012	−0.047***	0.007	−0.005	0.008
	(0.016)	(0.018)	(0.014)	(0.013)	(0.011)	(0.008)	(0.014)
English	−0.591***	0.527***	0.169**	0.115	0.391**	−0.116**	0.244***
	(0.056)	(0.064)	(0.081)	(0.178)	(0.162)	(0.047)	(0.069)
Constant	0.245	−1.617***	−0.347***	−0.580**	−0.248	−0.009	−2.887***
	(0.397)	(0.153)	(0.115)	(0.255)	(0.415)	(0.067)	(0.226)
Industry FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,219
R-squared	0.256	0.142	0.034	0.071	0.340	0.029	0.211

Note: This tables presents the estimation results of Equation (1) for each KAM section separately. For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardized. Standard errors are clustered on firm level.

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

TABLE 8 Controlling for time-invariant firm, audit firm and KAM topic characteristics.

Panel A: Firm-fixed effects							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
ELKAM	−0.069***	−0.063***	0.065***	0.092***	0.038***	−0.103***	−0.172***
	(0.010)	(0.014)	(0.014)	(0.013)	(0.008)	(0.012)	(0.013)
Big 4	0.082**	0.067	0.019	0.014	−0.026	0.075	0.089**
	(0.041)	(0.041)	(0.039)	(0.050)	(0.031)	(0.046)	(0.038)
New auditor	0.002	−0.003	−0.007	−0.007	−0.017*	0.004	−0.065***
	(0.008)	(0.010)	(0.008)	(0.008)	(0.009)	(0.008)	(0.009)
Audit fees	0.228***	−0.040	0.045	0.122	−0.051	0.013	−0.254***
	(0.058)	(0.083)	(0.061)	(0.078)	(0.067)	(0.060)	(0.070)
NAF ratio	0.008	−0.015	0.002	0.002	0.001	−0.003	−0.038***
	(0.011)	(0.015)	(0.013)	(0.013)	(.015)	(0.013)	(0.013)
AR lag	0.054***	−0.023	−0.006	0.019	−0.027	−0.084***	−0.045**
	(0.020)	(0.026)	(0.024)	(0.021)	(0.038)	(0.025)	(0.019)
Specialist	0.031	0.068*	0.015	−0.026	0.029	−0.005	0.049
	(0.027)	(0.037)	(0.021)	(0.029)	(0.024)	(0.023)	(0.039)
Firm size	−0.128*	0.115	−0.135*	0.019	0.162	−0.019	0.030
	(0.070)	(0.098)	(0.071)	(0.080)	(0.098)	(0.073)	(0.073)
Loss	0.019*	0.000	0.021	0.009	0.013	0.005	−0.033***
	(0.011)	(0.016)	(0.013)	(0.014)	(0.020)	(0.013)	(0.012)
Leverage	0.030	0.000	−0.055*	0.023	−0.017	−0.032	−0.041
	(0.029)	(0.049)	(0.033)	(0.037)	(0.043)	(0.034)	(0.034)
ROA	0.013	0.015	−0.050*	−0.056**	−0.022	−0.028	0.011
	(0.019)	(0.028)	(0.026)	(0.024)	(0.030)	(0.022)	(0.019)
PPE	−0.048*	0.013	0.006	−0.003	0.021	0.010	0.058
	(0.028)	(0.043)	(0.032)	(0.044)	(0.047)	(0.036)	(0.039)
MTB	0.008	−0.102*	0.020	−0.044	−0.008	−0.005	0.031
	(0.038)	(0.059)	(0.039)	(0.045)	(0.057)	(0.040)	(0.043)
Opinion	−0.007	−0.011	0.001	0.003	0.018*	0.003	−0.010
	(0.008)	(0.013)	(0.007)	(0.014)	(0.009)	(0.006)	(0.007)
Volatility	0.001	−0.007	0.013	−0.003	−0.033***	0.000	−0.003
	(0.012)	(0.021)	(0.009)	(0.012)	(0.013)	(0.012)	(0.015)
Constant	−1.322***	0.158	1.801***	−0.240	0.968**	3.850***	0.068
	(0.279)	(0.398)	(0.291)	(0.322)	(0.390)	(0.299)	(0.307)
Firm FE	YES	YES	YES	YES	YES	YES	YES
Audit firm FE	NO	NO	NO	NO	NO	NO	NO
KAM topic FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	NO	NO	NO	NO	NO	NO	NO
Year FE	YES	YES	YES	YES	YES	YES	YES
Country FE	NO	NO	NO	NO	NO	NO	NO
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.621	0.607	0.428	0.437	0.590	0.393	0.556

TABLE 8 (Continued)

Panel B: Audit firm fixed effects							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
ELKAM	−0.070***	−0.061***	0.056***	0.080***	0.031***	−0.102***	−0.173***
	(0.010)	(0.012)	(0.013)	(0.012)	(0.007)	(0.011)	(0.012)
New Auditor	0.008	−0.012	0.000	−0.003	−0.029***	0.007	−0.094***
	(0.007)	(0.010)	(0.008)	(0.009)	(0.008)	(0.009)	(0.009)
Audit Fees	0.082**	−0.147***	0.079***	0.006	−0.075***	0.022	−0.079**
	(0.034)	(0.040)	(0.029)	(0.036)	(0.026)	(0.032)	(0.033)
NAF Ratio	−0.007	−0.009	0.030***	−0.017	−0.001	0.001	−0.055***
	(0.012)	(0.015)	(0.011)	(0.012)	(0.010)	(0.013)	(0.013)
AR Lag	0.013	−0.040*	−0.029	0.004	−0.029*	−0.018	−0.040**
	(0.016)	(0.022)	(0.018)	(0.020)	(0.016)	(0.017)	(0.017)
Specialist	−0.013	−0.007	0.012	0.007	0.008	0.015	0.004
	(0.015)	(0.019)	(0.013)	(0.017)	(0.009)	(0.016)	(0.016)
Firm Size	0.114***	0.044	−0.093***	−0.044	0.054	0.010	0.090**
	(0.035)	(0.045)	(0.033)	(0.040)	(0.035)	(0.036)	(0.038)
Loss	0.022*	−0.053***	0.040***	0.028**	0.005	−0.001	−0.029**
	(0.012)	(0.016)	(0.013)	(0.014)	(0.013)	(0.014)	(0.014)
Leverage	0.041**	0.035	−0.036**	−0.017	0.000	−0.039**	0.023
	(0.017)	(0.022)	(0.016)	(.020)	(.012)	(0.018)	(0.018)
ROA	−0.001	0.018	−0.019	−0.032**	−0.028	−0.035*	0.057***
	(0.014)	(0.022)	(0.016)	(0.016)	(0.023)	(0.018)	(0.016)
PPE	0.017	0.009	0.038**	0.043**	−0.007	−0.015	−0.041**
	(0.016)	(0.019)	(0.015)	(0.017)	(0.009)	(0.016)	(0.016)
MTB	−0.044**	−0.009	0.001	0.018	0.012	0.048**	−0.043**
	(0.019)	(0.026)	(0.018)	(0.022)	(0.014)	(0.021)	(0.022)
Opinion	0.003	−0.012	−0.001	0.007	0.004	−0.011**	−0.015
	(0.008)	(0.010)	(0.005)	(0.009)	(0.008)	(0.006)	(0.011)
Exchanges	−0.051**	−0.09***	−0.005	−0.007	−0.020	−0.041	0.021
	(0.024)	(0.031)	(0.022)	(0.025)	(0.017)	(0.026)	(0.027)
Volatility	−0.024	0.001	0.027**	−0.045**	0.000	−0.011	0.010
	(0.017)	(0.017)	(0.013)	(0.018)	(0.008)	(0.012)	(0.013)
English	−1.011***	0.649***	−0.118	−0.379***	0.571*	0.189**	0.087
	(0.110)	(0.068)	(0.123)	(0.137)	(0.341)	(0.086)	(0.078)
Constant	−3.348***	−1.881***	−0.886**	−1.999***	2.051***	−1.147***	−2.003***
	(0.707)	(0.454)	(0.366)	(0.312)	(0.498)	(0.300)	(0.338)
Firm FE	NO	NO	NO	NO	NO	NO	NO
Audit firm FE	YES	YES	YES	YES	YES	YES	YES
KAM topic FE	NO	NO	NO	NO	NO	NO	NO
Industry FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,219
R-squared	0.355	0.238	0.176	0.132	0.450	0.093	0.234

(Continues)

TABLE 8 (Continued)

Panel C: KAM topic fixed effects							
	(1) LN words	(2) Readability	(3) Sentiment	(4) HardInfo	(5) Specificity	(6) FLS	(7) Boilerplate
Big 4	0.149***	−0.030	−0.037**	−0.011	−0.111***	−0.005	0.032*
	(0.019)	(0.021)	(0.017)	(0.021)	(0.017)	(0.017)	(0.017)
New Auditor	0.010	−0.010	0.000	−0.012	−0.030***	0.009	−0.091***
	(0.008)	(0.009)	(0.008)	(0.010)	(0.008)	(0.009)	(0.009)
Audit Fees	0.125***	−0.170***	0.089***	−0.038	−0.085**	0.002	−0.086***
	(0.035)	(0.039)	(0.030)	(0.038)	(0.041)	(0.031)	(0.031)
NAF Ratio	0.001	−0.009	0.032***	−0.028**	−0.011	−0.003	−0.044***
	(0.012)	(0.014)	(0.012)	(0.012)	(0.015)	(0.013)	(0.012)
AR Lag	−0.032	−0.043**	−0.020	−0.003	0.036	−0.005	−0.027
	(0.021)	(0.022)	(0.021)	(0.021)	(0.029)	(0.022)	(0.018)
Specialist	0.040***	0.048***	−0.011	−0.006	−0.006	−0.014	0.008
	(0.013)	(0.017)	(0.012)	(0.015)	(0.009)	(0.014)	(0.014)
Firm Size	0.108***	0.035	−0.085**	0.000	0.029	0.035	0.101***
	(0.038)	(0.044)	(0.035)	(0.044)	(0.058)	(0.036)	(0.036)
Loss	0.023*	−0.058***	0.027**	0.024*	−0.001	−0.009	−0.030**
	(0.013)	(0.016)	(0.013)	(0.015)	(0.014)	(0.015)	(0.014)
Leverage	0.027	0.039*	−0.050***	−0.012	−0.020	−0.033*	0.036**
	(0.018)	(0.022)	(0.017)	(0.020)	(0.016)	(0.019)	(0.017)
ROA	0.040**	0.011	−0.027	−0.025	−0.068	−0.047***	0.056***
	(0.017)	(0.022)	(0.019)	(0.018)	(0.047)	(0.018)	(0.017)
PPE	0.016	−0.007	0.003	0.016	−0.029*	−0.030*	−0.034**
	(0.018)	(0.020)	(0.016)	(0.018)	(0.015)	(0.017)	(0.016)
MTB	−0.047**	−0.012	0.007	0.007	0.046**	0.031	−0.036*
	(0.020)	(0.026)	(0.019)	(0.026)	(0.022)	(0.021)	(0.021)
Opinion	0.003	−0.013	−0.010**	0.008	0.001	−0.014**	−0.016**
	(0.009)	(0.009)	(0.004)	(0.009)	(0.007)	(0.006)	(0.007)
Exchanges	−0.067***	−0.075**	0.012	0.007	0.005	−0.042	0.024
	(0.025)	(0.030)	(0.023)	(0.026)	(0.024)	(0.026)	(0.026)
Volatility	−0.018	0.011	0.023*	−0.04**	−0.006	−0.011	0.014
	(0.017)	(0.017)	(0.013)	(0.018)	(0.010)	(0.012)	(0.013)
English	0.362***	0.667***	0.428***	−0.145	−0.118	0.276***	0.281***
	(0.069)	(0.083)	(0.149)	(0.235)	(0.291)	(0.063)	(0.080)
Constant	−0.080	−2.702***	−2.238***	0.539*	−1.025**	−1.702***	−4.500***
	(0.510)	(0.202)	(0.169)	(0.302)	(0.424)	(0.267)	(0.223)
Firm FE	NO	NO	NO	NO	NO	NO	NO
Audit firm FE	NO	NO	NO	NO	NO	NO	NO
KAM topic FE	YES	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES	YES
Observations	17,241	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.354	0.263	0.224	0.158	0.312	0.087	0.289

Note: For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardized. Standard errors are clustered on firm level.

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

TABLE 9 Fractional Regression Models.

	(1) Readability	(2) Sentiment	(3) HardInfo	(4) Specificity	(5) FLS	(6) Boilerplate
ELKAM	−0.067***	0.092***	0.059***	0.059***	−0.141***	−0.240***
	(0.010)	(0.020)	(0.010)	(0.010)	(0.020)	(0.020)
Big 4	−0.051**	−0.055***	−0.005	−0.111***	−0.015	0.077***
	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
New Auditor	−0.013	−0.000	−0.008	−0.040***	0.009	−0.135***
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Audit Fees	−0.179***	0.112**	−0.022	−0.109**	0.026	−0.128***
	(0.050)	(0.050)	(0.030)	(0.050)	(0.050)	(0.050)
NAF Ratio	−0.007	0.040**	−0.025**	−0.011	−0.002	−0.084***
	(0.020)	(0.020)	(0.010)	(0.020)	(0.020)	(0.020)
AR Lag	−0.053**	−0.030	0.003	0.024	−0.010	−0.027
	(0.030)	(0.030)	(0.020)	(0.030)	(0.030)	(0.030)
Specialist	0.064***	−0.019	0.000	−0.010	−0.028	0.009
	(0.020)	(0.020)	(0.010)	(0.010)	(0.020)	(0.020)
Firm Size	0.042	−0.140**	−0.012	0.028	0.007	0.132**
	(0.050)	(0.060)	(0.040)	(0.060)	(0.060)	(0.050)
Loss	−0.072***	0.057***	0.023*	−0.010	−0.002	−0.046**
	(0.020)	(0.020)	(0.010)	(0.020)	(0.020)	(0.020)
Leverage	0.038	−0.064***	−0.008	−0.018	−0.062**	0.040
	(0.030)	(0.020)	(0.020)	(0.020)	(0.030)	(0.030)
ROA	0.026	−0.037*	−0.026*	−0.044	−0.054**	0.070***
	(0.030)	(0.020)	(0.010)	(0.030)	(0.020)	(0.030)
PPE	0.014	0.042*	0.029*	−0.030**	−0.034	−0.062***
	(0.020)	(0.020)	(0.020)	(0.010)	(0.020)	(0.020)
MTB	−0.022	0.019	−0.003	0.037*	0.088***	−0.054*
	(0.030)	(0.030)	(0.020)	(0.020)	(0.030)	(0.030)
Opinion	−0.012	−0.011*	0.006	0.006	−0.033*	−0.028**
	(0.010)	(0.010)	(0.010)	(0.010)	(0.020)	(0.010)
Exchanges	−0.108***	0.005	0.001	0.010	−0.054	0.039
	(0.040)	(0.040)	(0.020)	(0.030)	(0.040)	(0.040)
Volatility	0.008	0.050*	−0.047**	−0.005	−0.015	0.017
	(0.020)	(0.030)	(0.020)	(0.010)	(0.020)	(0.020)
English	0.007	6.266	−0.227***	0.068	5.684	1.533***
	(0.130)	(0.000)	(0.050)	(0.080)	(0.000)	(0.090)
Constant	0.420	−11.856	−3.494***	−1.923***	−11.849	−2.795***
	(0.350)	(0.000)	(0.150)	(0.130)	(0.000)	(0.320)
Industry FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES	YES
Observations	10,550	17,241	17,241	17,241	17,241	17,241
R-squared	0.211	0.138	0.060	0.332	0.049	0.206

Note: For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardized. Standard errors are clustered on firm level.

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

TABLE 10 Sharpened two-stage *q*-values.

	(1) LN Words		(2) Readability		(3) Sentiment		(4) HardInfo		(5) Specificity		(6) FLS		(7) Boilerplate	
	p-value	*q*-value	*p*-value	*q*-value	*p*-value	*q*-value	*p*-value	*q*-value	*p*-value	*q*-value	*p*-value	*q*-value	*p*-value	*q*-value
ELKAM	<0.010***	<0.010***	<0.010***	0.625	<0.010***	0.027**	<0.010***	0.029**	<0.010***	<0.010***	<0.010***	<0.010***	<0.010***	<0.010***
Big 4	<0.010***	<0.010***	0.037**	0.071*	<0.010***	0.016**	0.774	0.625	<0.010***	<0.010***	0.471	0.447	<0.010***	0.013**
New Auditor	0.201	0.243	0.244	0.276	0.971	0.709	0.338	0.352	<0.010***	<0.010***	0.457	0.441	<0.010***	<0.010***
Audit Fees	<0.010***	0.027**	<0.010***	<0.010***	0.022**	0.052*	0.554	0.524	0.059*	0.096*	0.638	0.548	<0.010***	0.027**
NAF Ratio	0.970	0.709	0.685	0.569	.019**	0.048**	0.030**	0.065*	0.461	0.441	0.897	0.671	<0.010***	0.356
AR Lag	0.427	0.426	0.040**	0.072*	0.534	0.511	0.880	0.669	0.347	0.354	0.793	0.625	0.293	0.326
Specialist	0.018**	0.048**	<0.010***	0.017**	0.374	0.373	0.998	0.709	0.550	0.524	0.193	0.240	0.668	0.569
Firm Size	<0.010***	<0.010***	0.461	0.441	0.013**	0.038**	0.728	0.591	0.618	0.548	0.816	0.625	0.015**	0.041**
Loss	0.039**	0.072*	<0.010***	<0.010***	<0.010***	0.030**	0.092*	0.132	0.741	0.598	0.856	0.649	0.023**	0.052*
Leverage	0.017**	0.045**	0.158	0.202	<0.010***	0.029**	0.601	0.548	0.130	0.167	0.019**	0.048**	0.115	0.155
ROA	0.048**	0.084*	0.324	0.348	0.053*	0.091*	0.056*	0.095*	0.193	0.24	0.011**	0.035**	<0.010***	0.029**
PPE	0.096*	0.134	0.510	0.485	0.090*	0.132	0.060*	0.096*	0.035**	0.069*	0.133	0.169	<0.010***	0.029**
MTB	<0.010***	0.024**	0.489	0.464	0.607	0.548	0.979	0.709	0.036**	0.070*	<0.010***	0.027**	0.083*	0.122
Opinion	0.610	0.548	0.294	0.326	0.027**	0.060*	0.282	0.320	0.926	0.676	0.013**	0.039**	0.014**	0.039**
Exchanges	<0.010***	0.018**	<0.010***	0.020**	0.814	0.625	0.897	0.671	0.839	0.638	0.187	0.239	0.310	0.336
Volatility	0.234	0.266	0.684	0.569	0.032**	0.065*	<0.010***	0.029**	0.625	0.548	0.425	0.426	0.402	0.405
English	<0.010***	<0.010***	<0.010***	<0.010***	0.374	0.373	0.122	0.159	0.220	0.251	0.207	0.244	0.821	0.625

Note: For a detailed variable definition, I refer to Appendix A. *Q*-values are calculated as described in Anderson (2008).

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

TABLE 11 Different specifications for measuring boilerplate language.

	Comparison level = entire sample		Comparison level = KAM-topic and year		
	(1) Boilerplate_5G	(2) Boilerplate_6G	(3) Boilerplate_4G_TY	(4) Boilerplate_5G_TY	Boilerplate_6G_TY
ELKAM	−0.211***	−0.210***	0.107***	0.120***	0.126***
	(0.012)	(0.012)	(0.014)	(0.014)	(0.014)
Big 4	0.026*	0.022	0.100***	0.097***	0.092***
	(0.016)	(0.016)	(0.015)	(0.015)	(0.015)
New Auditor	−0.111***	−0.113***	0.013	0.013	0.014
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Audit Fees	−0.120***	−0.124***	0.087***	0.066**	0.056*
	(0.028)	(0.029)	(0.032)	(0.031)	(0.031)
NAF Ratio	−0.064***	−0.063***	−0.002	0.001	0.002
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
AR Lag	−0.039**	−0.040**	−0.012	−0.014	−0.015
	(0.017)	(0.017)	(0.018)	(0.018)	(0.018)
Specialist	0.002	0.004	−0.032*	−0.026	−0.023
	(0.012)	(0.012)	(0.017)	(0.017)	(0.017)
Firm Size	0.092***	0.098***	0.003	0.030	0.046
	(0.034)	(0.035)	(0.048)	(0.050)	(0.051)
Loss	−0.039***	−0.040***	−0.017	−0.018	−0.019
	(0.014)	(0.014)	(0.013)	(0.013)	(0.013)
Leverage	0.033**	0.035**	−0.001	0.002	0.004
	(0.015)	(0.015)	(0.018)	(0.018)	(0.018)
ROA	0.042**	0.040**	0.017	0.010	0.006
	(0.018)	(0.017)	(0.013)	(0.013)	(0.013)
PPE	−0.038***	−0.039***	−0.034**	−0.028*	−0.025
	(0.014)	(0.014)	(0.016)	(0.016)	(0.016)
MTB	−0.057***	−0.058***	0.016	0.010	0.008
	(0.019)	(0.019)	(0.023)	(0.023)	(0.023)
Opinion	−0.026***	−0.025***	0.009	0.009	0.009
	(0.010)	(0.009)	(0.013)	(0.013)	(0.014)
Exchanges	0.037	0.033	−0.096**	−0.105***	−0.111***
	(0.024)	(0.024)	(0.038)	(0.040)	(0.041)
Volatility	0.019*	0.021*	0.000	−0.001	−0.002
	(0.011)	(0.011)	(0.014)	(0.013)	(0.013)
English	−0.024	0.021	−0.005	0.068	0.118**
	(0.046)	(0.044)	(0.059)	(0.052)	(0.051)
Constant	−3.852***	−3.862***	−0.771***	−0.841***	−0.833***
	(0.312)	(0.278)	(0.194)	(0.215)	(0.175)
Industry FE	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES
Country FE	YES	YES	YES	YES	YES
Observations	17,241	17,241	17,241	17,241	17,241
R-squared	0.196	0.198	0.058	0.055	0.053

Note: For a detailed variable definition, I refer to Appendix A. Standard errors are in parentheses. All variables are standardized. Standard errors are clustered on firm level.

*Statistically significant at the 0.1.

**Statistically significant at the 0.05.

***Statistically significant at the 0.01.

Fourth, to mitigate the risks associated with multiple testing, I implement controls for the false discovery rate. Specifically, I employ the use of sharpened *q*-values, a method designed to address concerns related to multiple testing in the context of numerous variables within multiple regression models (Benjamini et al., 2006). The results are reported in Table 10. Although the majority of significance levels remain consistent with those presented in Table 4, a notable shift is observed in some variables. For instance, the previously identified 5% significance level of the association between *ELKAM* and *Readability* diminishes to non-significance. Despite these alterations, the bulk of the associations maintain their levels of significance as previously reported.

Finally, I test the sensitivity for my results regarding different specifications of the boilerplate variable. While the measurement of *Boilerplate* follows the logic of prior literature, the selected number of N-grams and the comparison level used to define common boilerplate phrases are somewhat arbitrary, I calculate different specifications for this variable. In particular, instead of using 4-grams, I re-calculate the measure with 5-grams (*Boilerplate_5G*) and 6-grams (*Boilerplate_6G*). Finally, I re-calculate the measure by identifying common 4-grams, 5-grams and 6-grams for each topic-year category instead of the entire sample (*Boilerplate_4G_TY*, *Boilerplate_5G_TY*, *Boilerplate_6G_TY*). The results are reported in Table 11. While I do find very similar results to the ones reported in Table 4 with regards to *Boilerplate_5G* and *Boilerplate_6G*, I do find some differences for the specifications where the comparison is on topic-year level. In particular, it shows that the association between boilerplate language and *ELKAM*, *Audit Fees*, and *Exchanges* reverses compared to the main findings in Table 4. This demonstrates that the level on which boilerplate is being defined (overall sample vs. topic-year level) does have an impact of the results.[23] This remains an inherent limitation of this measure.

6 | CONCLUSION

While the introduction of KAMs into the audit report represents the most substantial change in audit reporting in over 70 years, little is known about what determines the linguistic features of KAM disclosures. This paper sheds light on this research gap by using NLP methods to quantify various stylistic and content-based textual characteristics of KAMs on a large-scale European sample. The empirical results indicate that audit firm and client characteristics as well as the KAM type are associated with the length, readability, the evaluative content, the quantitative density, the specificity, the amount of forward-looking information and the degree of boilerplate language. In additional analyses, I also find early evidence for a time trend in these linguistic features. Since the wide-spread introduction of extended audit reporting in 2016, KAMs are becoming longer, more quantitative, more specific, but include more boilerplate language.

The results provide some interesting implications and avenues for future research. First, the results indicate that KAM disclosures are not as standardised as supposed by some critics and vary in their linguistic features depending on audit firm and client characteristics as well as the KAM type. This highlights the importance to account for these differences when investigating the consequences of KAM disclosures. For example, while prior studies examined the capital market effects resulting from the first-time adaptation of KAMs, future research could investigate investor reactions to variations in the linguistic features of KAM disclosures. Second, the results indicate that several linguistic features of KAMs are associated with audit firm characteristics. This raises the possibility that auditors use KAMs as a vehicle to signal their audit quality to the public, a question worthy of further investigation (e.g. Minutti-Meza, 2021). Third, the early evidence of a time trend in KAM disclosures might be of interest from a regulatory perspective. In general, it appears that certain linguistic features of KAMs improve over time. As prior studies that investigate the consequences of KAM disclosures predominantly focus on the first-time adoption effects, this time trend opens an avenue for future research to investigate the usefulness of KAM disclosures over time.

The study is subject to some limitations from which five are worth highlighting. First, because of the exploratory nature of this study, one should be cautious about drawing causal conclusions. While I test the robustness of my main inferences with different model specifications, I cannot rule out endogeneity issues. As such, no causal claims are made. Second, the study does not compare the linguistic features of KAMs with other narrative corporate disclosures, which limits the ability to draw broader conclusions. Future research might address this limitation by conducting such comparisons. Third, the identified time trend in linguistic features needs to be interpreted with caution because of the still limited time span of 7 years. As such, further research is needed in this area to better understand the evolution of KAM linguistic features over time. Fourth, because of computational constraints, the employed metric for boilerplate language is a very broad measure to capture the degree of boilerplate language. Robustness tests show that some observed associations depend on the level on which boilerplates are examined, that is, on the overall sample of KAMs or on the topic-year level. Fifth, I lose a considerable number of observations because of missing data in Compustat Global. While I find that my sample is comparable in terms of linguistic features of KAMs to the population of KAM texts in the Audit Analytics Europe database, this remains a limitation of the study.

Despite these caveats, this study provides empirical evidence on the determinants of linguistic features in KAMs and highlights the heterogeneity of KAM types. It also identifies a trend in KAMs' linguistic features since their introduction in 2016. Therefore, the results of this study contribute to a more nuanced understanding of the linguistic features of KAM disclosures.

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CONFLICT OF INTEREST STATEMENT

None.

DATA AVAILABILITY STATEMENT

The data used in this study stems from Compustat and Audit Analytics Database.

ETHICS STATEMENT

This article does not contain any studies involving humans and animals.

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ENDNOTES

[1] Two European countries had similar regulation in place earlier than 2016. In France, auditors need to report the so-called justification of assessments in their audit reports since 2003. In the UK, KAMs were already introduced for firms listed on the London Stock Exchange main market as of 1 October 2012.

[2] Focussing on boilerplate language in a German sample, the study by Carlé et al. (2023) finds no time trend between the timeframes 2017/2018 and 2018/2019.

[3] ISA 701 became effective for audits of financial statements ending on or after 15 December 2016.

[4] I focus on the literature investigating the determinants of KAM disclosures. For a detailed literature review on the consequences of KAM disclosures, I refer to Minutti-Meza (2021).

[5] There are multiple studies that quantify linguistic features of KAM disclosures and investigate the consequences of variation in these features but are largely silent on its determinants (e.g., Burke et al., 2023; Gutierrez et al., 2018; Klevak et al., 2022; Liao et al., 2022; Seebeck & Kaya, 2022; Zeng et al., 2021).

[6] The International Standard on Auditing (ISA) 701 "*Communicating Key Audit Matters in the Independent Auditor's Report*" became effective for audits of financial statements ending on or after 15 December 2016. While certain European countries implemented ISA 701 at a different date (e.g., United Kingdom), I believe 2016 to be a valid starting point for my sample as KAM reporting was initiated on a broad scale (IFAC, 2017).

[7] I observe a notable decline in observations because of missing data in the Compustat Global database. To assess if my final sample accurately represents the broader population of KAM text data in Audit Analytics Europe, I computed all linguistic features for this entire population and compared them with those of my final sample. The findings, detailed in Appendix D, reveal only small disparities in the linguistic features examined, except for *Boilerplate*. As the metric used to quantify the degree of boilerplate language compares 4-grams within KAMs in the respective samples, this measure is (by construction) not comparable across different samples. In total, although this is not conclusive evidence, it lends descriptive support to the argument that my final sample is representative of the larger population.

[8] Taking into account the individual legal entities, I have 112 unique audit firms in my sample.

[9] Dropping these three countries does not change the main inferences of my analyses (untabulated), mitigating the concern that the results are driven by a over-representation of these countries.

[10] I perform the calculation with Python and use the libraries *regex*, *nltk*, *py-readability-metrics*, and *transformers*. The code for quantifying my text variables is available at https://doi.org/10.17605/OSF.IO/68PC4.

[11] ISA 701 explicitly highlights this concern by stating that *"(…) the language used in the description of a key audit matter (…) relates the matter directly to the specific circumstances of the entity, while avoiding generic or standardised language*" (ISA701.A47). While my measure of *Specificity* should capture client-specific details, *Boilerplate* relates to repetitive language patterns within KAMs that are associated with a generic language.

[12] An alternative method, which could potentially offer greater accuracy, involves calculating pairwise similarity scores for each KAM. However, this approach faces a challenge given the substantial sample size of 17,241 observations. This size translates to roughly 150 million unique combinations that would need to be computed, a task that is computationally impractical.

[13] While Seebeck (2023) uses a 50% threshold to identify boilerplate 4-grams, this approach is unsuitable for this study because of the large sample size. Applied to the sample of this study, this threshold would result in the absence of any identified boilerplates. Therefore, I use the average occurrence of a 4-grams as a threshold to accommodate the larger sample size

[14] While previous studies use audit fees to proxy audit risk (e.g. Cassell et al., 2011), audit fees are also used to capture other constructs such as audit effort (e.g. Lobo & Zhao, 2013), audit quality (e.g. Aobdia, 2019) or auditor independence (e.g. Ashbaugh et al., 2003).

[15] Including country-fixed effects is also important as Federsel and Hörner (2023) demonstrate the relevance of country attributes in KAM reporting.

[16] My main results also remain qualitatively unchanged when running the regression models on the subsample of non-English speaking countries.

[17] The average KAM length of 316 words supports the notion that information overload should not be a major issue with regards to KAM disclosures.

[18] The visualisation further supports the plausibility of the calculated text scores. For example, KAMs related to going concern contain more evaluative content and forward-looking statements than the mean, which appears reasonable as the auditor provides an evaluation about whether the firm remains in business for the foreseeable future.

[19] In my multivariate regressions, I report the highest variance inflation factors (VIF) and find no indications for major multicollinearity issues.

[20] I also tested the robustness of my findings by dropping the pandemic years with very similar results (untabulated).

[21] Due to the inclusion of fixed effects, only time varying variables are left in the models.

[22] Moreover, when OLS regression would be acceptable (e.g. for predictions within the range of 0.2–0.8), fractional regression closely replicates OLS results, ensuring that my analysis is not misled by the choice of modelling technique.

[23] I also checked the sensitivity with regards to the time trend observed in Tables 5 and 6 but find very similar results irrespective of the specification of the boilerplate measure.

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APPENDIX A: DEFINITION OF VARIABLES

TABLE A1 Definition of variables.

Variable	Description	Source
Linguistic features		
LN Words	The natural logarithm of the total number of words within KAMs.	Own calculation
Readability	Readability score that encompasses the Gunning Fog, Flesch and Flesch–Kincaid measures. I calculate the readability score as the average of their percentiles divided by 100, where the Fog and Flesch–Kincaid measures are multiplied by negative one to ensure that the score is increasing in readability.	Own calculation
Sentiment	Sentiment score calculated as the percentage of KAM sentences that have either positive or negative sentiment. To classify sentences as positive or negative, I employ the pre-trained large language model FINBERT by Huang et al. (2022).	Own calculation
HardInfo	The quantitative density of KAMs calculated as the total number of numerical values scaled by the total number of words.	Own calculation
Specificity	The degree of specificity of KAMs calculated as the number of entities identified by the Stanford Named Entity Recognizer scaled by the total number of words.	Own calculation
FLS	The amount of forward-looking information in KAMs calculated as the percentage of KAM sentence that contain forward-looking information. To classify forward-looking sentences, I employ the pre-trained large language model FINBERT by Huang et al. (2022).	Own calculation
Boilerplate	Total number of boilerplate phrases scaled by the total number of 4-grams within a KAM. I define boilerplate phrases as 4-gram occurring in a KAM at a frequency exceeding the average observed across the entire sample of KAMs.	Own calculation
Boilerplate_5G	Total number of boilerplate phrases scaled by the total number of five-grams within a KAM. I define boilerplate phrases as 5-gram occurring in a KAM at a frequency exceeding the average observed across the entire sample of KAMs.	Own calculation
Boilerplate_6G	Total number of boilerplate phrases scaled by the total number of 6-grams within a KAM. I define boilerplate phrases as 6-grams occurring in a KAM at a frequency exceeding the average observed across the entire sample of KAMs.	Own calculation
Boilerplate_4G_TY	Total number of boilerplate phrases scaled by the total number of 4-grams within a KAM. I define boilerplate phrases as 4-grams exceeding the average observed for each KAM topic in a given year.	Own calculation
Boilerplate_5G_TY	Total number of boilerplate phrases scaled by the total number of 5-grams within a KAM. I define boilerplate phrases as 5-grams exceeding the average observed for each KAM topic in a given year.	Own calculation
Boilerplate_6G_TY	Total number of boilerplate phrases scaled by the total number of 6-grams within a KAM. I define boilerplate phrases as 6-grams exceeding the average observed for each KAM topic in a given year.	Own calculation
KAM-variables		
ELKAM	Indicator variable that equals 1 if a KAM is classified as being an entity-level risk topic and 0 when it is classified as being an account-level risk topic. I define topics as being entity-level risk topics when they are classified as 'other' in the KAM category list of Audit Analytics.	Audit Analytics
Trend	A time-series trend variable that starts at zero in 2016 and increases by one each year until it reaches six in 2022.	Own calculation
Audit firm variables		
Big 4	An indicator variable that equals 1 if the KAM is reported by Deloitte, PwC, KPMG, or EY, and 0 otherwise.	Audit Analytics
New auditor	An indicator variable that equals 1 if the KAM is reported by an auditor who conducted the audit for the first time.	Audit Analytics
Audit fees	The logarithm of total audit fees in EUR.	Audit Analytics
NAF ratio	Total non-audit fees divided by total fees.	Audit Analytics
AR lag	Audit reporting lag calculated as the difference between the fiscal year end and the opinion signature day.	Audit Analytics
Specialist	An indicator variable that equals 1 if the firm is audited by the industry specialist. I define the industry specialist as the auditor with the highest market share (measured with audit fees) in an industry (measured with the two-digit SIC code).	Audit Analytics
Client variables		
Firm size	The logarithm of total market capitalisation in EUR.	Compustat
Loss	An indicator variable that equals 1 if a firm reports negative net income, and 0 otherwise.	Compustat

TABLE A1 (Continued)

Variable	Description	Source
Leverage	Total liabilities divided by total assets.	Compustat
ROA	Return of assets calculated as earnings before interest and taxes scaled by total assets.	Compustat
PPE	Property, plant and equipment scaled by total assets.	Compustat
MTB	The logarithm of total market capitalisation divided by net book value.	Compustat
Opinion	An indicator variable that equals 1 if the firm received a qualified opinion in the respective year, and 0 otherwise.	Audit Analytics
Indices	The logarithm of 1 plus the number of indices a firm is included.	Audit Analytics
Volatility	The variability of stock return measured as the standard deviation of daily stock returns.	Compustat
English	An indicator variable that equals 1 if the firm is headquartered in a country where English is the native language, and 0 otherwise.	Own calculation

APPENDIX B: OVERVIEW OF KAM TOPICS

TABLE B1 Overview of KAM Topics.

KAM topic	Type	Freq.	Percent	Cum.
Revenue and other income	Account level	1912	11.09	11.09
Goodwill	Account level	1613	9.36	20.45
Revenue from customer contracts	Account level	1059	6.14	26.59
Goodwill and intangible assets	Account level	1024	5.94	32.53
Inventory	Account level	850	4.93	37.46
Business combinations	Entity level	800	4.64	42.10
Deferred income taxes	Account level	723	4.19	46.29
Contingent liabilities	Account level	618	3.58	49.88
Property, plant and equipment	Account level	609	3.53	53.41
Subsidiary/affiliate	Entity level	584	3.39	56.79
Deferred and capitalised costs	Account level	503	2.92	59.71
Going concern	Entity level	466	2.70	62.42
Accounts/loans receivable	Account level	459	2.66	65.08
Other intangible assets	Account level	434	2.52	67.59
Pension and other post-employment benefits	Account level	367	2.13	69.72
Other liabilities and provisions	Account level	364	2.11	71.83
Long-lived assets	Account level	350	2.03	73.86
Allowance for credit losses	Account level	324	1.88	75.74
Investment valuation – securities and financial instruments	Account level	317	1.84	77.58
Information technology	Entity level	278	1.61	79.19
Other income taxes	Account level	263	1.53	80.72
Disposals, discontinued operations and accounting for sales/divestitures	Entity level	242	1.40	82.12
Uncertain tax positions	Account level	239	1.39	83.51
Insurance contract liabilities	Account level	205	1.19	84.70
Derivatives and hedging	Account level	192	1.11	85.81
Policy changes	Entity level	180	1.04	86.86
Significant one-off transactions	Entity level	140	0.81	87.67
Equity investments and joint ventures	Account level	126	0.73	88.40
Internal controls	Entity level	122	0.71	89.11
Leases	Account level	121	0.70	89.81

(Continues)

TABLE B1 (Continued)

KAM topic	Type	Freq.	Percent	Cum.
Investment valuation – property	Account level	120	0.70	90.51
Other investments	Account level	119	0.69	91.20
Presentation – exceptional items and non-GAAP measures	Account level	116	0.67	91.87
Vendor/supplier rebates	Account level	115	0.67	92.54
Deferred and stock-based compensation	Account level	113	0.66	93.19
Warranty liabilities	Account level	111	0.64	93.83
Other topics		1063	6.17	100
Total		**17,241**	**100.00**	**100.00**

APPENDIX C: LINGUISTIC FEATURES BY KAM TOPICS

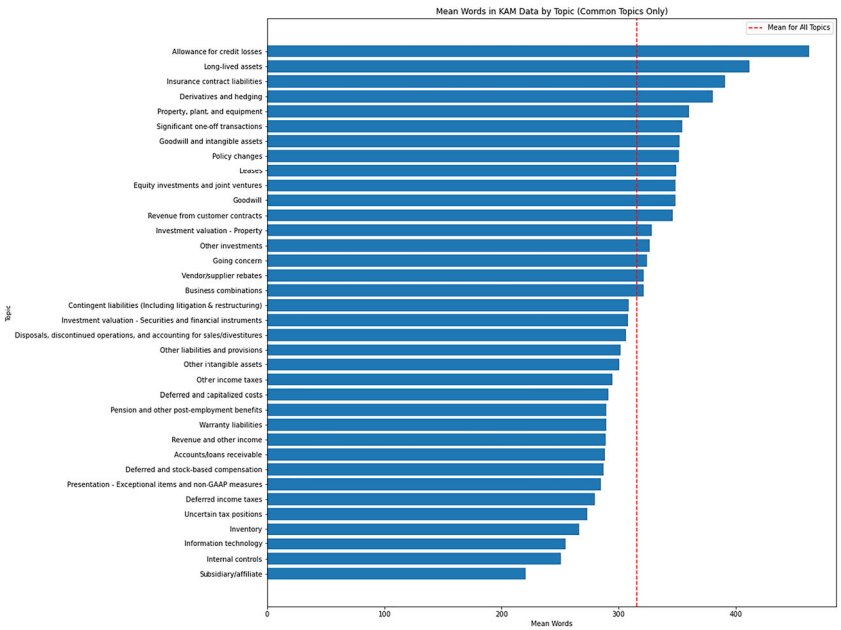

FIGURE C1 Mean words by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

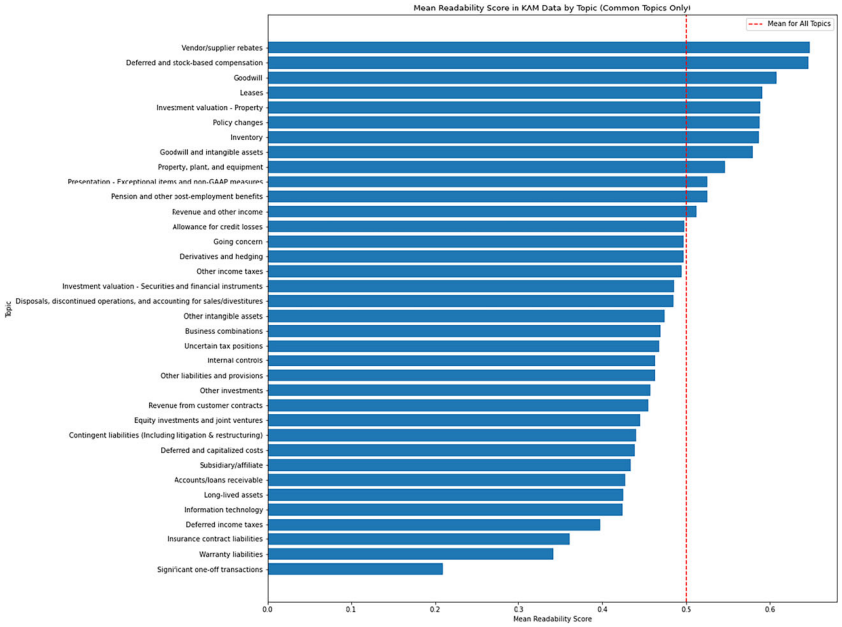

FIGURE C2 Mean Readability score by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

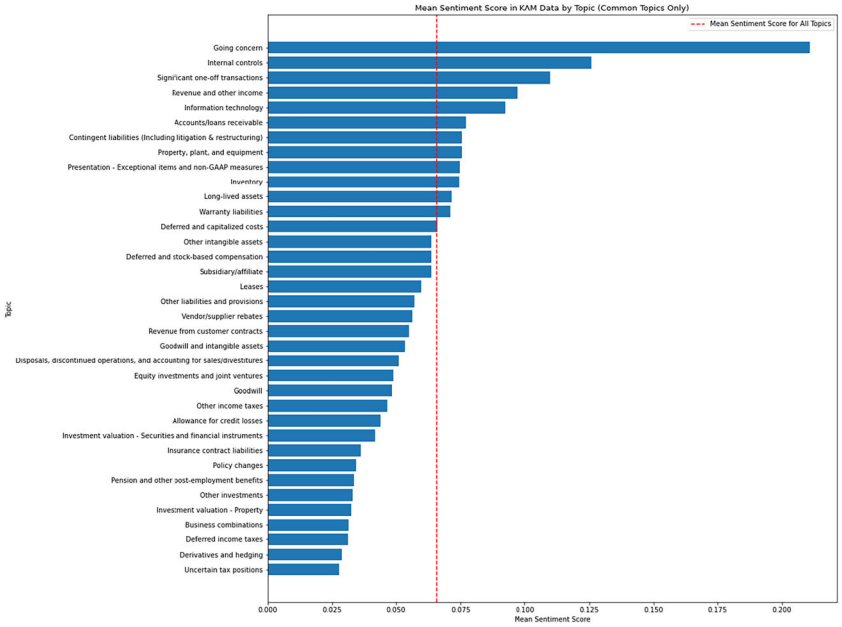

FIGURE C3 Mean Sentiment score by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

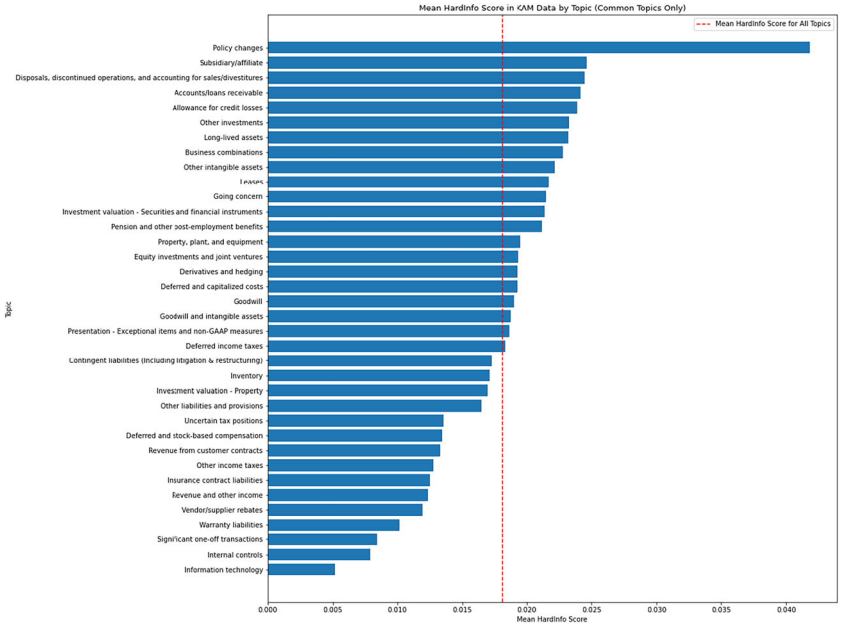

FIGURE C4 Mean HardInfo score by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

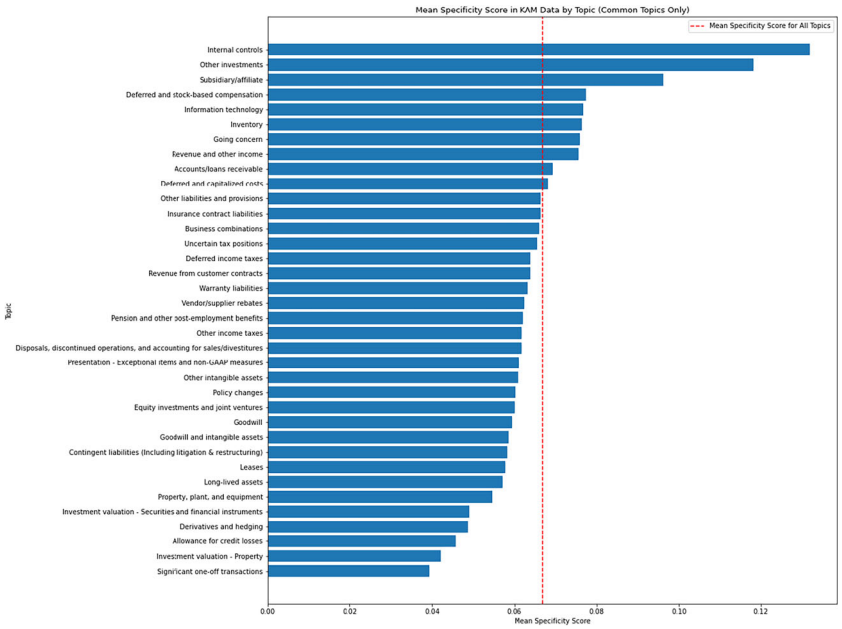

FIGURE C5 Mean Specificity score by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

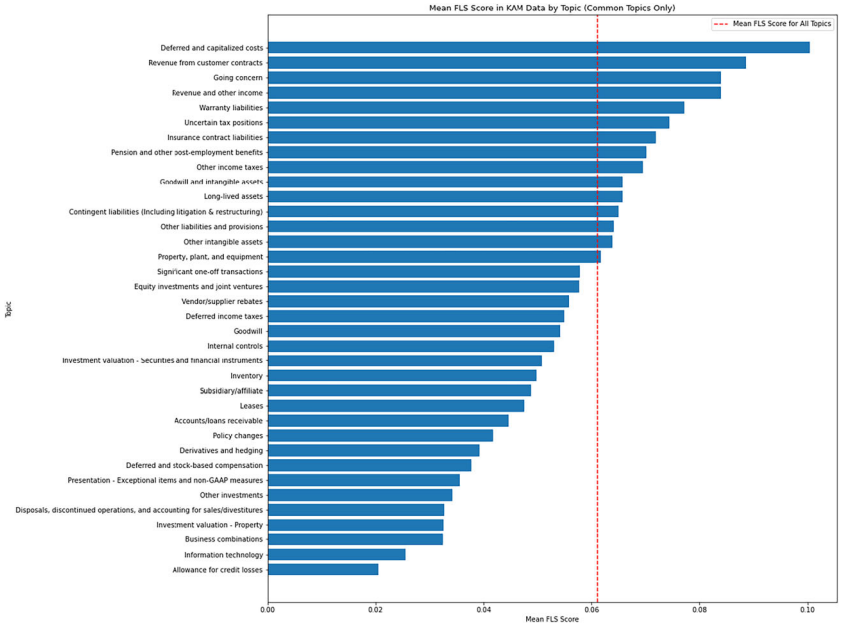

FIGURE C6 Mean FLS score by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

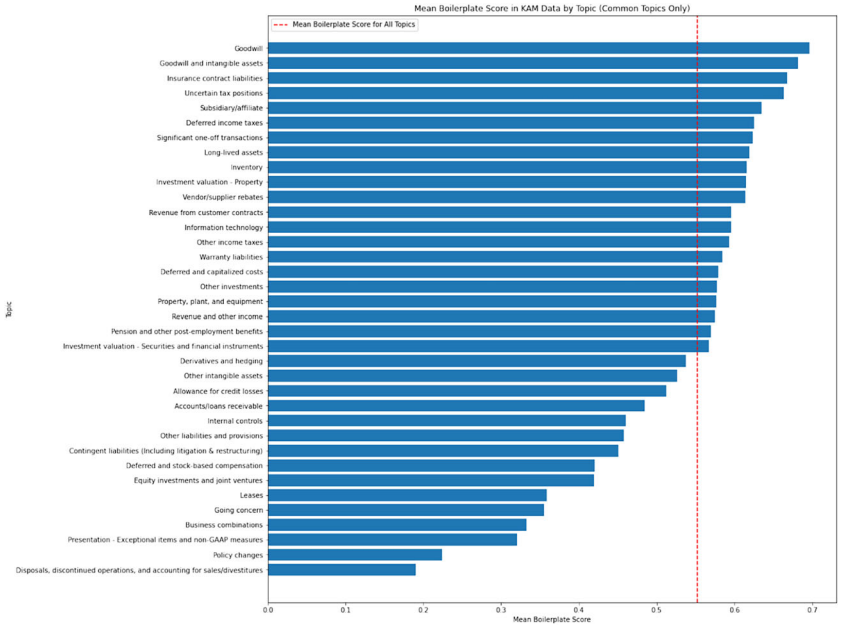

FIGURE C7 Mean Boilerplate score by KAM topic. [Colour figure can be viewed at wileyonlinelibrary.com]

APPENDIX D: REPRESENTATIVENESS OF THE SAMPLE

TABLE D1 Comparison of linguistic features for the final sample and the Audit Analytics Europe universe.

	Final sample						Audit Analytics Europe universe					
Variable	**Mean**	**SD**	**p25**	**Median**	**p75**	***N***	**Mean**	**SD**	**p25**	**Median**	**p75**	***N***
Words	316	139	215	290	390	17,241	330	157	219	302	408	56,160
Readability	0.50	0.28	0.27	0.51	0.74	10,550	0.50	0.28	0.26	0.51	0.75	34,379
Sentiment	0.08	0.11	0.00	0.04	0.12	17,241	0.09	0.12	0.00	0.06	0.14	56,160
HardInfo	0.02	0.02	0.01	0.02	0.03	17,241	0.02	0.02	0.00	0.02	0.03	56,160
Specificity	0.07	0.07	0.02	0.05	0.09	17,241	0.07	0.08	0.02	0.05	0.09	56,160
FLS	0.06	0.08	0.00	0.00	0.10	17,241	0.06	0.09	0.00	0.00	0.10	56,160
Boilerplate	0.55	0.33	0.23	0.58	0.87	17,241	0.62	0.29	0.37	0.68	0.89	56,160