TEXT SIMILARITY, BOILERPLATES AND THEIR DETERMINANTS IN KEY AUDIT MATTERS DISCLOSURE

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Abstract

Like the European Commission, many regulators and standard setters worldwide have substantially revised the requirements for auditor's reports on statutory audits of public interest entities. Their objective was to improve the report's information content and, hence, the transparency of the audit. A significant change was the introduction of a key audit matters (KAM) disclosure which increased the scope, meaningfulness, and individuality of auditor's reports. However, critics fear that auditors could use similar or standard formulations (i.e., boilerplate reporting) and not really increase the information value of the auditor's report. Therefore, this study investigates text similarities in KAM disclosure practice in the auditor's reports of German HDAX companies between 2017 and 2019. The results suggest that auditors often use similar formulations when disclosing a KAM on the same issue at the client level in consecutive years. We further find that the similarity rate is significantly negatively correlated to an audit firm change, and positively correlated to client firms that have a stable financial position measured by a high portion of equity.

Keywords: Key Audit Matters, Auditor's Report, Text Similarity, Boilerplate Reporting, Information Value, Audit Quality

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1. INTRODUCTION

The auditor's report is the primary communication tool of the auditor for informing external stakeholders about the outcome of the audit. However, historically, the auditor's report has been frequently criticized for being uninformative, standardized ("pass-or-fail"), containing little firm-specific information, and using generic language (i.e., boilerplate reporting) (Lennox et al., 2022; Seebeck & Kaya, 2022). Furthermore, firms usually receive an unqualified opinion (Lennox, 2005), making it difficult for external stakeholders to compare the outcome with audits of other companies. The low information value of the auditor's report resulted in an information gap with adverse effects on the expectation gap, as addressees were not informed appropriately about the audit and audited financial statements. Improved and adequate auditor reporting can

contribute to reducing these gaps. Therefore, regulators and standard-setters worldwide, including the Financial Reporting Council (FRC), the European Commission (EC), the Public Company Accounting Oversight Board (PCAOB), and the International Auditing and Assurance Standards Board (IAASB), have commenced reforms to expand the auditor's report by including more and extensive reporting elements (Public Company Accounting Oversight Board [PCAOB], 2019). The most important change is including information about the most significant assessed risks of material misstatement (including those due to fraud) in the audit of the financial statements of the current period (i.e., the reporting of key audit matters, KAMs). Other examples of new elements in the auditor's report include disclosures about the appointment and auditor tenure, or a declaration of independence (Regulation (EU) 537/2014) as well as a description of management and auditor responsibilities (International Auditing and Assurance Standards Board [IAASB], 2015a).

However, the effectiveness of the auditor's report reform must be critically scrutinized, and the reporting quality monitored (e.g., Financial Reporting Council [FRC], 2022; International Auditing and Assurance Standards Board [IAASB], 2021). Auditors may be discouraged from overly offensive and individual reporting, due to potential liability risks and may thus resort to innocuous standard formulations that are not legally contestable (Brasel et al., 2016). Moreover, critics fear that standard texts, text modules (i.e., boilerplates), and restrained or even "one-size-fits-all" reporting will again become established over time (Gray et al., 2011; Norris, 2014; Zeng et al., 2021), limiting the intended increase in information value and thus the relevance of the expanded auditor's report for the addressees. For them, it is impossible to assess whether the risk of material misstatement did not change or if the auditor just applies boilerplate reporting (Christensen et al., 2019). By contrast, despite the disadvantages mentioned above, using standard texts could increase the readability (Burke et al., 2022; Seebeck & Kaya, 2022; Smith, 2022) of the disclosed information by improving the comparability for addressees (Schlüter & Ratzinger-Sakel, 2021). Moreover, changing the KAM without new information may even introduce noise to the auditor's report.

Prior research (e.g., Bédard et al., 2019; Christensen et al., 2014) has focused on whether the reporting of KAMs is relevant for decision-making or valuable for the addressees. However, usefulness requires, amongst other things, that the information provided be new, and the novelty of KAM reporting elements and potential determinants have not yet been empirically investigated for consecutive KAMs on the same issue at a client level. Against this background, this study analyzes whether the fears concerning possible text similarities and boilerplate reporting are justified. For this purpose, we use a similarity measure derived from linguistics, namely the *Levenshtein distance* (Levenshtein, 1966).

First, we use textual analysis to investigate whether there are text similarities between KAMs on the same issue, reported by the same auditor in different periods at a client level. We, therefore, analyze the KAM reporting of German HDAX firms from 2017 to 2019 and conduct pairwise comparisons. Second, we repeat the analysis by splitting the sample into an auditor change and non-change condition, to analyze the effect of an auditor change. Third, we examine potential determinants of text similarities in a panel of 99 German public interest entities (PIEs) from 2017 to 2019 (297 auditor's reports). We use the similarity rate of the same KAM issues at a client level and add typical independent variables from prior archival studies on KAM reporting, as potential determinants of text similarity (i.e., the use of boilerplate reporting). We selected variables related to client size and visibility, client financial position, client corporate governance strength, and auditor tenure.

Regarding our first analysis, the results show that the similarity rate between KAMs on the same issue, reported by the same auditor, in consecutive periods at the client level is around 0.8, suggesting that there is only minor variation in the wording. The similarity rate varies slightly between Big 4 auditors and is higher for non-Big 4 auditors. By contrast, the similarity rate declines to 0.27 after an auditor change. Our multivariate analysis results prove this, as the change in the audit firm has a significantly negative effect on text similarity. By contrast, a high proportion of equity favors the use of boilerplates. However, other factors related to the client's financial position, size and visibility, corporate governance strength, or the auditor's tenure, do not affect text similarity.

We analyze whether boilerplate reporting is still observable despite the extension of the auditor's report. By so doing, we contribute to general linguistics research in accounting in a broader sense, as well as to the research on linguistic characteristics of extended auditor's reports in the narrower sense (Lennox et al., 2022; Seebeck & Kaya, 2022; Smith, 2022; Zeng et al., 2021). With our research on linguistic characteristics of extended auditor's reports, we follow a call from Bédard et al. (2016), who encourage analyzing how KAMs are worded. Moreover, we contribute to the literature that focuses on the quality of expanded auditor's reports and the novelty of the reported information (Zeng et al., 2021). Thus, we close an important research gap by analyzing the novelty of consecutive KAM disclosures and potential determinants at a client level. Furthermore, many previous studies have found no effect of KAM disclosure on investor behavior (Boolaky & Quick, 2016; Gutierrez et al., 2018; Köhler et al., 2020), our findings provide a possible explanation. Due to similar formulations, the information provided is not really new and, therefore, may no longer be relevant for decision-making. Finally, we also contribute to the overall and growing literature on expanded auditor's reports.

The study results thus provide important insights, not only for regulators or standard setters, concerning the effectiveness of the initiated extensions of the auditor's report. They also have implications for other jurisdictions considering the implementation of a similar regulation. The results are also of interest to the auditing profession. For them, it is essential to question current reporting practices critically. Moreover, the results may also give members of audit committees an incentive to monitor the auditor's reporting

behavior. Finally, the results might also be of interest to capital providers, in that the novelty of KAM information is low when the same auditor discloses a KAM on the same issue at a client level.

The remainder of this paper is organized as follows. The following Section 2 describes the institutional background, reviews the literature, and develops our research questions and hypotheses. Section 3 describes the methodology, including the sample, measuring the text similarity, the regression model, and the variables. Section 4 presents our empirical results from the textual and regression analyses. The discussion of the results is presented in Section 5. Section 6 concludes and summarizes the main findings.

2. BACKGROUND AND HYPOTHESES DEVELOPMENT

2.1. Institutional background

In the wake of the global financial and economic crisis, regulators and standard setters have increased reporting requirements for auditors worldwide. Examples include the European Union (EU), the FRC, the IAASB, and the PCAOB. They released revised auditor reporting standards, which require auditors to increase transparency about the audit, and the information value of the auditor's report for financial statement users by disclosing useful client-specific information. The reform includes reporting and describing the risks of material misstatement (including those due to fraud) that are judged to be significant (i.e., KAMs) and summarizing the auditor's response to them. Furthermore, the auditor has to present significant findings concerning these risks (Regulation (EU) 537/2014, Article 10).

For the EU, the key regulations for reforming the auditor's report are included in Regulation (EU) 537/2014 on specific requirements for the statutory audit of public interest entities (PIEs)[8], which came into force directly in all EU Member States on June 17, 2016, and Directive 2014/56/EU. Therefore, KAMs had to be reported in the auditor's reports of PIEs for the first time, for audits relating to the 2017 financial year. The particularities of KAM reporting are specified in national and international auditing standards, such as the ISA 701 "Communicating Key Audit Matters in the Independent Auditor's Report" issued by the IAASB[9].

The standard requires auditors to report those matters that, in the auditor's professional judgment, were of most significance in the audit of financial statements for the current period. KAMs are determined from matters communicated with those charged with governance (International Auditing and Assurance Standards Board [IAASB], 2015b, para. 8). Therefore, the auditor has to select matters that require significant attention in performing the audit, by considering areas with a higher assessed risk of material misstatement and significant auditor judgments. These relate to areas in the financial statements that involve significant management judgment, including accounting estimates with high uncertainty. The auditor should also consider the effect on the audit of significant events or transactions that occurred during the period (IAASB, 2015b, para. 9). From those, the auditor must finally determine which are the most significant, and therefore, are KAMs (IAASB, 2015b, para. 10). The KAM reporting has to be presented in a separate section of the auditor's report under the heading "Key Audit Matters" including an appropriate subheading for each KAM (IAASB, 2015b, para. 11). The auditor has to describe why the particular KAM was considered and how it was addressed in the audit (IAASB, 2015b, para. 13).

2.2. Prior research

There is a growing stream of research focusing on KAM reporting. Experimental studies were conducted before mandatory reporting, and archival studies have increasingly supplemented these since KAM reporting became mandatory in different jurisdictions. Most studies investigate whether the expanded auditor's report fundamentally affects the behavior or perceptions of investors or capital markets (e.g., stock price reactions), auditors (e.g., audit fees), auditor liability, and the management of audited clients. This research is relevant to our study because examining the information value or its limitation through text similarity and boilerplate reporting is both theoretically and practically relevant, regardless of whether or not KAM reporting significantly impacts relevant stakeholders. If not, boilerplate reporting could be a possible explanation.

Experimental studies reveal significant effects on investor behavior, suggesting a positive effect of KAM reporting. Examples are Christensen et al. (2014) and Köhler et al. (2020) in cases of adjustments of investment decisions or perceptions of firm values, Moroney et al. (2021) for improved perception of the value of the audit and the credibility of the auditor, or Kachelmeier et al. (2020) who reveal that experimental participants have less confidence in accounts being identified as KAM. However, there are also some experimental studies finding no significant effects (e.g., Boolaky & Quick (2016) for bank directors, or Köhler et al. (2020) and Coram and Wang (2021) for non-professional investors). Concerning the impact of KAM reporting on audit quality, experimental studies find mixed results, e.g., less aggressive financial accounting behavior (Gold et al., 2020), less skeptical auditor judgment (Ratzinger-Sakel & Theis, 2019), or no impact on auditor judgment (Asbahr & Ruhnke, 2019). Finally, there are also experimental studies suggesting that KAM reporting alters auditor litigation risk, again with mixed results (e.g., Brasel et al. (2016) find a general reduction of the liability risk, and Vinson et al. (2019) reveal an increase in the perceived level of auditor negligence when a previously reported KAM is not reported in the subsequent year).

Archival studies only partially find impacts of KAM reporting on investor behavior. For example, Gutierrez et al. (2018) and Bédard et al. (2019)

[8] Directive 2006/43/EC defines the term PIE. The European Union member states had to transpose the directive into national law, which leaves room for some country specifics. In Germany, the group of PIEs includes capital market-oriented companies (according to para. 319a (1) HGB (Handelsgesetzbuch; German Commercial Code)) as well as credit institutions (according to para. 1 (3d) sentence 1 KWG (Kreditwesengesetz; German Banking Act)) and insurance companies (according to Directive 91/674/EEC, Article 2(1)).

[9] For Germany, the Auditing Standard 401 on "Disclosure of Particularly Significant Audit Matters in the Auditor's Report" issued by the Institut der Wirtschaftsprüfer (IDW) implements the ISA 701 (IAASB, 2015b) by taking into account Regulation (EU) 537/2014 and German legal peculiarities.

analyze capital market reactions and fail to find any effects of KAMs. By contrast, Reid et al. (2019) shows higher earnings response coefficients which measure how strongly investors react to financial statement information. Moreover, Porumb et al. (2021) find, for a sample of UK firms, that the expanded auditor's report is associated with reduced loan spread and longer maturity for loan facilities of adopting firms relative to non-adopting firms. Some archival studies reveal a positive relationship between KAM reporting and audit quality (Kitiwong & Sarapaivanich, 2020; Li et al., 2019; Reid et al., 2019). Nevertheless, there are also studies that find no effect on audit quality (e.g., Bédard et al., 2019; Gutierrez et al., 2018).

There is also a growing stream of research on linguistic aspects of KAM reporting. For example, Seebeck and Kaya (2022) analyze auditor's reports before and after their expansion in the UK and Ireland. They show that the communicative value (measured by readability, evaluative content, visual aids, and specificity) improves in post-expansion periods. However, they find that the improvement differs across audit firms, clients, and KAM disclosure characteristics. Furthermore, they reveal that greater specificity in KAM disclosure leads to significantly positive market reactions. This finding could indicate that dissimilar wording is more likely perceived by market participants than boilerplates. For a similar sample, Smith (2022) reveals that the readability of auditor's reports has increased, and more accurately reflects the risk-related nature of audits. By contrast, Carver and Trinkle (2017) provide evidence supporting decreased readability, using US non-professional investors as participants in an experiment. Velte (2020) shows evidence for increased readability of KAMs if the client's audit committee has high financial and industry expertise. He analyzes a sample of UK-listed companies for 2014–2017. In another study using UK data from 2014–2015, he also finds a positive relationship between the percentage of women on audit committees and the readability of KAMs (Velte, 2018). Applying a multi-country study with KAM data from the UK, France, and the Netherlands, Pinto et al. (2020) reveal that KAMs based on accounting standards with higher rules-based characteristics decrease the readability of auditors' reports. Zeng et al. (2021) analyze different disclosure characteristics (e.g., specificity, similarity, readability, and length) in Chinese KAM reports from 2017. They find an increase in similar wordings if a KAM relating to a specific issue is disclosed by the same auditor in a specific industry. By contrast, by analyzing the association between KAM dissimilarity and audit risk (measured by audit fees) in expanded auditor's reports of UK-listed firms from 2013 to 2019, Deneuve et al. (2022) show descriptively, that there is a high dissimilarity rate between KAMs on the same issue compared to industry peers, suggesting that boilerplates are not used in KAM disclosures. Using the same time frame and a sample of listed companies in the UK, Jada and Franke (2022) analyze the similarity of whole KAM sections in auditor's reports for two consecutive periods. They reveal that KAM sections have a mean similarity rate of 0.71 and show that the rate is negatively associated with a change in the audit firm and audit partner, as well as changes in the client's financial risk variables (e.g., intangibles and leverage).

In summary, it can be concluded that significant effects of KAM reporting can be observed, but cannot be revealed in all studies. Furthermore, little research focuses on linguistic aspects (mainly on readability) of KAM disclosure with some contrary results. Such linguistic studies are of particular interest for identifying changes over time, which in turn requires that expanded auditor's reports are available for several years. Against this background, it is even more critical to identify possible limitations of the information value, as these can prohibit positive effects. Furthermore, to the best of our knowledge, there is no research concerning text similarity of KAMs on the same issue at a client level and the underlying determinants.

2.3. Development of the research questions and hypotheses

One of the main reasons for the reform of the auditor's report and the implementation of KAMs was to eradicate the standardization and make the report more individualized. Therefore, there is an obvious need to analyze whether this has really occurred or whether standard formulations or boilerplates (i.e., old patterns) are still evident, which would limit the intended increase in information value and thus the relevance of the expanded reporting for the addressees. The auditor may be discouraged from overly offensive and individual reporting due to potential liability risks and may resort to standard formulations and innocuous boilerplates that are not legally contestable (Brasel et al., 2016). However, standard formulations could nonetheless increase the readability of the disclosed information by improving the comparability for addressees (Schlüter & Ratzinger-Sakel, 2021). Moreover, changing the KAM without adding new information (e.g., by using synonyms) may even introduce noise to the auditor's report.

Audit research has focused predominantly on whether reporting on KAMs is relevant to decision-making or valuable to the addressees. However, usefulness requires that the information provided be new. When there is no change in the wording, addressees cannot assess whether this relates to no change in the auditor assessment or to the fact that the auditor refrains from precise formulations and deliberately uses boilerplates. If the auditor discloses KAMs on the same issue in consecutive years, new information will reduce the text similarity rate to previous years' disclosures. By contrast, standard formulations and boilerplate reporting would lead to a high similarity rate. Furthermore, the text similarity might differ if another audit firm discloses a KAM on the same issue following an auditor change. To identify such patterns in KAM reporting, we state the following research questions:

RQ1: How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by the same auditor?

RQ2: How high is the similarity rate of consecutive KAMs on the same issue at a client level when reported by a different auditor?

In addition to the textual analyses of similarities in KAM reporting, it is also necessary to

investigate potential similarity drivers. Specific client and/or auditor characteristics could lead to high/low text similarity and boilerplate reporting. Therefore, we state the following research question:

RQ3: What are the determinants of text similarity of consecutive KAMs on the same issue at a client level?

To examine potential determinants, we focus on four areas: client size and visibility, client financial position, client corporate governance strength, and auditor tenure.

Large audit clients are typically more difficult to audit, as the audit requires more resources and audit procedures. Furthermore, these clients are usually more visible to stakeholders than smaller firms and entail a higher reputation and litigation risk for the auditor (Reynolds & Francis, 2000). Therefore, greater attention might be paid to the auditor's report, which gives the auditor an incentive to focus on more differential reporting in KAM disclosures. However, the auditor could also use standard formulations to mitigate the related risks when auditing large clients. Therefore, we do not expect a direction of the impact on text similarity when using a client firm's market capitalization to capture size and visibility.

H1: Client size and visibility are related to the text similarity of consecutive KAMs on the same issue at a client level.

Prior research shows that KAM disclosure is related to auditor litigation (Kachelmeier et al., 2020). This is especially relevant for auditors of clients facing a poor financial position and having a high-risk profile. The auditor may increase her/his effort to reduce the litigation risk, which is also reflected in more differentiated KAM reporting. However, it is also possible that the auditor is inclined to use innocuous standard formulations, e.g., which are not legally contestable (Brasel et al., 2016). We use the interest rate paid by client firms to capture the risk profile. Due to the contrary arguments, we do not predict a direction for the relationship with the text similarity of consecutive KAMs on the same issue. By contrast, if the company is in a healthy financial position, we expect auditors to be more willing to repeat disclosed information, as the public attention, scrutiny, and therefore the litigation risk and pressure to report in a differentiated manner might be low. However, a stable financial position and low litigation risk could also incentivize the auditor to report more individually and differentiated. Therefore, we do not expect a direction for the relationship of the client firm's equity share with the text similarity of consecutive same KAMs as well. The client's overall profitability might also be essential for the KAM disclosure. The auditor might be more inclined to use similar formulations without considering the innocuousness if the company is highly profitable and the litigation risk is relatively low. Nevertheless, similar to our arguments related to a healthy financial situation reflected through a high portion of equity, it is also possible that the auditor is more willing to report dissimilarly when the client's profitability is high and the auditor's own litigation risk is low. Hence, we do not expect a direction for the relationship with text similarity when using the operative return on assets as a profitability proxy. By contrast, if the profitability is low and the client reports a loss, the auditor might be more willing to report in a differentiated manner to convey concerns about potential opportunistic management behavior, as firms in financial distress have more incentives toward earnings management (Francis & Wang, 2008). Nevertheless, there is the presumption that the auditor ultimately resorts to legally innocuous boilerplates. Therefore, we do not expect a direction of the effect on text similarity if the company reports a loss in the audited financial statements. After evaluating the above arguments for our proxies covering the client's financial position, we state the following non-directional hypothesis:

H2: The client's financial position is related to the text similarity of consecutive KAMs on the same issue at a client level.

Prior research shows a positive association between the audit committees' expertise (Velte, 2020), the percentage of women on audit committees (Velte, 2018), and the readability of KAMs. Strong corporate governance, reflected in an active supervisory board and strong internal control, could lead to closer monitoring of the auditor's work, incentivizing the auditor to report less similarly. Therefore, we expect more differentiated reporting and assume a negative relationship between the number of client supervisory board meetings and the text similarity of KAMs on the same issue. This leads to the following hypothesis:

H3: Strong corporate governance is negatively related to the text similarity of consecutive KAMs on the same issue at a client level.

With a growing auditor-client relationship, the auditor can gain more client-specific expertise and is more able to report specific aspects in KAM reporting, which might result in more diverse reporting behavior. This argument is also in line with research that finds a positive relationship between tenure and audit quality (Johnson et al., 2002). We use auditor tenure as a proxy and expect a negative relationship with text similarity of KAMs on the same issue.

H4: Auditor tenure is negatively related to the text similarity of consecutive KAMs on the same issue at a client level.

3. RESEARCH METHODOLOGY

3.1. Sample

Our sample consists of all German-listed firms in the HDAX index[10] as of March 03, 2021. We obtained capital market and accounting data for our sample period (2017–2019) from Refinitiv Eikon and Bureau Van Dijk Dafne. We manually collected data on statutory auditors, auditor changes, audit fees, KAMs (we extracted each issue (headings) and the underlying text), and the number of business segments from the consolidated financial statements. The initial sample consists of 99 firms (297 analysable auditor's reports). For our analysis of text similarity, we exclude seven firms (21 auditor's reports) with foreign headquarters, one

[10] The HDAX is a German stock market index. It consists of all member companies of the DAX (40 largest companies trading on the Frankfurt Stock Exchange), MDAX (Mid Cap DAX, which contains the 50 largest companies by market capitalization below the DAX stocks), and TecDAX (30 largest German companies from the technology sector) indices.

firm (three auditor's reports) with no auditor's report at all, and six individual auditor's reports due to firms' IPO within the sample period and therefore no auditor's reports. However, the firm itself remains in the sample. This leaves a final sample size of 91 firms and 267 analysable auditor reports.

For our regression analysis, we further exclude 12 firms (36 auditor's reports) from the banking, insurance, and financial services sectors, due to different financial reporting requirements and characteristics. Next, we exclude four firms subject to IPO between 2017 and 2019 (six auditor's reports) and three firms (nine auditor's reports) without any KAMs on the same issue in the sample period. Furthermore, we drop three firms (nine auditor's reports) with missing values for the independent variables. This leaves a final sample of 69 firms (207 auditor's reports). Table 1 summarizes the sample selection process for both analyses.

Table 1. Sample selection

	Number of firms	***Number of auditor's reports***
HDAX	99	297
Analysis of text similarity		
Less		
Firms with foreign headquarters	-7	-21
Firms with no auditor's report	-1	-3
No auditor's reports due to IPO between 2017 and 2019	/	-6
Final sample size	91	267
Regression analysis		
Less		
Firms from the banking, insurance, and financial services sector	-12	-36
Firms subject to IPO between 2017 and 2019	-4	-6
Firms without same-issue KAMs between 2017 and 2019	-3	-9
Firms with missing values for independent variables	-3	-9
Final sample size	69	207

3.2. Text similarity

To answer our research questions and test our hypotheses regarding boilerplate reporting, we use the *Levenshtein distance* to measure text similarity (Levenshtein, 1966). This approach, which originates from linguistics, describes the minimum number of characters or letters that must be modified to convert a source text into a target text. Replacements, deletions, and insertions are counted as one change (to calculate the *Levenshtein distance* the R-package "stringdist" was used). Therefore, the *Levenshtein distance* measures the similarity between two words by calculating an edit distance. Figure 1 illustrates the underlying algorithm. To convert the word "Firmenwert" (source text; German translation for "goodwill") into the word "goodwill" (target text), at least nine change steps are required. Therefore, the two terms have a *Levenshtein distance* of nine. By contrast, no change in the wording (source text = target text) would result in a distance of zero and, therefore, 100% text similarity.

Figure 1. *Levenshtein distance* between "Firmenwert" and "Goodwill"

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Firmenwert
Good..will
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Note: Letters in bold grey indicate retained characters. Dots indicate deleted characters. All other letters must be replaced or inserted.

To determine the *Levenshtein distance*, we perform various pairwise comparisons of individual KAMs on the same issue. In this manner, we clean up the full text of each KAM reporting section by deleting all special characters and numerical values to avoid distortions in the distances determined. For example, numerical data reported in KAMs (e.g., balance sheet data) must be assumed to change annually. We then divide the reporting section into the individual KAMs, which is unproblematic, as the respective subsection headings separate them. First, we compare KAMs on the same issue with the same auditor at the client level (e.g., KAMs on revenue recognition at *company A* with *auditor X* in years t_1 and t_2). Thus, there are two pairwise comparisons for each *issue–client–auditor* combination (2017–2018 and 2018–2019). Second, we examine the effect of auditor changes. Accordingly, we compare the text-similarity of KAMs on the same issue for which a different audit firm has conducted the audit in each case (e.g., KAMs for revenue recognition at *company A* with *auditor X* in t_1 with KAMs for revenue recognition at *company A* with *auditor Y* in t_2). Thus, at this level, pairwise comparisons for each *issue–client* combination only result if the auditor is different in two consecutive years. The similarity rate for each pairwise comparison is calculated as follows:

$$SIM_{i,t} = 1 - \left(\frac{Levenshtein\ distance\ between\ KAM_{i,t_1}\ and\ KAM_{i,t_2}}{\left(\frac{\sum Characters\ KAM_{i,t_1} + \sum Characters\ KAM_{i,t_2}}{2} \right)} \right) \quad (1)$$

If there is more than one KAM on the same issue for a client, we use the mean of these to calculate an overall client-wide text similarity.

3.3. Determinants of text similarity

We estimate the following OLS regression model in order to examine the association between auditor and client characteristics and the text similarity in KAM disclosures:

$$SIM_{i,t} = \beta_0 + \beta_1 MARKETCAP_{i,t} + \beta_2 EQUITY_{i,t} + \beta_3 INTEREST_{i,t} + \beta_4 OROA_{i,t} + \beta_5 LOSS_{i,t} + \beta_6 MEET_{i,t} + \beta_7 TENURE_{i,t} + \beta_8 SEG_{i,t} + \beta_9 AUDIT\_FEES_{i,t} + \beta_{10} NAS\_FEES_{i,t} + \beta_{11} BUSY_{i,t} + \beta_{12} AUDCHG_{i,t} + \beta_{13} PCHG_{i,t} + \beta_{14} EXPERT_{i,t} + \beta_k Fixed\_Effects_{i,t} + \varepsilon_{i,t} \quad (2)$$

where, *SIM* (dependent variable) is the firm-scaled text similarity, as the average similarity of the individual same-issue KAMs of a firm in the respective years. We calculate, for each sample firm, the mean of all pairwise KAM comparisons for 2018 (comparison 2017 and 2018) and 2019 (comparison 2018 and 2019). Therefore, we include and compare only KAMs on the same issue (e.g., KAMs on revenue recognition at *company A* in years t_1 and t_2).

We include the following variables to analyze the effect of potential determinants of text similarity. For *client size and visibility*, we include *MARKETCAP*, the common logarithm of the firms' market capitalization, as a proxy. Covering the *client's financial position*, we include *EQUITY* as a proxy for the firm's equity basis, defined as the amount of equity divided by total assets. *INTEREST* is the average interest ratio of the client firm calculated as interest expenditure on debt divided by the sum of short-term debt and the current portion of long-term debt plus long-term debt. *OROA* is measured as profit before taxes divided by total assets. *LOSS* is a dichotomous variable that takes the value of one if the client incurred losses during the current year and zero otherwise. To reflect *client corporate governance strength*, we include *MEET*, the common logarithm of the number of supervisory board meetings per year. As a proxy for *auditor tenure*, we include *TENURE* (the common logarithm of the number of years of the current auditor's tenure).

Furthermore, we include the following control variables. Prior research has shown that higher complexity leads to more areas of risk and more reported KAMs (Pinto & Morais, 2019). Therefore, we use the number of business segments (*SEG*) as a proxy (Bédard et al., 2008) for this. We assume that more complexity makes the audit process more difficult for the auditor and requires more audit procedures, incentivizing the auditor to use standard formulations, as the focus is more on complex audit procedures than on reporting. Hence, we assume a positive effect on the similarity rate.

Additionally, we include *AUDIT_FEES* (common logarithm of the level of audit services) and *NAS_FEES* (common logarithm of the level of non-audit services) to capture the extent of received audit and non-audit services. More audit procedures lead to higher audit fees. Therefore, we assume that this incentivizes the auditor to use fewer standard formulations, as the auditor may generate more client-specific knowledge through the provision of more audit procedures, which enables her/him to report in a more differentiated manner. This effect can be strengthened if the auditor also provides non-audit services and can generate knowledge spillovers (DeAngelo, 1981). On the other hand, it can be assumed that higher levels of audit and non audit fees generate a greater dependency on the client (DeAngelo, 1981; Pinto & Morais, 2019), which could incline the auditor to report less critically and instead use standard formulations and boilerplates to avoid disagreements with the client's management. Therefore, we do not predict the direction of association between the level of audit and non-audit service fees and the similarity rate of same-issue KAMs.

BUSY is an indicator of the busy season (a dummy variable that takes the value of one for firms with a fiscal year-end on December 31 and zeroes otherwise). As December 31 is the typical fiscal year-end in most Northern Hemisphere countries, this busy season may render conducting all the audit procedures difficult and costly (Hay, 2013; Pinto et al., 2020) and place the auditor under time pressure. Therefore, auditors may use standard formulations and boilerplate reporting, as there is insufficient time for differentiated reporting, and we thus expect a positive effect on text similarity.

An auditor's change directly impacts the auditor's experience with the client. We expect that the succeeding auditor might not be willing to take over the reporting of the preceding auditor. Furthermore, the new auditor may have her/his own formulations (or even her/his own standard texts and boilerplates). Thus, the text-similarity of KAMs on the same issue might be lower after a switch. Therefore, we expect a negative effect if there is an auditor change. This effect can also be assumed when the audit partner changes (e.g., due to the fresh perspective). There is also research that finds positive effects on audit quality in the years immediately surrounding a partner rotation (Lennox et al., 2014). However, because the audit firm and probably members of the audit team do not change, the effect might be lower than a change in the audit firm. Nevertheless, we also expect a negative impact in cases of a partner change. We include *AUDCHG* as an indicator variable set to one if the client firm has changed its auditor since the previous year and zero otherwise. *PCHG* is the corresponding indicator variable set to one if the audit partner has changed since the previous year and zero otherwise.

EXPERT is the industry share of the auditor (the sum of audit fees paid to a client's auditor by companies from the client's industry divided by all audit fees paid by companies from the client's industry) as a proxy for industry expertise. We assume that the reporting might be more differentiated if the auditor has more industry-specific expertise, an essential factor in producing high audit quality (DeFond & Zhang, 2014). Therefore, we expect a negative effect on text similarity of KAMs on the same issue.

Finally, we include a set of year, industry, and auditor dummies (*Fixed_Effects*). We define all variables in the Appendix. We winsorize all continuous variables at 1% and 99% (only at 99% for variables with a lower bound of zero, e.g., audit fees) and cluster standard errors by client companies in all analyses.

4. RESULTS

4.1. Text similarity

We first analyze text similarities for the whole sample. Table 2 presents the results. For pairwise comparisons of KAMs on the same issue disclosed by the same auditor for the same client between

2017 and 2018 (column 2), we find an average *Levenshtein distance* of nearly 746. Concerning the mean number of characters par KAM, we observe a similarity rate of 0.803. The minimum distance is zero, indicating that there are KAM pairs with a similarity rate of 1.000 (i.e., 100% text similarity, i.e., identical text). This is, for example, the case for the KAM "warranty provision" disclosed in the auditor's reports of Volkswagen and Nordex (comparison of 2017 and 2018 as well as 2018 and 2019). PricewaterhouseCoopers (PwC) audited both companies. The value for the comparison period 2018 and 2019 (similarity rate 0.790) is pretty similar to those of 2017 and 2018 (column 3). This observation can also be confirmed by conducting a Mann-Whitney U-test (untabulated), as we cannot find a significant difference between these two-time frames (p = 0.431).

Table 2. Text similarities

	2017–2018	*2018–2019*	*Sum*
Levenshtein distance			
Mean	745.49	721.21	733.62
SD	879.51	956.22	1,042.53
Min	0.00	0.00	0.00
Max	5,537.00	6,398.00	6,398.00
Median	329.00	258.00	293.00
Number of characters			
Mean	3,690.10	3,666.12	3,678.38
Text similarity rate			
Mean	0.803	0.790	0.797
Mann-Whitney U-test (2017–2018 vs. 2018–2019)		p = 0.431	

Note: The table reports the Levenshtein distance, the number of characters, and the text similarity rate per KAMs on the same issue at a client level for the comparison periods 2017–2018 and 2018–2019 and the sum. SD standard deviation.

Next, we analyze text similarities by different audit firms. We, therefore, calculate the aggregated means differentiated by the audit firm (non-Big 4 auditors are collapsed). Table 3 shows the results.

Table 3. Text similarities by audit firm

	KPMG	*PwC*	*EY*	*Deloitte*	*Non-Big 4*
Levenshtein distance					
Mean	1,189.22	704.91	536.25	444.83	234.00
SD	1,268.30	1,188.12	600.77	456.17	368.23
Min	0.00	0.00	0.00	0.00	0.00
Max	5,537.00	6,398.00	2,530.00	1,782.00	1,111.00
Median	758.00	70.00	323.00	375.50	69.50
Number of characters					
Mean	4,015.14	3,687.40	3,404.62	3,529.28	3,701.92
Text similarity rate					
Mean	0.700	0.825	0.824	0.868	0.934
Kruskal-Wallis test (KPMG vs. PwC vs. EY vs. Deloitte vs. Non-Big 4)				p < 0.001	

Note: The table reports the Levenshtein distance, the number of characters, and the text similarity rate per KAMs on the same issue at a client level distinguished between the Big 4 auditors and aggregated for non-Big 4 auditors. There are five non-Big 4 observations in the sample. SD standard deviation.

The lowest mean for the *Levenshtein distance* is observed for non-Big 4 auditors (mean = 234), resulting in an average similarity rate of 0.934, compared to the average number of characters. The lowest distance for Big 4 auditors (mean = 445), resulting in a similarity rate of 0.868, is observed for Deloitte. This is followed by Ernst & Young (EY) (mean distance = 536) and PwC (mean distance 705), resulting in an average similarity rate of 0.824 and 0.825. The highest distance (1,189) and the lowest similarity rate (0.700) are thus observed for KPMG. Applying a Kruskal-Wallis test (untabulated), we find significant differences between the auditors (p < 0.001)[11]. To sum up, it can be generally stated that the similarity rates across all audit firms are at least 0.700 and thus relatively high. This means that, on average, at least two-thirds of KAMs matches that of the following year, indicating the use of similar wording and boilerplates.

Lastly, we analyze the similarity rates in audit firm changes. Table 4 presents the results, with the mean *Levenshtein distance* of about 2,796 characters (column 2). Concerning the mean number of characters of a KAM (3,723), we observe a similarity rate of 0.267. By contrast, the mean distance in case of no auditor change is about 630 characters, resulting in a similarity rate of 0.840. Applying a Mann-Whitney U-test, we also find a significant difference (p < 0.001) if a new auditor discloses the KAMs. The difference indicates that the new auditor only partially follows the formulations of the auditor in the previous year and increasingly uses her/his own formulations, resulting in significantly lower similarity compared to the previous year's KAM.

Table 4. Text similarities following an audit firm change

	Audit firm change	*No audit firm change*
Levenshtein distance		
Mean	2,796.25	629.64
SD	1,092.35	932.30
Min	1,417.00	0.00
Max	4,594.00	6,398.00
Median	2,539.50	242.00
Number of characters		
Mean	3,722.63	3,676.03
Text similarity rate		
Mean	0.267	0.840
Mann-Whitney U-test (audit firm change vs. no-audit firm change)	p < 0.001	

Note: The table reports the Levenshtein distance, the number of characters, and the text similarity rate per KAMs on the same issue at a client level, distinguishing between the occurrence of an audit firm change or not. SD standard deviation.

Overall, the text similarity analyses show that reporting of consecutive KAMs on the same issues at the client level differs only slightly over time across all audit firms. The average distance across all audit firms is 734 characters, corresponding to an average similarity rate of around 0.797. The fears of standard reporting and the use of boilerplates are indeed justified, according to these results. Although some texts are dissimilar, the high similarity rates and the examples of one hundred percent similarity suggest boilerplate reporting. However, due to the often-multi-year nature of the issues addressed in KAMs, high similarity rates of the same KAMs at the same client and the same auditors can be expected. Nevertheless, it remains unclear whether this repetitive reporting meets

[11] Mann-Whitney U-tests (untabulated) also reveal significant differences between Big 4 and non-Big 4 (p = 0.037), KPMG and non-Big 4 (p = 0.001), EY and non-Big 4 (p = 0.015), KPMG and EY (p < 0.001), KPMG and Deloitte (p < 0.001), PwC and EY (p = 0.019), and PwC and Deloitte (p = 0.003).

the stakeholder's need for information and whether it fulfills the regulators' objectives.

4.2. Determinants of text similarity

Table 5 presents summary statistics for all of our variables. The mean (median) value for *SIM* is 0.801 (0.868). The minimum is about 0.000, and the maximum is 1.000 (i.e., 100% text similarity, i.e., identical text).

Table 6 presents the Pearson correlation matrix. This matrix and the variance inflation factors (VIF; untabulated) do not indicate a multicollinearity problem (the largest VIF is 6.32 for *AUDIT_FEES*).

Table 7 reports the regression results for our dependent variable *SIM*. Concerning our first hypothesis that relates to client size and visibility, we do not find a significant effect of *MARKETCAP* on *SIM*. In consequence, the size and visibility of the client seem not to be related to text similarity of consecutive KAMs on the same issue at a client level, and we cannot reject our hypothesis.

Regarding our second hypothesis, we find that auditors tend to use more boilerplates, resulting in higher similarity rates when the client is in a good financial position, i.e., has a stable equity basis. The coefficient for *EQUITY* is positive and statistically significant (0.230, $p = 0.012$). However, the other proxies covering the client's financial position seem unrelated to *SIM*, as no variables (*INTEREST*, *OROA*, and *LOSS*) are statistically significant. Therefore, we can only partially confirm our hypothesis.

Considering the client's corporate governance strength (*H3*), we find that strong corporate governance (i.e., more meetings of the supervisory board) does not influence the auditor's reporting behavior in using boilerplates, as the coefficient of the variable *MEET* (β_6) is not statistically significant. Hence, we cannot confirm our hypothesis. A potential reason might be that the supervisory board already gets a more detailed report from the auditor. Therefore, there might be less focus on KAM disclosure in the auditor's report, which is mainly addressed to external stakeholders.

Finally, auditor tenure also seems unrelated to *SIM*, as the coefficient for *TENURE* is statistically insignificant. Therefore, the duration of the auditor-client relationship and the generated client-specific knowledge seem to have no effect on the text-similarity of consecutive KAMs on the same issue. Consequently, we cannot confirm *H4*. Therefore, only an auditor change might result in dissimilar wording, as the auditor does not seem to change her/his reporting regardless of whether s/he audits for the first or the tenth time.

This assumption can be confirmed when referring to our set of control variables. We only find one significant effect, the coefficient for *AUDCHG* is significantly negative (-0.633, $p < 0.001$). Hence, this result also supports our descriptive results for *RQ2*. By contrast, although with a negative coefficient, a partner change seems to have no effect, due to the insignificant coefficient for *PCHG*. All other controls also seem unrelated to *SIM*, as no coefficients are statistically significant.

Table 5. Descriptive information

Variable	*N*	*Mean*	*SD*	*Min*	*25 %*	*Median*	*75 %*	*Max*
SIM	138	0.801	0.219	0.000	0.734	0.868	0.951	1.000
MARKETCAP	138	6.837	0.571	5.131	6.455	6.808	7.226	8.016
EQUITY	138	0.405	0.168	0.071	0.272	0.406	0.504	0.822
INTEREST	138	0.033	0.021	0.002	0.019	0.030	0.043	0.100
OROA	138	0.073	0.056	-0.020	0.042	0.063	0.098	0.312
LOSS	138	0.087	0.283	0.000	0.000	0.000	0.000	1.000
MEET	138	0.789	0.153	0.602	0.699	0.778	0.903	1.255
TENURE	138	0.965	0.491	0.000	0.699	1.000	1.279	1.964
SEG	138	0.511	0.193	0.000	0.477	0.477	0.602	0.903
AUDIT_FEES	138	3.278	0.595	2.146	2.852	3.073	3.736	4.708
NAS_FEES	138	2.366	0.996	0.000	1.826	2.477	2.989	4.519
BUSY	138	0.884	0.321	0.000	1.000	1.000	1.000	1.000
AUDCHG	138	0.080	0.272	0.000	0.000	0.000	0.000	1.000
PCHG	138	0.145	0.353	0.000	0.000	0.000	0.000	1.000
EXPERT	138	0.464	0.338	0.010	0.207	0.423	0.751	1.000

Note: The table reports the descriptive statistics of the overall sample. All variables are defined in the Appendix. SD standard deviation.

Table 6. Correlations

	Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
1	*SIM*	1.00														
2	*MARKETCAP*	0.02	1.00													
3	*EQUITY*	0.05	**-0.21**	1.00												
4	*INTEREST*	0.11	**-0.19**	-0.05	1.00											
5	*OROA*	-0.02	-0.14	**0.45**	-0.02	1.00										
6	*LOSS*	-0.09	-0.09	**-0.22**	0.02	**-0.32**	1.00									
7	*MEET*	-0.06	0.02	0.06	-0.10	0.05	-0.02	1.00								
8	*TENURE*	**0.46**	**0.26**	**-0.19**	-0.02	**-0.26**	-0.09	-0.12	1.00							
9	*SEG*	0.06	**0.35**	**-0.27**	-0.02	-0.09	-0.11	0.07	**0.19**	1.00						
10	*AUDIT_FEES*	0.01	**0.77**	**-0.39**	-0.15	**-0.41**	0.04	0.14	**0.35**	**0.46**	1.00					
11	*NAS_FEES*	0.06	**0.46**	**-0.27**	-0.03	**-0.24**	-0.10	0.03	**0.36**	**0.41**	**0.64**	1.00				
12	*BUSY*	-0.01	-0.03	-0.10	-0.06	0.05	-0.05	-0.13	0.12	-0.06	-0.06	-0.01	1.00			
13	*AUDCHG*	**-0.73**	-0.14	**0.15**	-0.01	**0.17**	0.00	0.16	**-0.58**	-0.02	-0.13	-0.09	-0.06	1.00		
14	*PCHG*	0.09	-0.12	0.12	0.06	0.04	0.02	-0.09	0.07	-0.04	-0.18	-0.10	0.08	-0.12	1.00	
15	*EXPERT*	-0.08	**0.43**	**-0.29**	-0.02	**-0.25**	0.03	-0.12	**0.20**	0.14	**0.45**	**0.23**	0.05	-0.15	-0.09	1.00

Note: The table reports Pearson correlations. Bold correlations are significant at the 5% level. All variables are defined in the Appendix.

Table 7. Regression results

Variable	*DV = SIM*	
	Coefficient	*t-stat*
Client's size and visibility		
MARKETCAP	0.002	0.06
Client's financial position		
EQUITY	0.230	2.59**
INTEREST	0.555	0.85
OROA	0.084	0.30
LOSS	-0.010	-0.21
Client's corporate governance		
MEET	-0.023	-0.28
Tenure		
TENURE	-0.012	-0.37
Controls		
SEG	0.017	0.24
AUDIT_FEES	0.005	0.14
NAS_FEES	0.008	0.37
BUSY	0.001	0.02
AUDCHG	-0.633	-12.05***
PCHG	-0.019	-0.53
EXPERT	-0.052	-0.62
Intercept	0.891	4.76***
Industry fixed effects	Yes	
Auditor fixed effects	Yes	
Year fixed effects	Yes	
N	138	
adj. R-squared	0.6222	

*Note: The table presents OLS regression results for SIM. *, **, *** significant at the 10%, 5%, and 1% levels, respectively (two-tailed). Standard errors clustered by company. All continuous variables are winsorized at 1% and 99%. All variables are defined in the Appendix.*

5. DISCUSSION OF THE RESULTS

Overall, the text similarity or use of boilerplate reporting in KAMs seems to be predominantly driven by the fact that the auditor uses similar formulations from previous disclosures. However, for Big 4 auditors, in particular, it can be assumed that formulation recommendations or text modules from the specialist departments, respectively, the audit performance handbooks of the audit firms were used, which could be another explanation for the high similarity rates.

If a different auditor reports the KAM following a change, the similarity is less pronounced. Thus, our regression analysis essentially confirms the results of the analysis of text similarities. However, it can be expected that every new auditor falls back on her/his boilerplates, leading to high similarity rates in subsequent years. Therefore, it is questionable whether such reporting behavior meets the regulator's or addressee's expectations in terms of an increased information value. Consequently, the observed practice of KAM reporting is inadequate to close the audit expectation gap.

However, these results have to be interpreted with caution. High similarity rates of consecutive KAMs on the same issue do not automatically lead to less information value. For example, if nothing has changed, and the auditor still assumes the same risks of material misstatement, then this is also valuable and important information for addresses of the auditor's report. Nevertheless, it can be critically questioned whether the simple repetition of the wording is appropriate, as addressees cannot assess whether this relates to no change in the auditor's assessment or to the fact that the auditor uses standard texts and boilerplates. For example, the auditor could state directly that the related issue is still a KAM, but could be more differentiated and show how the effects of the KAM on her/his judgment and the audit procedures have or have not changed compared to the previous year.

Lastly, the higher the equity ratio, the lower the risk of material misstatements. Thus, our finding indicates, that auditors' incentives to use boilerplates decrease with risk. This is in line with auditing standards (International Auditing and Assurance Standards Board [IAASB], 2019, appendix 2.5; International Auditing and Assurance Standards Board [IAASB], 2009, para. 5).

6. CONCLUSION

As a result of the global financial and economic crisis, numerous audit reforms were performed, especially within the EU, to restore user confidence in annual financial statements within the statutory audit. The auditor's central communication tool, the auditor's report, was also subject to extensive revision. A key element of the reform was the introduction of reporting on the risks of material misstatement judged to be significant or on particularly important audit matters (i.e., KAMs). This significantly expanded both the scope and level of detail of the auditor's report. Historically, the auditor's report has mainly contained standard formulations and boilerplate reporting elements that are not very informative for the addressees. Consequently, the reform aimed to increase the information value of the auditor's report, the transparency of the audit as a whole, and at the same time, reduce the stakeholder's expectation gap.

Following the reform, it is necessary to check whether the objectives have been achieved. Against this background, we analyze text similarities and their determinants in the reporting on KAMs in the auditor's reports of German HDAX companies in the period 2017 to 2019. We thereby extend existing research on the linguistic characteristics of extended auditor's reports (Seebeck & Kaya, 2022; Smith, 2022) and prior research on KAM reporting, which has focused on the effects of KAMs on different stakeholders. We investigate a potential threat to the effectiveness of KAMs, as high text similarity could lead to their having low information value.

The study results show partly high similarity rates between same-issue KAMs. At the level of identical pairs of company and auditors, the average similarity rate, when comparing KAMs of subsequent years, is around 0.797. For some KAMs, there is even a 100% percent match. When there is an auditor change, a similarity rate of around 0.267 can be identified. Our regression analysis of potential determinants of text similarities in KAM reporting confirms the results from our textual analysis. An auditor change has a significantly negative effect on text similarity. Furthermore, we find that a stable client's financial position (i.e., a high share of equity) results in greater use of boilerplates and, therefore, higher text similarity rates. However, other clients' and auditors' characteristics seem unrelated to text similarity.

To summarize, it is evident that standard formulations have been established from the time of the introduction of the expanded auditor's report. However, this is mainly evident if the same auditor

reports a KAM on the same issue in consecutive years at the client level. Hence, text similarities within ongoing auditor-client relationships over several years remain high. This is problematic, especially against the background of common long auditor-client relationships. Therefore, it remains unclear, whether there is an increase in the information value of the auditor's report and a reduction in the information and expectation gap.

However, our research is subject to some limitations. First, the small sample size and the focus on German companies limit the generalizability of our results. Nevertheless, this limitation should be seen in perspective, as we predominately consider Big 4 auditors. Second, our sample covers three years, i.e., two-year-on-year comparisons. We do not perform a longitudinal analysis over a longer term. Third, the evaluation based on the *Levenshtein distances* is open to criticism. For example, mere rephrasing without changing the content, or using synonyms (e.g., decrease vs. decline) could lead to a greater distance and be wrongly interpreted as heterogeneous reporting. Therefore, future research should use larger samples and other measures of reporting similarity (e.g., cosine similarity). Fourth, the analyzed years were very similar. Disruptions, like the COVID-19 pandemic or the war in Ukraine, could lead to different results in the subsequent periods. Fifth, high text similarity does not always mean less information value, e.g., if nothing has changed, this itself could also be valuable information. Lastly, we cannot assess to what extent the addressees perceive and evaluate the similarities in the KAM reporting. Therefore, future research could provide useful insights, for instance, by conducting qualitative and experimental studies on how they react to similarities.

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APPENDIX

Table A. Definitions of variables

Variable	*Definition*
SIM	Firm-scaled KAM similarity between years t_1 and t_2
MARKETCAP	Common logarithm of the client firms' market capitalization
EQUITY	Equity divided by total assets
INTEREST	Interest expense on debt divided by the sum of short-term debt and the current portion of long-term debt plus long-term deb
OROA	Profit before taxes divided by total assets
LOSS	The indicator variable is set to one if the client incurred losses during the current year and zero otherwise
MEET	Common logarithm of the number of supervisory board meetings
TENURE	Common logarithm of the number of years of the current auditor's tenure
SEG	Common logarithm of the number of business segments
AUDIT_FEES	Common logarithm of the level of audit fees
NAS_FEES	Common logarithm of the level of non-audit service fees
BUSY	A dummy variable that takes the value of one for firms with a fiscal year-end on December 31 as an indicator for the busy season and zeroes otherwise
AUDCHG	The indicator is set at one if the client firm has changed its auditor since the previous year and zero otherwise
PCHG	The indicator variable is set to one if there is a change of the audit partner since the previous year and zero otherwise
EXPERT	Sum of audit fees paid to a client's auditor by companies from the client's industry divided by all audit fees paid by companies from the client's industry