Properties of Key Audit Matters:
Determinants and Impacts on the Capital Market

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Statement of Originality

I certify that this thesis has never been submitted to any degree or other purpose. To the best of my knowledge, this thesis does not contain any other authors' materials without proper references.

I certify that the intellectual content of this thesis is the product of my own work and that all

the assistance received in preparing this thesis and sources has been acknowledged.

Kamolmett Chrityakierne, 14th January 2023

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Abstract

Key Audit Matters (KAM) disclosures are one of the most notable regulatory changes introduced into auditors' reports worldwide. The KAM are intended to provide informational value by making audits more transparent to financial statement users. This thesis investigates (i) the determinants of KAM properties, including volume, composition, specificity, readability, and uncertain tone, and (ii) the impacts of the nature and properties of KAM by applying textual analyses to the KAM disclosures of UK companies during the 2013 – 2017 period.

This thesis finds that the expertise and experience of KAM supply-side agents, i.e., audit firms, audit committees, and audit signing partners, are associated with KAM properties. The panel data analyses show that audit firm size is positively associated with KAM volume and readability and that audit firm industry specialisation is positively associated with KAM volume but negatively associated with the uncertain tone of KAM. Audit committee governance expertise and the proportion of KAM devoted to describing risk, capturing the composition of information in KAM, are negatively related; and audit signing partner experience in writing KAM for a given client and KAM specificity are positively linked.

After evaluating how KAM demand-side agents react to the nature and properties of KAM, this thesis finds that analyst and investor reactions are related to the nature of KAM categories, the proportion of KAM devoted to describing risk, and the uncertain tone in KAM. Investor reactions are also positively associated with KAM specificity. These reactions are stronger for companies operating in weaker information environments.

Overall, these results enhance our understanding of the supply and demand for given KAM properties and the informativeness of KAM.

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Chapter 1: Introduction

Financial crises and accounting scandals worldwide have eroded trust in capital markets, the financial reporting system, and auditors (Ball 2009, Sutton 2002, Unerman and O'Dwyer 2004). Critics say traditional standardised auditors' reports were ineffective in informing the market about audit work, financial report quality, aggressive accounting schemes implemented by management, and accounting fraud (Mock et al. 2012). However, financial statement users perceive an unqualified audit opinion in the traditional auditor's report as a symbol of a performed audit but find no valuation-relevant information in it (Church, Davis and McCracken 2008, Coram et al. 2011, Mock et al. 2009). Prior studies also find that traditional auditors' reports enlarge the audit expectation-performance gap between financial statement users and auditors (Gold, Gronewold and Pott 2009, Mock et al. 2009). Reading traditional auditors' reports, users presume that auditors have a higher level of responsibility to detect fraud, employ larger sample sizes in the audit, and conduct longer-period going-concern analyses than auditors actually do (Gray et al. 2011).

To rebuild trust in the audit profession, standard setters worldwide—like the International Auditing and Assurance Standards Board (IAASB),[1] the Public Company Accounting Oversight Board (PCAOB),[2] and the Financial Reporting Council (FRC)[3]— worked collaboratively to improve their audit reporting standards by addressing these long-standing issues present in traditional auditors' reports. This led to the emergence of a new explanatory section termed "Key Audit Matters (KAM)[4]". The KAM relate to the risks of material misstatement in financial reports that require significant judgment by both management and auditors. Disclosures in the KAM section are related to issues auditors have reported to the respective audit committee. Standard setters and regulators expect KAM to make the audit process more transparent and provide incremental information to the market (FRC 2015, IAASB 2015a). The principle-based KAM framework broadly

[1] The IAASB is "an independent standard-setting body that serves the public interest by setting high-quality international standards for auditing, assurance, and other related areas, and by facilitating their adoption and implementation" (*About IAASB* 2016). The IAASB issues International Standards on Auditing (ISA) to give guidance in the audit of financial statements.

[2] The PCAOB is "established by the US Congress to protect investors and the public interest by promoting informative, accurate, and independent audit reports and to oversee the audits of public companies and broker-dealers" (*About the PCAOB* 2016).

[3] The FRC "set standards for corporate reporting, audit, and actuarial practice and monitor and enforce accounting and auditing standards" in the UK (*About the FRC* 2016).

[4] The new section is named differently by various standard setters. The PCAOB (2016) and the FRC (2013) term the section Critical Audit Matters (CAM) and Assessed Risks of Material Misstatement (RMM), respectively. However, most of the key contents are similar.

states that KAM should highlight matters of utmost concern to auditors and discuss the audit approaches used to address these concerns (IAASB 2015a). Since there are no prescribed wordings and no fixed rules regarding the content and format of the KAM section, the content could vary significantly across companies in several aspects, i.e., topics, the number of disclosures, the nature of disclosures - such as non-repeated, repeated, industry-wide, and company-specific - the proportion of content in disclosures, linguistic features, and formatting. Therefore, utilising textual analysis should enable researchers to develop a more thorough understanding of KAM.

Several experimental studies find that KAM information regarding management estimates and financial reporting quality and the properties of KAM change investors' perceptions of financial reporting quality (Doxey 2014, Elliott, Fanning and Peecher 2019, Kachelmeier et al. 2019, Kipp 2017, Köhler, Ratzinger-Sakel and Theis 2016). Additionally, the KAM tend to impact unsophisticated investors (Christensen, Glover and Wolfe 2014, Dennis, Griffin and Zehms 2019, Elliott, Fanning and Peecher 2019, Kipp 2017, Rapley, Robertson and Smith 2018). While prior archival studies also examine the macro-reactions to the inclusion of KAM (Velte and Issa 2019), their findings are inconclusive. Some archival studies employing pre- and post-KAM adoption data observe a significant increase in trading volume and a dramatic reduction in bid-ask spreads post KAM adoption. These findings indicate that the new auditors' report with the KAM section are incrementally informative and reduce information asymmetry (Bens, Chang and Huang 2019, Reid et al. 2015). Using cross-sectional analyses, Klevak et al. (2020) find that both investors and analysts in the United States (US) find KAM informative. However, most studies outside the US find no evidence investors react to KAM (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019).

Several factors may explain the mixed results of prior KAM market impact studies. As prior studies claim, the KAM may be irrelevant to the markets (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019). Lennox, Schmidt and Thompson (2021) explain that although the KAM contain value-relevant information, investors may have already received most of the information contained in the KAM through other channels. Gutierrez et al. (2018) further note that KAM may not change market sentiment because KAM are resolved issues, which do not lead to a modified audit opinion. It is also possible that market participants may not fully understand how to use KAM. Therefore, they may not react to KAM. Bens, Chang and Huang (2019) explain that the inconclusive results of prior KAM impact studies may stem from delays in financial statement users' reactions since stakeholders need time to learn about this KAM ruling.

This study speculates that the lack of conclusive evidence that KAM contain incremental information may be due to some inadequacy in the measures of KAM employed by previous studies to capture the information diversity of KAM. Prior cross-sectional KAM studies typically capture KAM through aggregate values, such as total numbers of disclosures, words, and sentences (Gutierrez et al. 2018, Liao et al. 2019) or

merely divide KAM information into, at most, two nature of KAM categories, such as repeated/non-repeated and industry-wide/company-specific disclosures (Lennox, Schmidt and Thompson 2021, Liao et al. 2019). However, KAM sections usually contain several topics, which may vary according to the nature of KAM disclosures and impact user risk perceptions and reactions differently (Bao and Datta 2014, Kravet and Muslu 2013). Therefore, employing more variables to capture the information diversity in KAM may enhance understanding of KAM informativeness. Abraham et al. (2014) advise financial statement users to focus more on the quality, not quantity, of risk reporting, which is also evidenced by regulators calling for readable, concise, and tailored-to-engagement KAM (IAASB 2015b, Para. A47, PCAOB 2017, p. 30, FRC 2013, Para. 19B, FRC 2015) and by plenty of empirical evidence (Feldman et al. 2010, Hope, Hu and Lu 2016, Lehavy, Li and Merkley 2011, Rennekamp 2012, Seebeck and Kaya 2022). Nevertheless, few archival studies have investigated whether KAM supply-side agents, such as auditors, improve the quality of KAM and how KAM quality benefits KAM demand-side agents, such as financial analysts and investors.

To bridge this gap and enhance the understanding of the supply and demand for KAM, this thesis implements textual analyses to examine the determinants and the impacts of KAM.

Firstly, the KAM determinants studies examine how five KAM properties, i.e. (i) *Volume*, (ii) *Composition*, (iii) *Specificity*, (iv) *Readability*, and (v) *Uncertainty*, are determined by the characteristics of KAM supply-side agents: (a) audit firm expertise, (b) audit committee expertise, and (c) audit signing partner KAM experience.

This study creates a new measure of KAM, *Composition,* which describes the proportion of KAM dedicated to the risk description, calculated by the percentage of words of KAM used to describe risk. In line with prior KAM literature, this study captures *Volume* via the average word count of disclosures in the KAM section (Rousseau and Zehms 2020). This thesis also borrows several measures of content and linguistic features from the corporate disclosure literature to capture other KAM properties. Following Hope, Hu and Lu (2016), this thesis defines *Specificity* as the proportion of specific named entities, such as names, locations, dates, and numbers, in the KAM section. This thesis uses the Named Entity Recognition (NER) feature in spaCy (Honnibal et al. 2020) to identify named entities in the KAM. *Readability* is defined as an inverse of the Gunning Fog index (Lehavy, Li and Merkley 2011, Li 2008, Smith 2019, Velte 2018, 2019), a measure used to capture the complexity of written work. The Gunning fog index is a function of the number of complex sentences and vocabularies (Li 2008). *Uncertainty* captures the percentage of words in KAM classified as uncertain modal words. Uncertain modal words are identified based on the Loughran-McDonald Sentiment Word Lists (Loughran and McDonald 2020).

This thesis employs panel data analyses using post-KAM adoption data from UK companies with a premium listing on the London Stock Exchange (LSE). Due to the tremendous manual work required to gather

and extract KAM and audit committee information, mainly in an unstructured PDF format, this thesis limits the analyses to a four-year KAM period. The UK KAM are of interest because they are like the IAASB KAM, which are implemented worldwide and most examined in the KAM literature. Hence, the results of this study may give insight to regulators worldwide about how to enhance the effectiveness of KAM.

The predictions relating to the determinants of KAM are developed based on the widely accepted audit quality framework of DeFond and Zhang (2014), illustrating that audit quality is a function of auditor supply and client demand for audit quality and the variations in incentives and competencies of auditors and clients can drive the quality of the outputs of an audit process. Therefore, this study predicts that the expertise of audit firms and audit committees, and the experience of audit signing partners may also affect the properties of KAM. Overall, the findings of the industry fixed effects analyses with a full sample and propensity score matching subsamples consistently show:

I. Audit firms with expertise, as measured by Big N and industry-specialisation, increase KAM volume; Big N audit firms enhance KAM readability; and industry-specialised audit firms reduce the use of uncertain tone in KAM.
II. Audit committees with governance expertise relate to an increase in the description of audit procedures in KAM.
III. An audit signing partner with prior experience issuing KAM to a given client also includes more specific information than one without such.

The other primary interest of this thesis lies in the economic consequences of the nature of KAM categories and KAM properties. Consequently, the impact studies probe the issue of whether and how the different nature of KAM categories and different KAM properties affect sell-side analyst and investor behaviour. This thesis employs analyst earnings forecast dispersion and errors to examine analyst reactions (Lang and Lundholm 1996, Lehavy, Li and Merkley 2011, Wu and Wilson 2016) and captures investor reactions through three measures – cumulative absolute abnormal stock returns, abnormal trading volume, and abnormal bid-ask spreads - around a short-window event period (Bao and Datta 2014, Gutierrez et al. 2018, Hope, Hu and Lu 2016, Kravet and Muslu 2013, Reid et al. 2015).

Following prior KAM impact studies, this study employs industry fixed effects models to control for time-invariant differences across sectors, like variations in complexity and information environment among industries. The investor reaction studies employ short-window market-reaction analyses to mitigate the probability that other factors may explain the documented effects. Moreover, this thesis substitutes firm fixed effects for industry fixed effects in sensitivity tests. Overall, the results are subject primarily to the model specifications. However, both industry and firm fixed effects specifications consistently show:

I. Out of nine nature of KAM categories, only non-repeated company-specific and account-level disclosures are significantly associated with analyst earnings forecast divergences.
II. The proportion of KAM devoted to the risk description is positively associated with analyst earnings forecast dispersion – i.e., the proportion of KAM devoted to describing audit procedures is significantly associated with a decrease in analyst earnings forecast dispersion.
III. Repeated industry-wide account-level KAM disclosures and the use of uncertain tone in KAM are significantly associated with a reduction in the magnitude of analyst earnings forecast errors.
IV. The withdrawal and recurrence of industry-wide account-level KAM disclosures are significantly and positively associated with overall market reactions.

Further, the industry fixed effects model specifications show:

I. The recurrence of company-specific KAM is significantly associated with increased analyst earnings forecast dispersion.
II. KAM specificity is significantly and negatively associated with both the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors.
III. The proportion of KAM devoted to describing audit procedures is significantly associated with the decreased magnitude of analyst earnings forecast errors.
IV. An increase in uncertain tone in KAM is associated with the decreased magnitude of analyst earnings forecast errors.
V. Recurring company-specific account-level KAM are associated with changes in individual investor beliefs, as captured by increased abnormal trading volume.

However, the abnormal bid-ask spread analysis with industry fixed effects model shows no evidence of the information asymmetry effect of the nature and properties of KAM. Interestingly, investor reaction studies find more significant results when using firm fixed effects model specifications than industry fixed effects model specifications. The firm fixed effects model specifications reveal:

I. Overall market reactions, measured by cumulative absolute abnormal returns, are associated with a non-repeated industry-wide and account-level KAM disclosure.
II. The proportion of KAM devoted to describing audit procedures is incremental informative to the market, as evidenced by increased cumulative absolute abnormal returns.
III. Abnormal trading volume is positively associated with increases in the disclosures of company-specific entity-level KAM and the withdrawal of same.
IV. KAM specificity is positively associated with changes in abnormal trading volume.

V. Company-specific, entity-level KAM are negatively associated with bid-ask spreads, suggesting reduced information asymmetry.

VI. The use of uncertain tone in KAM is positively associated with bid-ask spreads, implying increased information asymmetry.

The supplementary analyses reveal the effects of KAM on investors are stronger and more significant for companies with weaker information environments. Interestingly, the impacts of KAM specificity on investors are prominent only for companies with strong information environments. Moreover, the readability of KAM is only significantly associated with a reduction in individual investor reactions in strong information environments. This could be due to KAM discouraging some types of users, such as unsophisticated investors (Christensen, Glover and Wolfe 2014), from trading and KAM readability reinforcing this effect of KAM on unsophisticated investor reactions (Rennekamp 2012). Therefore the more readable the KAM, the less likely unsophisticated investors are to trade.

This thesis makes several contributions, summarised below:

I. This thesis contributes to the KAM literature by enhancing the understanding of both the supply and demand of KAM properties. In the supply of KAM, this study explores whether and how auditor and audit committee expertise and/or experience contribute to KAM properties. Regarding the demand side, this study examines which KAM properties most influence analysts and investors. This knowledge may enable regulators or standard setters to identify discrepancies between demand and supply of KAM properties and properly intervene in the supply and demand sides of KAM to ensure that KAM are effectively applied and can successfully narrow the expectation-performance gap, as intended. This KAM knowledge helps financial statement users better understand the KAM to make the best use of it to improve their decisions. Insight into the determinants and impacts of KAM should enable corporate governance bodies to strategically select audit committee members and recruit auditors who can have a positive influence on KAM quality.

II. This thesis adds to the KAM literature examining KAM user reactions by including more extensive nature of KAM categories and KAM properties in the analyses. The KAM usually includes several disclosures with different nature of KAM or KAM properties, which may have different effects on user reactions. Therefore, capturing KAM only through aggregate variables could obscure the results of impact analyses. The associations between the nature and properties of KAM and user reactions documented in this thesis provide strong evidence demonstrating the impacts of KAM on users.

III. This study is among the first to investigate how users benefit from KAM readability and specificity. These are key properties that the FRC and the IAASB have encouraged auditors to incorporate into their KAM disclosures to make them more relevant to investors (IAASB 2015a, FRC 2015). The findings of this research provide evidence to support the decision to focus on these specific KAM properties.

IV. Finally, this study is an example of audit research employing textual analysis to a significant extent. As a large amount of information in auditors' reports are unstructured texts, automated content analysis is a highly useful technique for archival researchers to extract qualitative information in a manner amenable to quantitative analysis.

The remainder of this thesis proceeds as follows - Chapter 2 will present the institutional background and prior literature; Chapter 3 will illustrate the incremental contribution of the thesis; Chapter 4 will develop two sets of hypotheses regarding the determinants and impacts of KAM; Chapter 5 will present the research methodology; and Chapter 6 will contain a discussion on the empirical findings. Lastly, Chapter 7 will discuss the conclusions.

Chapter 2: Literature review

2.0 Introduction

This thesis examines the determinants of key audit matters (KAM) properties and the effects of nature of KAM and KAM properties on analysts and investors. This chapter will outline the institutional background of the KAM disclosure (Section 2.1), discussing its history (Subsection 2.1.1), definition, nature, properties (Subsection 2.1.2), and standard setters' expected outcomes (Subsection 2.1.3). Section 2.2 will present observed outcomes of KAM implementation drawn from the case histories of several countries (Subsection 2.2.1) and empirical literature (Subsection 2.2.2). Section 2.3 will focus on KAM properties regarding their dual roles as outputs of the audit process and inputs to the investing process. Subsection 2.3.1 will link KAM properties with the characteristics of agents on the KAM supply side – i.e., auditors and audit committees, increasing understanding of the possible determinants of KAM properties. Subsection 2.3.2 will show how properties of textual communication affect the behaviour of agents on the KAM demand side – i.e., analysts and investors, enhancing understanding of the possible impacts of KAM properties. The chapter will conclude with a summary in Section 2.4.

2.1 Institutional background

2.1.1 History of the development of the KAM ruling

Despite business transactions becoming more complex over the past 50 years and requiring auditors to perform increasingly complex analyses while taking on greater responsibilities, the form and content of the traditional auditor's report remained largely unchanged (ACCA 2017).

The traditional auditor's report includes three to five main paragraphs, illustrating the name of the audited entity, the titles of the audited financial statements, the responsibilities of the management and the auditor, the scope of the audit, and the auditor's opinion, with the last being the most important section to readers (IFAC 2008). The content in these paragraphs mostly follows structured language prescribed by the relevant standard (for an example of the traditional auditor's report, see Appendix B (I)).

The traditional auditor's report is of benefit to users for several reasons. First, it provides evidence of audit work and enables users to evaluate the reliability of financial statements. Audited financial statements are more reliable than non-audited ones; and ones with an unqualified opinion provide a higher assurance than ones with other modified opinions (Coram et al. 2011, Mock et al. 2009). In addition, Choi and Jeter

(1992) and Tahinakis and Samarinas (2016) find that unmodified opinions in the traditional auditor's report issued for smaller audited entities have a significantly positive relationship with market reactions, and modified opinions have a negative relationship with market reactions. This shows that audit opinions influence investors' evaluation of the riskiness of the auditee's future cash flows. Many users further infer that the absence of references to going concern uncertainty in an auditor's report means the audited entity is economically healthy and capable of longer term survival (Mock et al. 2009).

Despite its benefits, the traditional auditor's report has been widely scrutinised. Since the global financial crisis of 2008, critics have identified several problems with the traditional auditor's report. First, it is long, complex, and overly reliant on boilerplate language, lacking useful information. This discourages users from reading and utilising most of the information in the auditor's report – with the notable exception of the auditor's opinion paragraph (Mock et al. 2009, p. 9). Instead, financial statement users view the report as merely symbolising that the financial statements have been independently examined, while possessing no further valuation-relevant information (Church, Davis and McCracken 2008, Coram et al. 2011, Mock et al. 2009). Second, the standardised auditor responsibility paragraph in the traditional auditor's report fails to inform users of actual audit work, creating a significant audit expectation–performance gap.[5] Users assume auditors take much greater responsibility for mitigating the risks of material misstatement due to fraud and errors than what is actually the case (Asare and Wright 2012, Gold, Gronewold and Pott 2009, Mock et al. 2009). Additionally, the traditional auditor's report does not adequately communicate a consistent level of audit assurance to users (Geiger 1994, Mock et al. 2009) and does not inform users of the different levels of auditor judgment employed in each audit engagement. The deficiencies of the traditional auditor's report leave significant room for improvement.

Several activities conducted by regulators, standard setters, and professional bodies suggest attempts are being made to address the problems of the traditional auditor's report. In 2009, the results of the International Auditing and Assurance Standards Board's (IAASB) outreach activities and academic studies jointly commissioned by the American Institute of Certified Public Accounts (AICPA) identified increasing demand, from users, for information from auditors. As a result, the IAASB embarked on an overhaul of the traditional auditor's report (IAASB 2015d), marking the start of its eight-year journey towards the issuance of its new and revised auditing standards related to auditor reporting, as illustrated in Figure 2.1.

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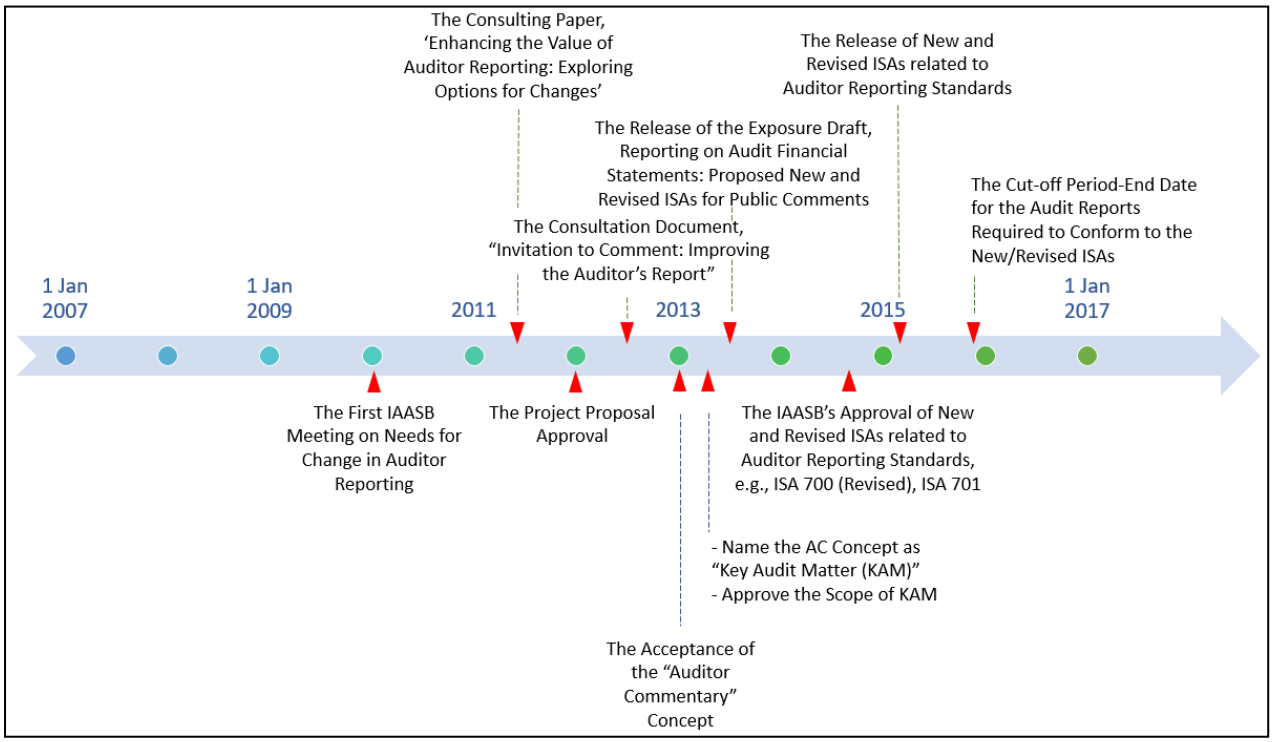
[5] The audit expectation-performance gap is defined as the gap between society's expectations of auditors and its perception of auditors' performance (Porter, Ó hÓgartaigh and Baskerville 2009). It includes three components: (i) Unreasonable expectations: the level of society's expectation is beyond the reasonable expected level that can actually be performed by auditors. (ii) Deficient standards: reasonable levels of expectation which exceed what auditors are required to do in terms of regulations and professional standards. (iii) Deficient performance: unmet level of expectation that can be presumed, based on the requirements of regulations and standards. The component relationships are illustrated in Figure 2.3.

Figure 2.1 The IAASB's timeline for auditor reporting project



In May 2011, the IAASB began to seek opinions regarding options for improving the value of auditor reporting by circulating the consultation paper, "Enhancing the Value of Auditor Reporting: Exploring Options for Change," which received 82 responses. Concurrently, the IAASB closely collaborated with the European Commission (EC), The US Public Company Accounting Oversight Board (PCAOB), and the UK Financial Reporting Council (FRC), which were also working on revising their own audit reporting standards. With the aim of enhancing the communicative value of the auditor's report to meet user demands for more information, the IAASB created the Auditor Reporting Working Group to revise the International Standard on Auditing (ISA) 700, *Forming an Opinion and Reporting on Financial Statements*, and related ISAs. The IAASB aimed to have a comprehensive exposure draft by June 2013 and gave this project the highest priority in its 2012-2014 strategic plan.

In June 2012, the IAASB published its indicative direction in the consultation document, "Invitation to Comment: Improving the Auditor's Report". Among other proposed changes, the IAASB paid particular attention to having auditors write "auditor commentary" in the revised auditor's report. To that end, the IAASB had the Auditor Reporting Working Group work further on "auditor commentary", regarding objectives, requirements, and disclosure criteria to make it distinct from the other existing paragraphs, like

the Emphasis of Matter[6] and Other Matter paragraphs[7]. In December 2012, responding to feedback from the 2012 Invitation to Comment, the IAASB advised the Auditor Reporting Working Group to consider incorporating into the auditor commentary the concepts of significant risks, key audit areas, areas requiring significant auditor judgment, and matters that were discussed with those charged with governance. The IAASB also emphasised the alignment of the requirements with those of other jurisdictions, to the extent reasonably practicable.

In February 2013, the IAASB agreed to use the term 'Key Audit Matters' (KAM) for the auditor commentary concept. The KAM would be included as an individual section of a revised auditor's report. The new ISA 701, *Communicating Key Audit Matters in the Independent Auditor's Report*, states that the objective of the KAM is to "communicate those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements". In June 2013, the IAASB approved a series of auditor reporting-related auditing standards and published them as the "Exposure Draft: Reporting on Audit Financial Statements. Proposed New and Revised International Standards on Auditing", which was open for public comment from 25 July 2013 to 22 November 2013. The Exposure Draft comprised the following standards:

- ISA 700 (Revised), *Forming an Opinion and Reporting on Financial Statements*
- ISA 701 (New), *Communicating Key Audit Matters in the Independent Auditor's Report*
- ISA 260 (Revised), *Communicating with Those Charged with Governance*
- ISA 570 (Revised), *Going Concern*
- ISA 705 (Revised), *Modifications to the Opinion in the Independent Auditor's Report*
- ISA 706 (Revised), *Emphasis of Matter Paragraphs and Other Matter Paragraphs in the Independent Auditor's Report*

In June 2014, the IAASB finalised the scope of the proposed ISA 701. The new ISA 701 defines KAM as "those matters that, in the auditor's professional judgment, were of most significance in the audit of financial statements of the current period. Matters to be presented in the KAM section are selected from matters communicated with those charged with governance"[8] (the definition and properties of KAM per the IAASB's ISA 701 is outlined in detail in Section 2.1.2). Content analysis of the comment letters received in

[6] ISA 706 describes the Emphasis of Matter paragraph as "a paragraph included in the auditor's report that refers to a matter appropriately presented or disclosed in the financial statements that, in the auditor's judgment, is of such importance that it is fundamental to users' understanding of the financial statements".
[7] The Other Matter paragraph is defined in ISA 706 as "a paragraph included in the auditor's report that refers to a matter other than those presented or disclosed in the financial statements that, in the auditor's judgment, is relevant to users' understanding of the audit, the auditor's responsibilities or the auditor's report".
[8] Those charged with governance is defined in ISA 260 (revised) as follow: "The person(s) or organization(s) (e.g., a corporate trustee) with responsibility for overseeing the strategic direction of the entity and obligations related to the accountability of the entity. This includes overseeing the financial reporting process".

response to the Exposure Draft shows that users, both investors and analysts, perceived high value from the proposed changes in the new auditor's report, especially the new KAM section (Prasad and Chand 2017). After reviewing the recommendations from the Exposure Draft, the IAASB approved a series of auditor reporting standards (Table 2.1) in September 2014 and officially released them in January 2015. These new standards, to be adopted by members of the International Federation of Accountants (IFAC) in over 130 countries and jurisdictions[9], took effect for audits of financial statements for periods ending on or after 15 December 2016 (IAASB 2015b).

Other jurisdictions also adopted disclosures similar to KAM for their own revised auditors' reports. The UK had applied the most literally equivalent disclosure long before it fully adopted the IAASB's KAM concept in 2016, when the IAASB's ISA 701 became effective worldwide. The UK Financial Reporting Council[10] (FRC) launched a Discussion Paper, called "The Auditor's Report: A Time for Change?" in December 2007, to gather options for change (see the FRC's and the PCAOB's Timeline for Auditor Reporting Project in Figure 2.2). In January 2011, the FRC's Consultation Paper, "Effective Company Stewardship–Enhancing Corporate Reporting and Audit", noted that helping readers understand the audit process and showing them that auditors have independently examined related decisions, judgments, and estimates taken by management could enhance audit transparency. In response to the directions suggested by the Consultation Paper, the FRC decided to revise its auditor reporting standards and finally released the International Standard on Auditing (UK and Ireland) 700: *The Independent Auditor's Report on Financial Statements* in June 2013. This ISA (UK and Ireland) 700 required auditors of premium listing entities[11] for periods commencing on or after 1 October 2012 to disclose in their reports "the assessed risks of material misstatement (RMM)" (whether or not due to fraud), which they considered to have the greatest effect on their audit, in terms of overall strategy, as well as the allocation of audit resources and direction for the engagement (FRC 2013). The RMM are generally equivalent to KAM in that they provide information about significant auditor-assessed risks and related audit work regarding a current-period audit of financial statements (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021). In addition to what is required by the IAASB's ISA 700, ISA (UK and Ireland) 700 mandates auditors to include in their auditor's reports discussions of materiality and the audit scope used in the audit engagement.

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[9] The IAASB is a professional body supported by the IFAC. IFAC consist of more than "175 members and associates in more than 130 countries and jurisdictions" *(About IFAC 2016)*.

[10] The FRC is a regulator for the UK and Ireland, overseeing the transparency and integrity of businesses via auditors, accountants and actuaries, as well as, issuing the UK's Corporate Governance and Stewardship Codes (FRC n.d.).

[11] Companies can list their equity on the London Stock Exchange according to three segments: Premium, Standard and High Growth Segment. Each of these is subject to different requirements regarding entry, listing, trading and ongoing obligations. Requirement for Premium listing companies is the most stringent of all. For example, companies listed in Premium Segments need to comply with UK Corporate Governance Code, while Standard Listing companies can follow the Corporate Governance Statement, a more lenient requirement. However, equities listed in the Premium Segment are the only securities allowed to be included in the FTSE indices. (London Stock Exchange n.d.)

Table 2.1 Summary of significant reforms to the auditor's report

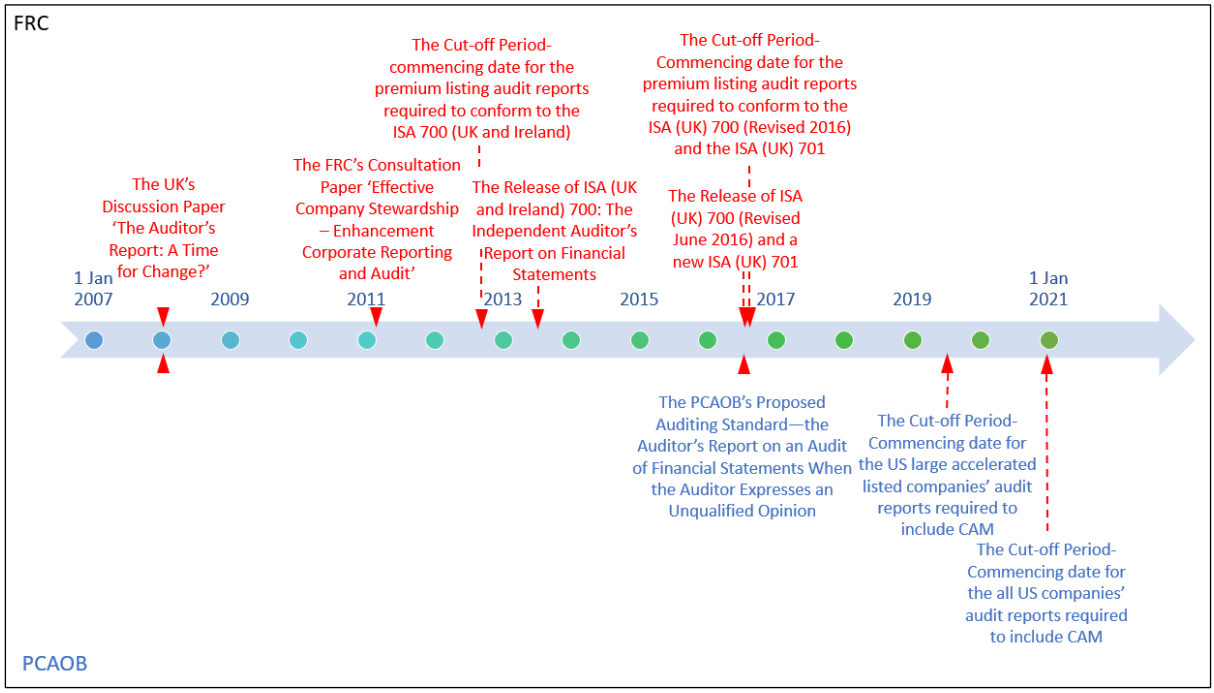
Title of Auditing Standard	Standard	Reforms/Changes
Forming an Opinion and Reporting on Financial Statements	ISA 700	• Revises the presentation order of the elements of the auditor's report. Paragraph 23 requires the first section of the auditor's report to include the auditor's opinion. The basis for the opinion section will follow the auditor's opinion. • Prescribes the inclusion of key audit matters in the auditor's report, and refers auditors to the new standard, ISA 701, for guidance on the disclosure of key audit matters (mandatory for listed entities only, voluntary for other entities). • Enhanced description of auditors' responsibilities for the audit of financial statements. • Requires the engagement partner for audits of financial statements of listed companies to be named and establishes a 'harm's way' exemption for the disclosure of the name of the audit engagement partner. • Requires for all auditors' reports an explicit statement that the auditor is independent of the entity following the relevant ethical requirements relating to the audit, and that they have fulfilled all other ethical responsibilities. Also requires the identification of the jurisdiction of the origin of the ethical requirements or a reference to the IESBA Code of Ethics for Professional Accountants.
Communicating Key Audit Matters in the Independent Auditor's Report	ISA 701	• This is a new auditing standard. This standard introduces requirements for auditors to determine and communicate key audit matters in the auditor's report.
Going Concern	ISA 570	• In cases where material uncertainty exists with respect to the going concern of an entity, the auditor must address this in a separate section of the auditor's report, which is broadly similar to the exception-based reporting required in the existing ISA 570. • For all auditors' reports, the respective responsibilities of management and the auditor for going concern must be described. • If events and circumstances have been identified that might cast significant doubt on an entity's ability to continue as a going concern but the auditor concludes that no material uncertainties exist, there is a new requirement for the auditor to evaluate the adequacy of disclosure about these events and circumstances in the financial statements in accordance with the applicable financial reporting framework. • An acknowledgement in ISA 701 and ISA 570 that matters related to going concern may be determined to be a key audit matter.

Table 2.1 Summary of significant reforms to the auditor's report (continued)

Title of Auditing Standard	Standard	Reforms/Changes
Modifications to the Opinion in the Independent Auditor's Report	ISA 705	• The revised ISA 705 makes it explicit that matters giving rise to the modification of the auditor's opinion are, by their nature, key audit matters but are to be reported separately in the Basis for Qualified (or Adverse) Opinion section of the auditor's report. • The revised ISA 705 prohibits the auditor from including additional information on key audit matters, going concern or other information about which, the auditor disclaims an opinion.
The Emphasis of Matter Paragraphs and Other Matter Paragraphs in the Independent Auditor's Report	ISA 706	• This standard was revised as a result of the new ISA 701.
Communicating with Those Charged with Governance	ISA 260	• This standard was revised as a result of the new ISA 701.
The Auditor's Responsibilities Relating to Other Information	ISA 720	• There are other changes in this standard; we only present changes that affect the auditor's report. • Using the heading 'Other Information' or other appropriate heading, the auditor's report will include: - a statement that management is responsible for the other information; - identification of the other information obtained prior to the date of the auditor's report. In the case of a listed entity, the auditor is also required to identify any other information expected to be obtained after the date of the auditor's report; - a statement that the auditor's opinion does not cover the other information and, accordingly, that the auditor does not express (or will not express) an audit opinion or any form of assurance conclusion thereon; - a description of the auditor's responsibilities related to reading, considering and reporting on other information. • When other information has been obtained before the date of the auditor's report, either: - a statement that the auditor has nothing to report; or - if the auditor has concluded that there is an uncorrected material misstatement of the other information, a statement that describes the uncorrected material misstatement of the other information.

Source: Prasad and Chand (2017, pp. 351-352)

Figure 2.2 The FRC's and the PCAOB's timeline for auditor reporting project



In June 2016, the UK FRC enacted revised ISA (UK) 700 (Revised June 2016): *Forming an Opinion and Reporting on Financial Statements*[12], and a new ISA (UK) 701: *Communicating Key Audit Matters in the Independent Auditor's Report*. The prior RMM section is therein renamed as "Key Audit Matters", now aligning with both the IAASB and EU 2014 KAM concepts. ISA (UK) 701 requires the KAM section of audit reports for UK public interest entities to still include the UK RMM concept and further discussion of the key observations (if applicable) as required by the EU (2014) KAM concept (Council 2016). These new and revised ISAs (UK) are effective for audits of financial statements for periods commencing on or after 17 June 2016.

In May 2016, the United States PCAOB released its own proposed auditing standard, "*The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*" (and related amendments to PCAOB Standards), requiring the addition of Critical Audit Matters (CAM) to the auditor's report (PCAOB 2016). The PCAOB's CAM comprise matters arising from the audit of the financial statements that are (or are required to be) communicated to the audit committee. These matters are also related to accounts or disclosures that are material to the financial statements and involve challenging, subjective or complex auditor judgment (PCAOB 2016, p. 17). The CAM came into effect for the audits of large accelerated listed companies for fiscal years ending on or after 30 June 2019. For other types of companies, they came into force for fiscal years ending on or after 12 December 2020.

[12] The FRC has revised ISA 700 in 2016 to conform with the IAASB's ruling and changed the title of ISA (UK) 700 to be comparable with that of the IAASB's ISA 700.

2.1.2 KAM definition, nature of KAM categories, and KAM properties

Though KAM, FRC's RMM, and PCAOB's CAM have different definitions, they share many similarities. They aim at improving the value of the auditor's report by providing insight into actual audit work (Group 2016). They are also sourced from significant risks related to a current-period audit. Definitions and comparisons of RMM/KAM/CAM are shown in Table 2.2 and Table 2.3, respectively. This study focuses the IAASB KAM, the foundation of KAM worldwide. Usually, the flavor of KAM adopted in each country is tailored to fit that country's institutional environment and context and fulfill the specific needs of financial statement users in that country. Though in general, worldwide KAM rulings are founded on the IAASB KAM concept (ISA 701) - as even the UK FRC chose to repeal ISA (UK and Ireland) 700 to adopt ISA (UK) 700 (Revised June 2016) and new ISA (UK) 701, conforming to both the IAASB KAM concept and EU requirements.

The purpose of the KAM section is to enhance the communicative value of the auditor's report (IAASB 2015b, paras A1-A4). It is aimed at improving the transparency of the audit engagement through the discussion of matters which auditors consider to be most significant, in their professional judgment, to the current-period audit. Auditors choose matters to report on from those communicated to executives or officers charged with governance, e.g., the audit committee. In determining these matters, auditors should consider areas of higher assessed risk of material misstatement, or significant risks, areas requiring an auditor to exercise substantial judgment because they involve significant managerial judgment, and events (or transactions) having a high impact on the current audit (IAASB 2015b, Paras 9-10). Each matter in the KAM section, at a minimum, covers the nature of the issue, why the auditors consider the issue significant, and how it is addressed or resolved (IAASB 2015b, Paras 13).

Table 2.2 Definitions and communication of RMM/KAM/CAM

Disclosures	Risks of material misstatement (RMM)	Key audit matters (KAM)	FRC Key audit matters (KAM)	Critical audit matters (CAM)
Institution	UK FRC	IAASB	UK FRC	US-American PCAOB
Standards	ISA (UK and Ireland) 700, *The Independent Auditor's report on Financial Statements*	ISA 700 (Revised), *Forming an Opinion and Reporting on Financial Statements,* and ISA 701, *Communicating Key Audit Matters in the Independent Auditor's Report*	ISA (UK) 700 (revised June 2016), *Forming an Opinion and Reporting on Financial Statements*, and ISA (UK) 701, *Communicating Key Audit Matters in the Independent Auditor's Report*	AS 3101, *The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*
Apply to	Audits of financial statements for periods commencing on or after October 2012 for (1) Audits of companies with a Premium listing of equity shares in the London Stock Exchange regardless of whether they are incorporated in the UK or elsewhere; and (2) Irish-incorporated companies with a primary or secondary listing of equity shares in the Irish Stock Exchange.	Audits of financial statements for periods ending on or after December 15, 2016 for (1) Audits of complete sets of general-purpose financial statements of listed entities; (2) When the auditor is required by law or regulation to communicate key audit matters in the auditor's report. ISA 705 (Revised) prohibits the auditor from communicating key audit matters when the auditor disclaims an opinion on the financial statements, unless such reporting is required by law or regulation.	Audits of financial statements for periods commencing on or after June 17, 2016 for (1) Audits of complete sets of general purpose financial statements of listed entities; (2) Audits of complete sets of general purpose financial statements of public interest entities and other entities that are required, and those that choose voluntarily, to report on how they have applied the UK Corporate Governance Code; and (3) When the auditor is required by law or regulation to communicate key audit matters in the auditor's report. ISA (UK) 705 (Revised June 2016) prohibits the auditor from communicating key audit matters when the auditor disclaims an opinion on the financial statements, unless such reporting is required by law or regulation.	Audits of fiscal years ending on or after June 30, 2019, for large-accelerated filers; and for fiscal years ending on or after Dec. 15, 2020, for all other companies to which the requirements apply.

Table 2.2 Definitions and communication of RMM/KAM/CAM (continued)

Disclosures	Risks of material misstatement (RMM)	Key audit matters (KAM)	FRC Key audit matters (KAM)	Critical audit matters (CAM)
Definition	ISA (UK and Ireland) 700.19A. Assessed risks of material misstatement--those risks that had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. ISA (UK and Ireland) 700.A13A. Such assessed risks of material misstatement are likely to have been identified by the auditor in meeting the requirements of ISA (UK and Ireland) 315 "Identifying and assessing the risks of material misstatement through understanding the entity and its environment", including those relating to significant risks. However, the auditor uses its judgement to determine which, if any, of the significant risks and which , if any, of the other identified risks meet the criteria set out in paragraph 19A(a) and are to be described in the auditor's report.	ISA 701.8. Key audit matters--Those matters that, in the auditor's professional judgement, were of most significance in the audit of the financial statements of the current period. Key audit matters are selected from matters communicated with those charged with governance. ISA 701.9. The auditor shall determine, from the matters communicated with those charged with governance, those matters that required significant auditor attention in performing the audit. In making this determination, the auditor shall take into account the following: (a) Areas of higher assessed risk of material misstatement, or significant risks identified in accordance with ISA (UK) 315 (Revised June 2016) (b) Significant auditor judgements relating to areas in the financial statements that involved significant management judgement, including accounting estimates that have been identified as having high estimation uncertainty. (c) The effect on the audit of significant events or transactions that occurred during the period. ISA 701.10. The auditor shall determine which of the matters determined in accordance with paragraph 9 were of most significance in the audit of the financial statements of the current period and therefore are the key audit matters.	ISA (UK) 701.8. Key audit matters--Those matters that, in the auditor's professional judgement, were of most significance in the audit of the financial statements of the current period. Key audit matters are selected from matters communicated with those charged with governance. ISA (UK) 701.9. The auditor shall determine, from the matters communicated with those charged with governance, those matters that required significant auditor attention in performing the audit. In making this determination, the auditor shall take into account the following: (a) Areas of higher assessed risk of material misstatement, or significant risks identified in accordance with ISA (UK) 315 (Revised June 2016) (b) Significant auditor judgements relating to areas in the financial statements that involved significant management judgement, including accounting estimates that have been identified as having high estimation uncertainty. (c) The effect on the audit of significant events or transactions that occurred during the period. ISA (UK) 701.10. The auditor shall determine which of the matters determined in accordance with paragraph 9 were of most significance in the audit of the financial statements of the current period and therefore are the key audit matters. ISA (UK) 701.11. (a)….Key audit matters include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by the auditor, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team.	AS 3101.11 The auditor must determine whether there are any critical audit matters in the audit of the current period's financial statements. A critical audit matter is any matter arising from the audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved especially challenging, subjective, or complex auditor judgment. Critical audit matters are not a substitute for the auditor's departure from an unqualified opinion (i.e., a qualified opinion, adverse opinion, or disclaimer of opinion on the financial statements as described in AS 3105).

Table 2.2 Definitions and communication of RMM/KAM/CAM (continued)

Disclosures	Risks of material misstatement (RMM)	Key audit matters (KAM)	FRC Key audit matters (KAM)	Critical audit matters (CAM)
Communication of RMM/KAM/CAM	ISA (UK and Ireland) 700.19A. (T)he auditor's report shall: (1) Describe those assessed risks of material misstatement that were identified by the auditor, and which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team; (2) Provide an explanation of how the auditor applied the concept of materiality in planning and performing the audit. Such explanation shall specify the threshold used by the auditor as being materiality for the financial statements as a whole; and (3) Provide an overview of the scope of the audit, including an explanation of how such scope addressed the assessed risks of material misstatement disclosed in accordance with (a) and was influenced by the auditor's application of materiality disclosed in accordance with (b). ISA (UK and Ireland) 700.A13C. The content of the overview of the scope of the audit is tailored to the particular circumstances of the audit and how the scope was influenced by the auditor's application of materiality and addressed the assessed risks of material misstatement described in the auditor's report.	ISA 701.13. The description of each key audit matter in the Key Audit Matters section of the auditor's report shall include a reference to the related disclosure(s), if any, in the financial statements and shall address: (a) Why the matter was considered to be one of most significance in the audit and therefore determined to be a key audit matter; and (b) How the matter was addressed in the audit.	ISA (UK) 701.13. The description of each key audit matter in the Key Audit Matters section of the auditor's report shall include a reference to the related disclosure(s), if any, in the financial statements and shall address: (a) Why the matter was considered to be one of most significance in the audit and therefore determined to be a key audit matter; and (b) How the matter was addressed in the audit.	AS 3101.13 The auditor must communicate in the auditor's report critical audit matters21 relating to the audit of the current period's financial statements or state that the auditor determined that there are no critical audit matters. Note: When the current period's financial statements are presented on a comparative basis with those of one or more prior periods, the auditor may communicate critical audit matters relating to a prior period. This may be appropriate, for example, when (1) the prior period's financial statements are made public for the first time, such as in an initial public offering, or (2) issuing an auditor's report on the prior period's financial statements because the previously issued auditor's report could no longer be relied upon. AS 3101.14 For each critical audit matter communicated in the auditor's report the auditor must: a. Identify the critical audit matter; b. Describe the principal considerations that led the auditor to determine that the matter is a critical audit matter; c. Describe how the critical audit matter was addressed in the audit; and Note: In describing how the critical audit matter was addressed in the audit, the auditor may describe: (1) the auditor's response or approach that was most relevant to the matter; (2) a brief overview of the audit procedures performed; (3) an indication of the outcome of the audit procedures; and (4) key observations with respect to the matter, or some combination of these elements. d. Refer to the relevant financial statement accounts or disclosures that relate to the critical audit matter.

Table 2.3 Comparisons of RMM/FRC's KAM/CAM

Disclosures	FRC's Risks of material misstatement (RMM)	FRC's Key audit matters (KAM)	PCAOB's Critical audit matters (CAM)
Similarities (comparing to IAASB's KAM)	Both FRC's RMM and IAASB's KAM relate to areas of higher assessed risk of material misstatement, or significant risks, of a current-period audit. Both FRC's RMM and IAASB's KAM sections require similar disclosure as follows: 1. Description about assessed risks. 2. Audit procedures used to address each KAM.	The definition of The FRC's KAM is the same as that of the IAASB's KAM. Both FRC's KAM and IAASB's KAM sections require similar disclosure as follows: 1. Reasons that auditors identify each matter as KAM. 2. Audit procedures used to address each KAM. 3. A reference to KAM-related disclosures in financial statements, if any. 4. Statements that present significant judgments that auditors have exercised when determining KAM. Both FRC's KAM and IAASB's KAM are required for an auditor's report with most types of audit opinions except a disclaimer opinion.	Both PCAOB's CAM and IAASB's KAM are selected from the matters that relate to the current-period audit and are communicated to those charged with governance. Communication of at least one KAM/CAM is encouraged. Also, auditors should provide a reason if no KAM/CAM is disclosed. Both CAM and KAM sections require similar disclosure as follows: 1. Reasons that auditors identify each matter as KAM/CAM. 2. Audit procedures used to address each KAM/CAM. 3. A reference to KAM-/CAM-related disclosures in financial statements, if any. 4. Statements that present significant judgments that auditors have exercised when determining KAM/CAM. Both CAM and KAM are required for an auditor's report with unmodified or qualified opinions. - Both KAM and CAM are not required when auditors issue a disclaimer opinion.
Differences (comparing to IAASB's KAM)	In communicating RMM, there is no requirement that the auditor's report shall include a reference to the related disclosure(s) and statements that present significant judgments that auditors have exercised when determining RMM.	FRC's KAM also includes previous RMM concept (per ISA (UK) 701.11) ISA (UK) 701.13R-1. For audits of financial statements of public interest entities, in describing each of the key audit matters, the auditor's report shall provide, in support of the audit opinion: (a) A description of the most significant assessed risks of material misstatement, (whether or not due to fraud); (b) A summary of the auditor's response to those risks; and (c) where relevant, key observations arising with respect to those risks. Where relevant, the auditor's report shall include a clear reference to the relevant disclosures in the financial statements.	CAM is supposed to relate to a current-period audit. However, the PCAOB points out that, in some circumstances, presenting prior-period-related CAM in a current-period auditor's report may be relevant. The IAASB does not have such a requirement. The IAASB and the PCAOB indicate different reasons when auditors can exclude KAM/CAM. KAM can be excluded if the pros of the KAM communication outweigh the cons, while the PCAOB mentions that the auditor's report should not include information that has never been publicly disclosed by audited entities. In communicating CAM in an auditor's report, PCAOB also requires auditors to relate each CAM to financial statement accounts, if possible. Unlike KAM, CAM is not presented in an auditor's report with an adverse opinion.

ISA 701 suggests that the KAM section should include at least one KAM matter. Where there is no KAM disclosure, auditors are required to state, “there is no KAM”, and explain why this is so. The KAM section is required for an auditor’s report with one of the four audit opinion types (unmodified, qualified, adverse, or going-concern opinions) but not for an auditor’s report with a disclaimer of opinion (IAASB 2015c, p. 2, Para 5). Auditors issue a disclaimer of opinion when they cannot complete all audit work as planned and there is insufficient evidence to support issuing the other types of audit opinion. So, including a KAM disclosure with a disclaimer opinion may be inappropriate and confusing to readers.

Any matters leading to modified opinions (qualified, adverse, or going-concern opinions) are by nature the types of information that may be considered KAM, however they are required to be disclosed in a separate section in the auditor’s report called “The Basis for Qualified (Adverse) Opinion” or “The Material Uncertainty Related to a Going Concern” (IAASB 2015a). The KAM section does not act as a substitute for the opinion section or any of the other explanatory sections about circumstances leading to a modified opinion.

Appendix B (II) presents an example of an unmodified auditor’s report with the KAM section extracted from the 2018 annual report and accounts of Severfield plc, a UK premium listed company. This report is prepared following ISA (UK) 700 (revised June 2016) and ISA (UK) 701, which is equivalent to IAASB ISA 700 and ISA 701. The example KAM section can be found under the heading “Key audit matters: our assessment of risks of material misstatement”. Severfield’s 2018 KAM section consists of three disclosures relating to construction contracts, joint venture investment, and investment in subsidiaries. Like IAASB ISA 701, each KAM disclosure includes discussions of the nature of the issue and how the auditor responded, as shown in the subheadings ‘The risk’ and ‘Our response’, respectively. Consistent with the EU’s 2014 requirements, each disclosure includes key observations presented under the headings ‘Our results’.

The descriptions of KAM explain difficult audit issues encountered by an auditor during audit work and significant risks stemming from management’s assumptions or discretionary decisions relating to accounting policies and estimates that may impact the financial statements. The descriptive information about audit procedures accompanying each KAM disclosure may also enhance users’ understanding of the auditor’s exercise of judgment and professional skepticism during audit work. For example, the first KAM disclosure about the carrying value of construction contracts and the related revenue and profit recognition in Appendix B (II) shows the account balances of these items are subject to changes in the estimated costs of each construction project, as well as unsettled variations and judgment about the recoverability of these costs, reflecting that

revisions can occur throughout the long life of each contract. This disclosure also explains that only some of these numbers were verified by available post-period evidence, like client payments. To substantiate some of the numbers, the auditor could only challenge management's assumptions and estimates and use professional judgment to assess their claims. So, after reading this KAM disclosure, users may be aware of the level of uncertainty residing within the audited financial statements, even when an auditor issues an unmodified opinion. Therefore, investors should more precisely understand the level of assurance provided regarding the audited financial statements.

Severfield's 2018 KAM section demonstrates that the inclusion of the KAM has changed the format of a traditional unmodified auditor's report from structured to semi-structured. While other sections maintain uniform wording, the new KAM section, whose content and wording are broadly guided by ISA 701, varies significantly according to the auditor's judgment. Therefore, information in the KAM section may vary in terms of categories of disclosures included in KAM, the amount of content in KAM, and the level of linguistic features used to describe KAM.

2.1.2.1 Nature of KAM categories

Disclosures in the KAM section fall into different types and categories. Different compositions of risk disclosures could lead to different effects on users' reactions (Bao and Datta 2014). Several archival studies sort KAM either by topic types or nature of categories before analysing their impacts on users. Bens, Chang and Huang (2019) and Liao et al. (2019) group KAM into six and 11 main topic types, respectively, to study their impacts on abnormal returns, abnormal bid-ask spreads and analyst forecast dispersion. Liao et al. (2019) find insufficiently consistent evidence that investors respond to each type of KAM. Lennox, Schmidt and Thompson (2021), Liao et al. (2019) group KAM disclosures into binary categories by employing several separated natures of KAM categories, including recurring/non-recurring KAM, firm-specific/industry-related KAM, account-affected/entity-wide-affected KAM, and unexpected/predictable KAM. However, employing separate models to examine each pair of binary categories, these studies fail to find any of these categories informative to investors. Perhaps because each of these binary criteria may insufficiently capture the nature of information in KAM, as it can only be classified into one of two categories at a time. This means when a criterion is adopted, the other criteria are ignored or left uncontrolled. It may be necessary to classify information in KAM by aggregated, rather than binary, criteria. However, this researcher found no study which aggregated these binary categories and included them in the same analysis.

2.1.2.2 The content of KAM

The informativeness of KAM can also vary according to the level of information content contained in them. The IAABS principle-based KAM ruling only guides that the auditor's report has at least one disclosure in the KAM section and each disclosure needs to include descriptions of why the matter is significant and how the auditor addresses it. Sometimes auditors voluntarily provide results from their investigation in addition to the description of the risk and the audit procedures. The variations in KAM information content may be captured by several KAM properties, described below.

1) **The volume of discussion in KAM**

The most popular measures capturing variations in KAM content are the number of KAM disclosures (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019) and the total length of the KAM section (Gutierrez et al. 2018, Klevak et al. 2020, Liao et al. 2019). Both measures reflect the amount of information in the KAM. The results of archival studies examining the effects of these measures on financial statement users are mixed. In the UK and Hong Kong, neither the number of KAM disclosures nor the length of the KAM section is found to change market behaviours as proxied by abnormal returns and abnormal trading volume around the filing date (Gutierrez et al. 2018, Liao et al. 2019). Examining the PCAOB CAM in the US, Klevak et al. (2020) find significant associations between the reactions of market participants and the length of CAM as proxied by several measures (i.e., the total count of characters, words, and verbs in the CAM section). However, using one of the measures alone is insufficient to capture the KAM content in detail. The number of KAM disclosures does not capture the amount of information within each disclosures; also, the total length of the KAM section simply measures total KAM content without regard to the diversity of information it contains, failing to capture the difficulties an auditor has encountered during an audit. There have been no studies which examine the incremental effects of the number of disclosures in KAM and the length of the KAM section on users' reactions.

Breaking the total length of the KAM section into the number of disclosures and the average length per KAM disclosure and examining them in the same model can address the above issue. The average word count in each disclosure reflects the average amount of information that auditors are willing to disclose for each KAM topic (Rousseau and Zehms 2020). Rousseau and Zehms (2020) show that this average disclosure length varies by audit partner and is positively associated with audit firm industry specialisation. In terms of impact, Kipp (2017) experimental study shows that more information in both the risk discussion and audit procedures increases non-professional investor confidence in KAM-related accounts of financial statements and audit quality. However,

there have been no archival studies which use the average length of KAM disclosures to study how KAM impact markets.

2) The composition of information in KAM

The aforementioned measures of KAM content may still be deficient because they disregard the difference of information included in each disclosure, covering the discussions of the nature of risk, audit procedures, and sometimes the key findings. These discussions may impact investors' behaviours differently. An increase in a risk description may enlarge investor risk perceptions, while an increase in an audit procedure description may have the opposite impact. Moreover, the FRC (2015) believes the inclusion of findings in the KAM section makes the audit more transparent to users.

A study may incorporate the different pieces of information within each KAM disclosure into an analysis by using proxies, such as the proportion of KAM dedicated to the risk description, the proportion of KAM devoted to the description of audit procedures, and/or a dummy variable capturing whether an auditor voluntarily discloses findings in each KAM disclosure. The proportion of the KAM section devoted to the description of auditor's procedures reveals how much effort an auditor has employed to address KAM-related issues. An experimental study finds that the longer the description of the audit procedures, the higher the confidence nonprofessional investors have regarding the audit quality (Kipp 2017). Liao et al. (2019) also report an archival result showing that the length of the audit procedure description is significantly and positively associated with abnormal trading volume. However, it was not observed to have a significant effect on either cumulative abnormal returns or abnormal bid-ask spreads.

3) The specificity in KAM

The specificity of the KAM section reflects the quality of the KAM content. KAM with greater specificity are believed to be more informative than those employing boilerplate language (FRC 2015). KAM specificity helps readers to comprehend matters and incorporate KAM information into their decision making. Standard setters also suggest auditors avoid generic or standardised language to retain the value of KAM communication over time (IAASB 2015c, p. 16, FRC 2013, p. 7). Investors and shareholders also encourage auditors to present more entity-specific details to help users better evaluate audited entities (Gray et al. 2011, ICAEW 2007). Reviews from the UK, Singapore, and Malaysia consistently show both regulators and investors demand transparent disclosures containing granular information (ACCA 2017, FRC 2015, 2016b, The Securities Commission Malaysia (SC) Audit Oversight Board (AOB) 2018). Similarly, the UK's Investment Management Association

(IMA) rewarded auditors who issued KAM which presented detailed company-specific information rather than boilerplate. The IMA believes granular KAM are more likely to enhance investors' understanding of risks than widen their perception of uncertainty (FRC 2015, p. 53).

There is limited empirical research examining whether KAM specificity is determined by auditors' and audit committees' expertise and experience and how analysts and investors take KAM specificity into account. Only recently, Seebeck and Kaya (2022) show that Big N audit firms improve KAM specificity over time, while non-Big N do not. They also find that KAM specificity as determined by quantitative information, such as monetary figures or percentages, is significantly and positively associated with investor reactions captured by changes in both trading price and volume. Hence, there is still room for further research in this area.

2.1.2.3 The linguistic features of KAM

1) **The readability of KAM**

In terms of readability, investors demand that KAM should be clear, concise, and understandable. IAASB (2015b, p. 13) suggests auditors avoid audit jargon[13] and produce concise KAM which contain sufficient information. Readability helps users interpret messages accurately with minimal effort, time, and resources, whereas complex language may prevent users from reading thoroughly and arriving at the intended meaning. Having limited resources and facing today's lengthy corporate disclosures, users may not fully engage with a lengthy or complex KAM. Although several archival studies examine the determinants of KAM readability (Seebeck and Kaya 2022, Velte 2018, 2019), there is limited archival research examining effects of KAM readability on users' reactions. Seebeck and Kaya (2022) have recently examined the association between KAM readability and investor reactions but they have found an insignificant association.

2) **The uncertain tone in KAM**

Uncertain tone is another linguistic feature that can vary among KAM. Smith (2019) finds that Big N firms' reports contain a higher level of uncertain tone. Christofferson and Grönberg (2018) demonstrate that, in Sweden, the level of uncertain tone presented in KAM varies among Big N audit firms. It remains controversial whether KAM with higher or lower uncertain tone are more informative. On the one hand, the level of uncertain tone used in KAM may reflect auditors'

[13] Some examples of audit jargon include cash-generating units, income recognition, provisional assessment, reconciling items, recoverable amount, substantive procedures, and walk-through tests.

attitudes and convey useful information (Smith 2019). On the other hand, an uncertain tone may lead to ambiguity. Prior studies suggest management uses an uncertain tone to conceal information. As a result, companies with annual reports showing higher uncertainty usually face a higher cost of borrowing (Ertugrul et al. 2017). Lennox, Schmidt and Thompson (2021) identify that the more uncertain the tone, the less informative the KAM are to users. They categorise KAM samples as using a high- or low-uncertain tone to analyse how the market reacts to the number of disclosures in the KAM, but their results were insignificant for both subsamples. Seebeck and Kaya (2022) show that Big N audit firms employ more tone, i.e., the combination of positive, negative, and uncertain tones, over time but they find no evidence that the total KAM tone affects investor reactions.

2.1.3 Standard setters' expectations of KAM benefits

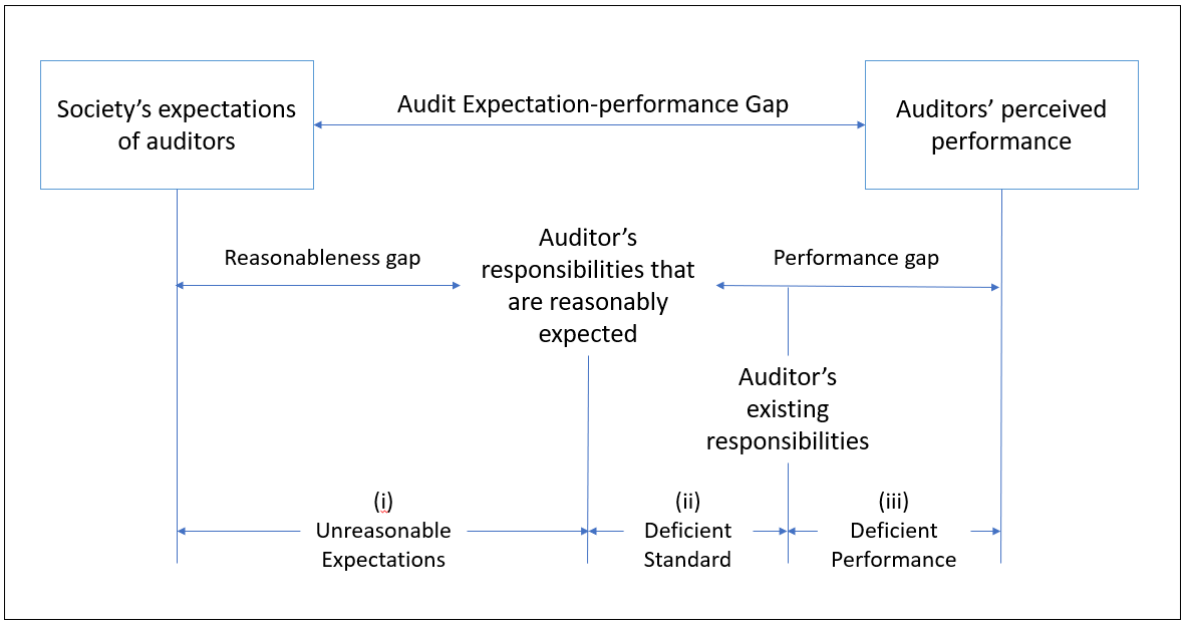
This section illustrates the expected benefits of KAM from the viewpoint of standard setters as they approached KAM implementation (refer to Section 2.2 for observed outcomes regarding KAM implementation). In the pre-implementation period, standard setters expected direct and indirect benefits from KAM. The KAM section's purpose is to provide investors, analysts, and other audit report users specific-information about an audit of a particular client; therefore, the inclusion of KAM in the auditor's report is expected to enhance its relevance and utility (IAASB 2015b, PCAOB 2017). An increase in the communicative value of the auditor's report should reduce information asymmetry between auditors and users of auditors' reports and may indirectly enable financial statements users to better evaluate of the credibility of the financial statements (PCAOB 2017). The mandatory KAM requirement should motivate auditors, management, and corporate governance bodies to pay attention and work collaboratively on the significant matters auditors identify and raise for discussion (IAASB 2015b, Para. A3), which should, in turn, indirectly improve the quality of audit and financial reporting (IAASB 2013).

2.1.3.1 Information asymmetry

Regarding the expected effect on information asymmetry between auditors and users of the auditor's report, the KAM section is believed to narrow the audit expectation–performance gap, illustrated in Figure 2.3 (IAASB 2011, Mock et al. 2012) by reducing both the reasonableness and performance gaps. This is because the KAM section provides tailored information about actual audit work. Therefore, reading the auditor's report (inclusive of KAM), readers should be able to develop a more reasonable expectation of auditor responsibilities than by reading the traditional auditor's

report, presenting only a standardised auditor responsibility paragraph. This reduces the reasonableness gap. The requirement that auditors should describe their actual work explicitly to the public may motivate auditors to be more prudent and put more effort into audit work (PCAOB 2016, p. 75, IAASB 2013, p. 7.), increasing auditors' perceived performance and reducing the performance gap, illustrated in Figure 2.3.

Figure 2.3 Structure of the audit expectation–performance gap



Source: Porter, Ó hÓgartaigh and Baskerville (2012, p. 103).

The KAM section is also expected to narrow the information gap and alleviate (to some extent) the information asymmetry between management and financial statement users (IAASB 2011, PCAOB 2017). The information gap is generated either by asymmetry between information possessed by management and available to investors or the difference between information known to informed and uninformed traders (Watts and Zimmerman 1986). The KAM section contains information about the audited entity and the audit, both previously unavailable in the traditional auditor's report, including (but not limited to) key concerns in the auditee's financial statements, important managerial judgments in making accounting estimates, and audit procedures. Some auditors also voluntarily discuss key findings related to the disclosed KAM. As auditors disclose previously unknown risk information in the KAM section, the public would have access to the same risk information as management, thereby reducing the information gap.

2.1.3.2 Audit quality and financial reporting quality

Besides information asymmetry effects, KAM is also supposed to promote communication between auditors and governance bodies because ISA 701 requires the KAM to include matters that an auditor has communicated with those charged with governance (IAASB 2015c, Para. A3). Standard setters also claim that investors and analysts may use information from KAM to develop specific questions to engage corporate management and governance bodies during the annual general meeting (PCAOB 2017, p. 67). Given that each disclosure is required to provide a link to related disclosure(s) in the financial statements, it is expected that management and governance bodies will focus their attention on KAM-related matters and disclosures (IAASB 2015b, Para. A3). Altogether, the inclusion of KAM in the auditor's report should improve audit quality and financial reporting quality.

Most of the expected KAM benefits are presumed from knowledge acquired during the public outreach efforts of the IAASB and PCAOB during their auditor reporting revision process. Moreover, some of these expectations were later set as KAM objectives in the KAM rulings. However, there are still inconsistencies in archival findings of the effects of KAM on the macroeconomic level (Bédard et al. 2016, Velte and Issa 2019), which will be elaborated upon further in Section 2.2.2.

2.2 Observed outcomes regarding KAM implementation

2.2.1 Case history regarding KAM implementation

Jurisdictions in several countries, including the UK (FRC 2015, 2016b), Singapore (ACCA 2017) and Malaysia (The Securities Commission Malaysia(SC) Audit Oversight Board (AOB) 2018), have conducted implementation reviews to evaluate whether the use of the enhanced auditor's report works as effectively as standard setters expected. These studies employ content analyses of released auditors' reports, online surveys and focus group discussions with investors and audit committees. This subsection summarises the findings of these studies to provide an initial understanding of the success of KAM implementation. This subsection begins by describing the samples employed in these studies and the distribution of these samples. Then, the subsection provides statistical evidence related to the observed effects of KAM implementation in these jurisdictions. Lastly, it ends by presenting suggestions for KAM improvement and some concerns related to the inclusion of KAM in the auditor's report.

2.2.1.1 Samples and distribution of samples

The UK FRC conducted a detailed analysis of the 153 observations from the first year after implementation and 278 observations from the second year. 97% of these samples came from one of the Big 4 firms. The top three market sectors reviewed in both years were Consumer Goods & Services, Natural Resources, and Banks & Financial Services. UK auditors averaged 4.2 KAM items per audit report in the first year and 3.9 KAM items per audit report in the second year. The most frequently reported risks in the first year were impairment of assets, taxation, and goodwill impairment. Goodwill Impairment, Taxation, and Revenue (excluding Fraud Risk) are the most common topics reported in the second year.

In Southeast Asia, both Singapore and Malaysia have undertaken a first-year implementation sample review consisting of 180 and 190 enhanced auditors' reports, respectively. In Singapore, Big-4 auditors were involved in 65% of the samples, and approximately 50% of the samples are from five sectors - Industrial Goods and Services, Real Estate, Construction and Materials, Natural Resources and Technology. Big-4 auditors dominate the Malaysian samples at 63%, and most of the Malaysian samples come from Trading/Services (27%), Industrial Products (26%) and Consumer (13%). In the first year of implementation, Singapore saw 91% of KAM disclosures related to areas with significant judgment and estimates. The Singaporean auditors' reports averaged 2.3 KAM items per report, which is a bit higher than the Malaysian average of 2.09 KAM items. The Singaporean samples are classified as Impairment of Receivables (36%), Valuation of Inventories (26%), Revenue recognition (excluding Fraud Risk) (24%), and Impairment of Goodwill and Intangible Assets (23%). The top four most-common KAM topics of the Malaysian samples are identical to that of Singapore though differently ordered, being: Revenue recognition (excluding Fraud Risk) (32%), Impairment of Receivables (28%), Impairment of Goodwill and Intangible Assets (27%), and Valuation of Inventories (21%).

2.2.1.2 Statistical evidence regarding the observed effects of KAM implementation

The findings of the experience reviews in the UK, Singapore, Malaysia are consistent with the standard setters' expected benefits of KAM outlined in Subsection 2.1.3. The reviews show that KAM have potential to reduce information asymmetry, and improve audit and financial reporting quality by enhancing the transparency and communicative value of the auditor's report (ACCA 2017, SCAOB 2018).

There is evidence that KAM help auditors persuade corporate management or governance bodies to communicate previously undisclosed matters in their financial statements. In Malaysia, 40% of the examined financial reports reveal that management provided more KAM-related information than in the pre-KAM adoption period. This is in line with the fact that 52% of the audit committees surveyed reported that their responsibilities related to KAM requirements led to higher financial reporting quality (ACCA 2017, p. 6).

The evidence also supports the PCAOB's (2016) belief users will view an unmodified-opinion auditor's report inclusive of KAM as more relevant and informative than those excluding KAM (PCAOB 2016, p.16). In the UK, users placed a higher value on the enhanced auditor's report when the audited entities had less publicly available information (FRC 2016b, p. 4). Two thirds of Singaporean investors saw the KAM inclusive auditor's report as superior to the traditional report. Malaysian investors shared this belief (73%), with only 5% preferring the traditional auditor's report over the new one. Compared to 86% of Malaysian investors, 89% of 133 interviewed Singaporean investors claimed KAM encouraged them to read the auditor's report before reading financial statements (SCAOB 2018, p. 40). This was because KAM helped them focus on specific key issues that would have been more difficult to access in lengthy and complex financial statements (ACCA 2017, p. 19).

Of the 59 observations of Malaysian retail investors, one-third reported that the KAM section changed the way they viewed investment risks. 54% of the 118 Singaporean retail investors reported that their perceived investment risk changed after reading KAM. Almost 60% of Singaporean investors and 67% Malaysian investors reported that the KAM section improved their understanding of audit procedures and financial reporting risks. More than half of investors in both Singapore and Malaysia reported that KAM gave them confidence in the auditor's work. Of the surveyed participants in both Singapore and Malaysia, 85% felt auditors moderately to substantially increased their efforts in reporting KAM; and two-thirds of investors value these attempts (ACCA 2017, p. 21, SCAOB 2018, p. 37). These results show that despite investors not observing the actual audit work, they still can perceive the quality of audit work through the KAM. These studies show that KAM can improve audit quality and reduce the audit expectation-performance gap by making auditors feel more responsible for their work and exert more effort during the audit. This is evidenced from the fact that almost two-thirds of audit committee members participating in the Singaporean and Malaysian surveys reported audit partners were more engaged in the fieldwork than before KAM were implemented (ACCA 2017, p. 21, SCAOB 2018, p. 38).

In Singapore and Malaysia, 88% and 81% (respectively) of the investors surveyed agreed that KAM would enable them to raise accounting and audit issues with management. However, only two-thirds of the 109 audit committee members interviewed in Singapore reported an increase in engagement with investors, analysts, and banks post-KAM implementation (ACCA 2017, p. 20). The survey in Malaysia shows that the majority of KAM-related questions raised in Malaysian AGMs came from analysts and banks (SCAOB 2018, p. 40).

2.2.1.3 Suggestion for KAM improvement and some concerns

The implementation reviews also provided suggestions for improving the informativeness of KAM. They noted a concern that KAM containing a lot of jargon and boilerplate language may hinder readers' understanding of the auditor's justification and decrease the usefulness of the enhanced auditor's report. All review reports also showed investors prefer reading clear and concise KAM with sufficient information to enhance the transparency of risk disclosures. Improving the quality of KAM could be challenging, as auditors need to make a trade-off between improving the readability of KAM and providing sufficient detail. For example, in the UK second year KAM implementation report, auditors from PwC provided more detail, but their reports were also the lengthiest of all firms (FRC 2016b) - though some auditors presented KAM in simple and clear language. Just over two-thirds of Malaysian investors found KAM easy to read (SCAOB 2018, p. 23).

Regarding KAM specificity, some auditors tailored the KAM section to include specific information about the audited entities. In the UK, the FRC (2015) reported that almost 40% of first-year KAM samples used generic language. In the first survey in the UK, investors suggested that explanations of the risk of material misstatements could be made more specific (FRC 2015, p. 6). In the following year, the proportion of generic KAM decreased to 13%. In the UK, in the first year post-KAM, approximately 90% of KPMG KAM samples include specific information about risks rather than boilerplate language, while the other Big 4 firms employed granular language in only half of the samples. In the UK, the granularity of KAM varied both within and between audit firms. Similarly, the description used in 43% of the three most-seen KAM topics in Singapore was non-specific. In Singapore and Malaysia, 38% and 50% (respectively) of the investors surveyed, felt that the KAM were not adequately tailored to help them understand actual auditor concerns (SCAOB 2018, p. 24).

The surveys in the UK, Singapore, and Malaysia all reported that some auditors were seen voluntarily describing the findings from their audit procedures and that investors were satisfied with

these voluntarily disclosures. Half of the samples in Singapore voluntarily disclosed KAM findings. However, only 4% of these reported findings gave additional meaningful information.

Some investors focus on KAM related to the quality of financial reporting and corporate governance (ACCA 2017, p.15, FRC 2015, p. 7, SCAOB 2018, p. 26). Singaporean investors would be concerned if KAM changed over time, -- especially so for changes introduced by newly engaged auditors (ACCA 2017). Of investors in Malaysia, 78% expressed satisfaction with the KAM including information that helped them evaluate a company's practices against those of industry. UK investors also supported the inclusion of industry benchmarks.

These reports also show user concerns about KAM adoption. Some participants argued KAM might cause information overload for novice investors (ACCA 2017, p. 17). In this regard, the auditor's report would be less useful to the capital market (Bédard et al. 2016). Some responders said that they would not read KAM because the new auditor's report was too long and had no incremental value.

2.2.2 The potential and actual effects of KAM at a macroeconomic level

Since the KAM requirements were first enacted for UK premium listing firms in 2013, as required by ISA (UK and Ireland) 700 (FRC 2013), the KAM disclosure has become a widely examined topic in audit research. However, the majority of studies relating to the impact of KAM rely on interviews (ACCA 2017, SCAOB 2018), content analysis of stakeholder responses (Cordos and Fülöpa 2015, Prasad and Chand 2017, Simnett and Huggins 2014), experiments (Brasel et al. 2016, Christensen, Glover and Wolfe 2014, Elliott, Fanning and Peecher 2019, Kachelmeier et al. 2019, Moroney, Phang and Xiao 2018, Sirois, Bédard and Bera 2018), and literature reviews (Bédard et al. 2016, Mock et al. 2012, Segal 2017). The results of these studies enhance understanding of the potential macroeconomic effects of KAM.

There has been an increasing number of archival studies which try to validate the actual macroeconomic effects of KAM. However, most are working papers (Bens, Chang and Huang 2019, Bradbury and Almulla 2019, Klevak et al. 2020, Lennox, Schmidt and Thompson 2021, Seebeck and Kaya 2022, Smith 2019) and theses (Njenga 2019, Reid et al. 2015). Only a few KAM studies have been recently published in academic journals (Gutierrez et al. 2018, Reid et al. 2019). To understand the possible effects of KAM comprehensively, this section synthesises findings from empirical studies on other relevant audit disclosures, including the disclosures of the Justification of Assessments

(JOA) (Bédard, Gonthier-Besacier and Schatt 2019)[14] and explanatory paragraphs (Czerney, Schmidt and Thompson 2019) .

2.2.2.1 Effects on financial reporting quality

The new KAM inclusive auditor's report was expected to enhance both audit quality and financial reporting quality. KAM adoption was expected to make auditors more skeptical and exercise greater caution before confidently communicating audit matters and related audit approaches to the public (PCAOB 2016, p. 75, IAASB 2013, p. 7). It can also be posited that the KAM section has the potential to empower auditors to challenge aggressive accounting, misleading disclosures, or materially misstated financial reports by management (PCAOB 2016). As a result, auditors may be able to detect and resolve more misstatements, whether due to fraud or error, before reporting their opinion and KAM. Moreover, management and governance bodies are expected to increase their focus on areas that the auditor has brought up to the respective audit committee (IAASB 2015c). Accordingly, including KAM in the auditor's report may improve the credibility of the audited financial statements. However, none of the empirical findings directly support the above claims, because the evidence is tenuous as to whether audit quality improves post KAM adoption. To determine whether KAM enhance audit quality, more concrete work is needed.

The results of experimental studies show that the increased level of detail in KAM triggers management to increase KAM-related disclosures and quantitative information, enabling financial statements users to quantify risk related to key accounting estimates presented in KAM (Fuller 2015); and for audits performed by non-Big N firms, KAM disclosures enhances both the perceived value of the audit and the credibility of the auditor in the eyes of nonprofessional investors (Moroney, Phang and Xiao 2018). Some prior archival findings indirectly support the notion that the inclusion of KAM may enhance audit quality. Reid et al. (2019) use a quasi-experiment to test four-year data centered on the adoption of ISA (UK and Ireland) 700 in September 2013[15]. They find audit quality is significantly improved after implementing the new auditor's report, as seen from the reduction in "absolute abnormal accruals" and "propensity to just meet or beat analyst forecasts" and a substantial increase in "earnings response coefficients". Expanding the scope of Reid et al. (2019) to cover five years pre- and post-adoption and using the UK's AIM as a control group, Bens,

[14] Bédard, Gonthier-Besacier and Schatt (2019) examine the impacts of the disclosures of Justification of Assessments (JOA), which are disclosed in French auditors' reports for the year 2000 to 2011 and claimed to provide information similar to KAM disclosure.

[15] It is when RMM, KAM-similar disclosures, were adopted in the UK for the first time (refer to Subsection 2.1.2 for the definition of RMM).

Chang and Huang (2019) successfully replicate Reid et al.'s findings. They also support their conclusion with significant results from analyses on additional audit quality measures, including higher earnings quality as captured by the Thomson Reuters Eikon index[16], fewer accounting restatements, and an increased propensity for auditors to use going concern and emphasis of matters opinions.

A concurrent study[17], employing a similar research design to that of Reid et al. (2019) on two-year UK data centered on the date of first KAM implementation, finds no significant evidence the use of the new auditor's report improves audit quality (Gutierrez et al. 2018). Like Reid et al. (2019), Gutierrez et al. (2018, p. 1556) capture audit quality through the absolute value of discretionary accruals estimated from the Jones model. They also replicate Reid et al.'s (2019) model with other audit quality proxies, including meeting or beating analyst consensus forecasts and the earnings response coefficient. Gutierrez et al. (2018) fail to find that KAM are associated with improved audit quality. Bens, Chang and Huang (2019, p. 30) believe most of the insignificant findings in KAM studies may be due to the limited variation of data in the first two years and endogeneity, either in whole or part.

Despite significant evidence provided by Reid et al. (2019) and Bens, Chang and Huang (2019), it is insufficient to claim the enhancement of audit quality is solely attributed to the inclusion of the KAM section. This is because the UK revised auditor's report not only includes the new KAM section, but also other new sections discussing the materiality and scope used in an audit engagement.

Moreover, no archival study has found KAM to have a significant effect on audit and financial reporting quality. Bens, Chang and Huang (2019) and Gutierrez et al. (2018) also use cross-sectional data in the post-KAM adoption period to examine the effects of KAM content, namely disclosed numbers and length of KAM, on reporting quality -- finding no significant association. Similarly, KAM implementation and the total number of KAM are not found to change financial reporting quality in New Zealand (Bradbury and Almulla 2019). Exploiting JOA disclosure used in France, Bédard, Gonthier-Besacier and Schatt (2019) conclude that neither the first-time JOA nor the non-repeating JOA disclosed in consecutive periods affect audit quality.

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[16] The Thomson Reuters Eikon provides an earning quality index that is calculated from StarMine Earnings Quality model by StarMine quantitative research team. This index is presented as a percentile rank. The stocks with the most sustainable earnings are said to be at the 100th percentile.

[17] Reid (2019) uses three difference control groups, including UK firms for two years (same fiscal year-ends) before KAM implementation, US companies, and European companies. Gutierrez at al. (2016) include UK firms as well but with different fiscal year-ends and firms listed in Alternative Investment Market (AIM) market as control groups.

There could be several reasons which account for the above results. The KAM section may not contribute to audit quality at all, or the measurements used in these studies may not accurately capture the auditor's influence on audit quality. However, further studies are needed to address the question.

2.2.2.2 Information content effects

As presented in Section 2.1.3, the KAM section was expected to provide relevant information to investors and other financial statement users (PCAOB 2016, p. 16). It has been argued KAM lack information content as the market has already derived the same information from prior-year corporate disclosures (Lennox, Schmidt and Thompson 2021). This argument requires validation because KAM explain distinct information about current-period audit work that should not have been disclosed elsewhere, especially in any corporate disclosures. Even though KAM usually relate to financial statement disclosures and sometimes overlap with corporate risk disclosures, the KAM ruling encourages auditors to explain matters from a different perspective than that discussed by management or the audit committee in the annual report (FRC 2013, p. 7). The KAM section discusses matters auditors perceive as imperative and explain the audit procedures used to address those matters (IAASB 2015c, p. 13). For example, there are three KAM disclosures presented in the 2018 Severfield PLC auditor's report, as shown in Appendix B (II), while Severfield's 2018 Strategic Report includes two KAM-related risk disclosures (See Appendix C). Although some KAM disclosures have repeated the risks that management already disclosed in the Strategic Report, the objective and content of these discussions are different.

Even when the KAM section presents similar risk profiles to those presented by management, source credibility is a possible explanation as to why KAM have additional information value (Abraham and Shrives 2014). Pornpitakpan (2004, p. 255) finds that readers without direct experience of an object tend to be more persuaded by credible information sources. Source credibility consists of two dimensions: expertise and trustworthiness[18]. Auditors have expertise they apply to their assessment of information and perform audit procedures to validate the information in the financial statements before they issue an audit opinion. In terms of trustworthiness, several authorities, such as the accounting professional bodies and government regulators, oversee audit firms to ensure they maintain client independence and conform to standards and regulations.

[18] Expertise is one's perception of the ability of the communicator to provide truthful information, while trustworthiness is considered as the validity of the information to be provided by the information source (Hovland, Janis and Kelley 1953)

Hence, auditors are credible sources of risk information (Knechel et al. 2013), while users may perceive risks as disclosed by management as being prone to agency problems that make investors question their accuracy, completeness, timeliness and usefulness.

There is rich experimental evidence testing the causal relationship between the KAM and information content effects. Experimental studies reveal different information and elements in the KAM section have different impacts on user confidence regarding the audit and financial reporting quality. Christensen, Glover and Wolfe (2014) find non-professional users are likely to react to the risk information presented in KAM rather than the similar risk information found in the financial statements' footnotes. Findings from Doxey (2014) experiment indicate that KAM change investor expectations regarding the information in the financial reports and that KAM capture information relevant to users. That is, investors perceive a higher level of reporting quality when KAM show auditors agreeing with management estimates or inconsistency between management estimates and incentive benchmarks, and so increase their investment in such audited companies. Köhler, Ratzinger-Sakel and Theis (2016) demonstrate professional investors have more confidence in an auditor's report that includes negative signals in the KAM than those presenting only positive signals. These users perceive auditors who disclose negative news as being more honest than those who do not, inducing investors to trust the financial statements and improve their appraisal of a company's financial circumstances. However, the results of this study cannot be extended to non-professional investors, as it cannot conclude that KAM alter their judgment on valuation (Köhler, Ratzinger-Sakel and Theis 2016) no matter how readable the KAM are to them (Carver and Trinkle 2017). However, Kachelmeier et al. (2019) employ KAM examples that either include or exclude measurement uncertainty to experiment on MBA students, financial analysts and attorneys. Then, the participants are asked to rate their confidence in the related information disclosed in the financial statements. Kachelmeier et al. (2019) find that KAM negatively impact these users' confidence in the financial reporting areas discussed in the KAM. The information in the voluntarily disclosed findings also influences investors. A laboratory result shows that investors are willing to pay more for shares in a company if its KAM contain evidence the financial reporting is of high quality (Elliott, Fanning and Peecher 2019). Kipp (2017) finds that more details presented in the matters discussion and audit response discussion result in higher confidence in the information presented in financial statements and in the audit quality as perceived by nonprofessional investors. Carver and Trinkle (2017) note that the KAM inclusive auditor's report can undermine experienced and nonprofessional investors' perception of management credibility, especially when company earnings only meet analyst expectations.

Moreover, information processing theory suggests investors may be overwhelmed by the amount of information required by regulators in lengthy annual reports (Schock 2007). The KAM inclusive auditor's report may fulfill investor needs as the most critical information is highlighted. Utilising eye-tracking technology in their experiment, Sirois, Bédard and Bera (2018) apply information processing theory and source credibility to find that KAM increase user focus on management KAM-related disclosures and that users pay greater attention to KAM-related disclosures than non-KAM-related ones. Dennis, Griffin and Zehms (2019) find that visual cues in KAM help readers refer to KAM-related financial statement footnotes and influence nonprofessional investors to weigh both KAM information and KAM-related management disclosures in their decision-making processes.

Archival studies usually observe information content effects resulting from investor reactions by measuring cumulative absolute abnormal returns and abnormal trading volume. According to Theil (1967) (cited in Beaver 1968, p.68), "information" is "a change in expectations about the outcome of an event". If a particular characteristic of KAM has information content, it should lead to a change in the assessment of the probability distribution of future returns (abnormal price reactions) and/or a change in individual investor expectations and optimal stock holding in their portfolio (volume reactions). To date, the findings from archival studies are mixed.

The earliest archival study on KAM impacts shows that abnormal trading volumes around the filing dates of the auditor's report were significantly higher than those of the year prior; the magnitude of the volume change was more noticeable for companies with less information available to the public, as defined by lower analyst coverage (Reid et al. 2015). The findings of Reid et al. (2015) are robust in various tests (different-in-different tests, change analyses and cross-sectional analyses) and with two different control groups (New York Stock Exchange Listed companies and the London Stock Exchange's sub-market companies). Reid et al. (2015) also rule out the cofounding effect of corporate financial disclosure by showing that no statistically significant finding is observed when repeating the tests for the period around earnings announcement. Reid et al. (2015) also indirectly proves the quality of KAM has a positive and statistically significant effect on market reaction (abnormal trading volume). However, their proxies for KAM quality were simply defined based on the audit firms that issued the disclosures. Reid et al. (2015) apply Citigroup's findings disclosed in the first year UK KAM review report to rate the KPMG and EY KAM most and least informative of all such disclosures provided by Big-N auditors.

Analysing the effect of KAM on equity valuation using long-window tests, Lennox, Schmidt and Thompson (2021) detect a significant negative coefficient on the interaction between the

number of disclosures in the KAM and earnings and net assets. As a result, they conclude that KAM contain information about uncertainty residing in the financial reporting numbers. Bens, Chang and Huang (2019, p. 29) capture a mild association between the number of disclosures in the KAM and the occurrence of negative company-related news in the press or on the FRC's website.

Even though KAM include relevant information about risk, other contemporaneous studies (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019) do not find evidence that the new auditor's report or KAM content has an impact on the UK market. In an attempt to reconcile these contradictory findings, Gutierrez et al. (2018) employ the same control group as Reid et al. (2015) and expand the scope of Reid et al.'s (2015) study to cover two more years. However, there is no evidence that the market reacts to the use of the new auditor's report.

Examining variations of the number of disclosed risks or the total length of the KAM section and their nature (e.g., unrepeated vs. repeated content, unique vs. industry-common), Lennox, Schmidt and Thompson (2021) and Liao et al. (2019) conclude the content of KAM does not alter investor trading behaviour (trading price and volume) with respect to the day the KAM are publicly released. Lennox, Schmidt and Thompson (2021) reveal that, although KAM explain uncertainty in accounting measurements as proved by their long-window analyses, investors already have learned most of the KAM information from prior-year annual reports. Almost two-thirds of their subsample (243 out of 488 samples) of first-year UK KAM disclosures repeat corporate risk disclosures from the prior-year annual reports (Lennox, Schmidt and Thompson 2021). Similarly, Gutierrez et al. (2018) could not conclude that variations in word counts nor the number of issues in the KAM section change investor reactions. Gutierrez et al. (2018) provide three possible reasons to support their findings. First, there may be other similar information disclosed before KAM are released. Second, investors may not view the KAM section as relevant risk information since these matters have already been resolved by the accompanied audit procedures. Third, users may not understand the purposes of KAM or how to incorporate KAM information into their decisions.

Surprisingly, in contrast to the findings of KAM studies from outside the US, Klevak et al. (2020) document that the extent of the US CAM, captured by several separated proxies, including counts of characters, words, verbs, distinct audit procedures and disclosures in KAM, is significantly and negatively associated with abnormal market returns. Therefore, they conclude investors in America seem to take account of CAM when making their investing decisions.

Prior studies examining other types of auditor's discussions, including the JOA (Bédard, Gonthier-Besacier and Schatt 2019) and the explanatory paragraph (Czerney, Schmidt and Thompson 2019), usually find no market response to the information in auditor commentary.

Czerney, Schmidt and Thompson (2019) explain that the market both reacts in advance to some types of content and delays the incorporation of the other types of information into its decision making. Their explanation implies different content within the audit disclosure may impact the market in different ways. If this is the case, it may be more useful to break the contents within the disclosure into components to capture different aspects of information in KAM before undertaking experimental analysis. This experimental design enables researchers to control extraneous variables effectively and test specific features of the KAM one at a time through manipulations.

Using data from outside the US to examine either cumulative absolute abnormal returns or abnormal trading volume, none of the aforementioned archival studies could unequivocally conclude the market finds the incremental information content of the KAM useful. Nevertheless, it is too early to claim the KAM are not beneficial at the macroeconomic level because some evidence shows that markets react to the US CAM. Insignificant findings may result from the fact these KAM studies use samples from very early-stage KAM adoption when users might not adequately understand the new audit discussion and auditors were inexperienced at writing KAM. US investors may have more understanding of the concepts and utility of CAM from the KAM experience in other jurisdictions long before CAM came into force in the US in 2019, and they therefore react to CAM.

Most of the studies that did not observe market reactions with respect to KAM only examine different KAM characteristics separately and employ superficial measurements, such as the number of disclosures in the KAM section and the total length of the KAM section. These measurements may be insufficient to capture the variations of KAM, as in the actual setting it varies in quantitative and qualitative aspects. Performing textual analysis of the KAM could be useful to resolve this measurement issue.

2.2.2.3 Information asymmetry effects

Another primary objective of standard setters in mandating the addition of the KAM section is to reduce the information asymmetry problem[19] by narrowing the information gap between management and investors or between informed and uninformed financial statement users (PCAOB 2016, p. 64).

There is always demand for more disclosures to mitigate information asymmetry and the agency conflicts between management and uninformed investors. In fact, not every type of

[19] Information asymmetry is an imbalance in power among groups of people to gain access to information relevant to decision making.

disclosure decreases information asymmetry. Empirical evidence shows any information release could decrease (Amiram, Owens and Rozenbaum 2016, Frino and Jones 2005, Lang and Lundholm 1996), increase (Coller and Yohn 1997, Lee, Mucklow and Ready 1993) or have no effect on information asymmetry. The direction of the impact is determined by the net of two countervailing forces, asymmetry-increasing and asymmetry-decreasing forces that are created when a released disclosure contains new information (Amiram, Owens and Rozenbaum 2016, Kim and Verrecchia 1994). Information asymmetry increases when releases provide both sophisticated and unsophisticated investors with new decision-relevant information. This is because the sophisticated investors, who have more time, resources, and expertise than unsophisticated investors, will be able to make more use and take more advantage of the released information. On the other hand, the information asymmetry gap will narrow if releases have information already known to sophisticated investors but previously unknown to unsophisticated investors. In this case, the unsophisticated investors will be the only group to benefit from the information release, as they use the information to arrive at a more precise valuation. Finally, a release without new information will have no effect on information asymmetry.

In general, information asymmetry after the release of public information is usually lower than that of the pre-release date (Amiram, Owens and Rozenbaum 2016, Frino and Jones 2005, Lang and Lundholm 1996, Li 2010b). However, some disclosures, such as earnings announcements and management forecasts, increase information asymmetry around the announcement event (Coller and Yohn 1997, Gregoriou 2013, Lee, Mucklow and Ready 1993).

Information asymmetry can be captured by several indirect measures. One of the most common measures is the abnormal bid-ask spread[20] (Amiram, Owens and Rozenbaum 2016, Gregoriou 2013, Gregoriou, Ioannidis and Skerratt 2005). Market makers usually compensate for increases in their perceived asymmetric information risk by widening bid-ask spreads (Kim and Verrecchia 1994). Therefore, if market makers perceive any changes in information asymmetry, there should be changes in the spread as well. Some researchers use changes in analyst earnings forecast dispersion to detect variations in information asymmetry (Lang and Lundholm 1996, Lehavy, Li and Merkley 2011). It is augured that when an informative public disclosure is available to investors, analysts should place less weight on their previously held private information, leading to a reduction in the asymmetry in their beliefs about a company's performance and, thereby, a smaller analyst forecast dispersion. Moreover, some studies use the magnitude of analyst earnings forecast

[20] The bid-ask spread is the difference between the highest price of a security that buy-side participants offer to pay and the lowest price that owners of the security are willing to sell.

errors, the inverse of the forecast accuracy, to examine the quality of disclosures used by analysts (Clarke and Shastri 2000, Lang and Lundholm 1996, Lehavy, Li and Merkley 2011). The theory is that the greater the quality of public disclosures used by analysts, the more accurate analyst earnings forecasts should be.

KAM are expected to reduce information asymmetry, as they are superior to corporate risk disclosures and disclosures provided by information intermediaries, such as financial analysts, in several aspects. KAM could be considered incremental information, compared to corporate risk disclosures, because they inform investors about the auditor's perspective of the risks related to the audit of financial reporting and about audit procedures, sometimes with voluntary finding disclosures. As an independent party, an auditor usually has fewer incentives than management to obscure information. In contrast, management may conceal risk information because it contains a corporate secret (Dye 1985), which the public would view as negative news that could be detrimental to management performance evaluation (Kothari, Shu and Wysocki 2009). This is consistent with the proprietary cost theory, which explains that corporates may hesitate to disclose all assessed risks to the public because full risk disclosure may do more harm than good, in the sense that revealing many risks may lead to unfavourable market reactions and the loss of competitive advantage (Abraham and Shrives 2014, Kravet and Muslu 2013). Abraham and Shrives (2014) also add that corporate risk disclosures tend to be boilerplate and irrelevant to investors as management repeats in the disclosures a description of the company's risk policies, while not revealing the actual risks encountered. Moreover, KAM are better than information provided by other intermediaries because information disclosed in the KAM section have been gathered directly from the source and validated by an independent professional. So, through reading the KAM, investors should be able to reevaluate the credibility of financial reporting.

Recent studies find the use of the new auditor's report in the UK decreases abnormal bid-ask spreads (Bens, Chang and Huang 2019, Reid et al. 2015) and the dispersion of analyst forecasts (Bens, Chang and Huang 2019), and thus information asymmetry. Bens, Chang and Huang (2019) show that the improvement in financial reporting quality after the KAM adoption explains this reduction in market uncertainty. The more detailed an auditor's report, the greater the extent to which information asymmetry will reduce (Reid et al. 2015). However, Reid et al. (2015) look at the effect of the new auditor's report as a whole, rather than only examining the specific effect of the KAM section. Extending Reid et al.'s (2015) work to cover UK KAM data through the 2017 fiscal year, Bens, Chang and Huang (2019) exploit both a quasi-experiment and cross-sectional variation to validate the impact of the new UK auditor's report and the KAM section, respectively. During the KAM adoption period, significant reductions in both the bid-ask spread and the deviation of analyst

earnings estimates have been observed in companies which adopted the KAM (Bens, Chang and Huang 2019). However, Bens, Chang and Huang (2019) and Liao et al. (2019) do not find information asymmetry is affected by the variation of the total number of disclosures in the KAM section. Moreover, examining KAM adoption in Hong Kong, Liao et al. (2019) do not detect a consistent association between the variation of KAM content, such as KAM length, and bid-ask spreads on the annual report release date. In short, the above cross-sectional studies only measure a few dimensions of KAM, which may be insufficient to capture its full utility, as perceived by users.

2.2.2.4 Effects on investor risk perceptions

Information in a textual risk disclosure may not change user expectations of a given company's future performance but rather inform users about the range of their expectations and the confidence level of their predictions (or risk perceptions) (Kravet and Muslu 2013, pp. 1089, 1096-1098). Prior studies on corporate risk disclosures test three possible means by which risk information alters user perception about risk (Bao and Datta 2014, Kravet and Muslu 2013). Bao and Datta (2014), Kravet and Muslu (2013) argue if risk disclosures contain no incremental information, such as disclosures using boilerplate language, users will not react to the release of such, as shown via unchanged trading volume and analyst forecast dispersion. In contrast, the market will react to the release of risk information if it contains new information. The reactions may take two possible directions, depending on how the disclosed information alters users' risk perceptions. The convergence argument predicts the released risk information helps to resolve prior disagreements about known risk factors, so user expectations converge, as shown by reduced analyst earnings forecast dispersions. This is because if investors are already aware of a matter and include it in their prior valuation models, an additional disclosure on that matter may provide precise information, reducing their reliance on less accurate private information and thereby causing their beliefs to converge (Kravet and Muslu 2013, pp. 1096-1098). On the other hand, the risk information may introduce previously unknown contingencies and risk factors to investors. Therefore, incorporating new uncertain factors into user prediction models could cause their beliefs to diverge. In other words, user risk perceptions increase, so financial statement user beliefs diverge, as seen from increased analyst forecast dispersion.

Kravet and Muslu (2013) show risk disclosures presented in 10-K reports usually present previously unknown risk information. However, Bao and Datta (2014) find the directional effects of corporate risk disclosures are contingent on the risk types. Applying unsupervised sentiment analysis to discover and quantify risk types from textual risk disclosures, Bao and Datta (2014) show more

than half of the risk types are uninformative; a little over half of the rest cause user expectations to converge; the remaining risk disclosures reveal new unknown risk factors. Therefore, a KAM section, which may discuss several risks related to the financial information, may inform users about both unknown significant risks or details of known issues regarding an auditor's views and audit approach.

Bens, Chang and Huang (2019) support the so-called divergence argument by showing that KAM related to internal control increase both bid-ask spreads and analyst forecast dispersion. Their work also finds support for the convergent argument, showing that KAM related to revenue recognition reduce the spread. Their results also support that different types of KAM have different impacts on users, which indirectly implies that some types of KAM are relevant to users. Klevak et al. (2020) find the number of disclosures in US CAM and the total CAM length is positively associated with the magnitude of uncertainty perceived by investors and analysts. However, it appears no studies have yet examined how the nature of KAM categories change user risk perceptions.

2.2.2.5 Observed challenges

Although standard setters expect KAM will enhance the auditor's report, some experiments demonstrate that the inclusion of KAM may lead to unfavourable client and auditor behaviours. These behaviours could adversely impact the success of KAM implementation.

Cade and Hodge (2014) demonstrate where the KAM section is required to discuss management's key estimations, management is likely to withhold private information about the calculations of these estimations from auditors. Cade and Hodge (2014) explain management may view the KAM discussion as a threat to its control over the company's sensitive or private information, as the more sensitive information is communicated to an auditor, the greater the chance this information will be disclosed to the public via the KAM. Instead of closing the information gap between management and investors, the inclusion of the KAM section may create another gap—between management and auditors. This means not only an information asymmetry problem exists, but that audit quality could be undermined.

Kachelmeier, Schmidt and Valentine (2017) experimentally examine the level of user expectations on auditors' legal responsibilities for misstatements in financial statements. They find users are less likely to blame auditors for misstatements if auditors have already included some warning messages related to misstated items in the previous year's auditor's report. Brasel et al. (2016) claim auditors may misuse KAM by adding unrelated matters—matters not linked to potential misstatements—to mitigate their liabilities. These abuses may reduce the value relevance of KAM to

stakeholders; impair the quality of the auditor's report (Kachelmeier, Schmidt and Valentine 2017); create a perception amongst investors of low audit quality (Sirois, Bédard and Bera 2018); and even discourage investment (Christensen, Glover and Wolfe 2014).

Many unanticipated factors can prevent the KAM from meeting their original objectives. To ensure the success of the KAM, standard setters keep encouraging KAM sections to include the most significant matters with readable and concise descriptions tailored to a particular audit, enabling financial statement users to understand the specific circumstances of matters (IAASB 2015b, Para. A47, PCAOB 2017, p. 30, FRC 2013, Para. 19B, FRC 2015). Similarly, the CFA Institute (2013, pers. comm. 30 December) points out that: "[i]n our previous letters, … [o]ur request was to have the auditor report the most relevant of these same matters, whether we refer to them as key or critical, in plain, non-boilerplate language". However, there is still limited knowledge on how auditors and audit committee members, who are most involved in the KAM production process, actually work in accordance with this request of standard setters and users. Moreover, the actual effects and benefits of KAM content and KAM linguistic features on main users are largely uninvestigated. These two empirical questions are worth testing because their answers will inform standard setters about how the content and linguistic features of KAM are affected by stakeholders at the input stage of the KAM reporting process and consumed by stakeholders at the output stage. This understanding will enable standard setters to set accurate guidelines to amend KAM standards or issue relevant guidance to reduce mismatches between the supply and demand of KAM , thereby enhancing the usefulness of KAM.

2.3 Determinants and impacts of KAM properties

2.3.1 Determinants of KAM properties

The audit literature has long investigated the factors that contribute to the quality of outputs from audit processes. These studies are of interest to regulators as they help to develop appropriate interventions to improve audit quality. Similarly, investigating what drives variations in KAM properties should be of interest to regulators; however, few studies investigate these drivers. Therefore, to understand the factors that are likely to impact the KAM properties, it is necessary to understand what affects audit outputs in general.

2.3.1.1 The inputs of the audit process and the quality of the audit outcomes

Prior studies have established that the characteristics of the inputs of the audit process, including auditors and clients, determine the quality of audit outputs. Incentives and competencies describe the level of the quality of audit outputs that auditors supply and clients demand (DeFond and Zhang 2014).

The auditor's characteristics

Some auditors have incentives to perform better audits and produce high-quality outputs to mitigate risks (i.e., a combination of reputation risk, litigation risk, and regulatory risk). These auditors have better reputations and more wealth to lose if their work does not meet users' expectations. Auditor competencies are also used to support the auditor's supply of high-quality outputs. Competent auditors usually have work-related skills or experience and access better resources, such as trained staff, advanced technologies, and global knowledge sharing-systems. However, auditor incentives and competencies are not mutually exclusive since one normally induces the other (DeFond and Zhang 2014). For example, the Big N indicator captures both the incentives and competencies of auditors in providing better outputs.

The Big N indicator, a measure that captures audit firm size, is commonly used to reflect both auditor incentives and expertise in providing high-quality audit outputs. Big N firms have greater incentives than non-Big N firms because Big N firms have long-standing reputations, worldwide client bases, and deep pockets – making them prone to higher reputation and litigation risks. Moreover, their deep pockets are usually a target for lawsuits (DeFond and Zhang 2014, p. 299). Big N firms also have more expertise than non-Big N firms, as Big N firms have and attract better audit resources, such as human resources and technology (DeFond and Zhang 2014, Dopuch and Simunic 1982). Many prior studies (Becker et al. 1998, Eshleman and Guo 2014, Lennox and Pittman 2010) also show a positive association between Big N firms and audit output quality.

Industry specialisation is another characteristic reflecting auditor competence in providing high audit quality. The auditor's industry specialisation, as captured by client industry concentration, is usually used to reflect variations of competency within Big N firms (DeFond and Zhang 2014, p. 301). The business operational processes and risks vary according to client industry. As a result, auditors with more industry specific knowledge are better at understanding, identifying, and tackling risks of material misstatement due to error or fraud (Balsam, Krishnan and Yang 2003, Owhoso, Messier and Lynch 2002). The audit firm's industry specialisation also enhances firm efficiency through the sharing of industry-specific knowledge and technology across engagements (Abbott and

Parker 2000). Audit firms usually invest in the know-how and resources related to their focal industries (Simunic and Stein 1987). Moreover, auditors with industry specialisation are likely to provide higher-quality audits to preserve their reputations within that industry (Lim and Tan 2010). Ample empirical evidence also shows a strong positive correlation between audit firm industry specialisation and the audit output quality (Almutairi, Dunn and Skantz 2009, Balsam, Krishnan and Yang 2003, Krishnan 2003, Reichelt and Wang 2010).

Long auditor client tenure also reflects auditor competency developed over time; however, it could also be perceived as a threat to auditor independence. Client experience increases not only the auditor's client-specific knowledge (Bell et al. 1997) but also lowers the number of audit failures over time (Geiger and Raghunandan 2002). On the other hand, longer audit tenure could lead to familiarity with clients (Mautz and Sharaf 1961, PCAOB 2011) and high easier-to-generate audit fees, which may undermine auditor independence. In short, long client tenure could lead to improved, impaired, or unchanged audit outputs – depending on whether or not the experience-driven increase in quality is greater than the quality compromised by the loss of auditor independence.

The client's characteristics

Turning to client-related inputs, some audit clients may demand auditors provide better-quality work. This phenomenon is also explained by either client incentive or competency (DeFond and Zhang 2014). Many studies concentrate on the former, while the latter has not been widely researched (DeFond and Zhang 2014, p. 278). Although several archival studies confirm that the competencies of audit committees, as captured by their independence and expertise, are strongly associated with high-quality audit inputs and outputs, there is limited understanding of how audit committees influence the audit process.

In terms of client incentives, high agency cost arising from information asymmetry between management and investors is the main reason for a company to acquire a high-quality audit. This is because the assurance gained from high-quality audits may reduce company information risk, and so their cost of capital. The agency problem is normally serious in companies that are risky and complex (DeFond and Zhang 2014) and is usually measured by the specific characteristics of clients, such as size, R&D intensity, dominated ownership, and so on. As a result, these characteristics need to be held constant when studying other determinants of audit output quality.

Company competencies refer to a company's capability to attain a desired level of audit quality (DeFond and Zhang 2014, p. 278). Audit committees act on behalf of their respective boards to procure high-quality audit work. They are responsible for recruiting and monitoring internal and

external audit teams to ensure that work is undertaken independently, objectively and effectively to achieve high-quality audits (FRC 2012, 2016d). Moreover, an audit committee is also responsible for evaluating external auditor performance and reporting the audit outcomes to the board of directors, so it is likely to have a substantial influence on external auditors and their work. To increase the transparency and effectiveness of the audit committee, the UK Corporate Governance Code requires listed companies to have at least three independent non-executive audit committee members—at least one with "relevant financial experience"—and not to remunerate these independent board members via performance-based or share-related compensation (FRC 2016d). Several audit studies find the financial expertise of the audit committee contributes to high-audit quality (Dhaliwal, Naiker and Navissi 2010, Mangena and Tauringana 2008).

In terms of expertise, it is argued audit committees with task-specific experience are better at understanding task-related issues and are more cooperative, since their past experiences enable them to develop more realistic views about task-related underlying issues (DeZoort 1998, DeZoort and Salterio 2001).

Hence, audit expertise captures the audit committee's competency in working with auditors. When working with external auditors, audit committees with higher audit knowledge will better understand the technical audit issues faced by auditors during fieldwork and therefore are willing to support auditors' positions when auditors deal with management. DeZoort (1998) shows that audit committee members with audit experience or task-specific experience are more effective in monitoring auditors' work on related tasks than audit committee members without this experience. Also, DeZoort and Salterio (2001) show that an audit committee with audit procedure knowledge is more likely to support auditors when auditors contest management's accounting judgment.

Audit committee members who serve in that capacity on multiple company boards should also develop more expertise in providing independent oversight of financial reporting and audit processes as well as dealing with any new requirements within the audit committee profession. Understanding how audit committees with greater governance expertise support auditor compliance with new disclosure regulations, like KAM, is a gap in audit research.

2.3.1.2 The Inputs of the Audit Process and the Variations in KAM Properties

Given the above evidence regarding the effects of auditor-related and audit committee-related input factors on the quality of the outputs from the audit process, it would seem those inputs similarly

influence KAM in terms of content and linguistic features because the KAM section is also an output of the audit process.

In relation to auditor-related inputs, the KAM section is only loosely guided by auditing standards. For each KAM matter, ISA 701 only requires auditors to discuss two things: (1) the nature of the matter that makes it the most significant for the audit; and (2) the audit procedures used to address the matter. Hence, KAM content and linguistic style of writing are mainly decided on by the auditors who sign their names to the auditor's report and are responsible for the consequences of their reporting. As a result, auditor characteristics should affect the variations of KAM properties. However, auditor selective behaviour has not been widely researched. Most studies examining auditor-related inputs only focus on the readability of KAM (Rousseau and Zehms 2020, Seebeck and Kaya 2022, Smith 2019, Velte 2018, 2019). Only one study examines KAM content as measured by the average word count of each KAM matter (Rousseau and Zehms 2020), and only two study looks into the relationship between a Big N audit firm and the level of tone in the whole auditor's report (Seebeck and Kaya 2022, Smith 2019). Moreover, using Swedish KAM disclosures, Christofferson and Grönberg (2018) examine how each audit firm affects the specificity and tone in KAM. However, how the auditor's and the audit committee's expertise and experience affect the level of specificity and uncertain tone in KAM is not known and no studies have examined the determinants of the proportion of the audit procedure description in KAM.

In terms of client-related inputs, the audit committee is supposed to have an indirect influence on the information presented in the KAM for several reasons. First, KAM are identified from those matters discussed with those charged with governance (IAASB 2015c, Para 8). During the audit, the audit committee is required to review the external auditor's judgment and findings and make sure management effectively responds to issues raised by auditors (FRC 2012, p. 12, Paras 4.32 and 4.34). In addition, the audit committee is also responsible for reviewing the appropriateness of accounting policy, estimates, and judgments adopted by management and the completeness of financial-related disclosures by taking into account points raised by the external auditor (FRC 2012, p. 7, Para 4.2). As a result, KAM, which usually relate to areas with significant management judgment, should be enhanced by competent audit committees that drive collaboration between management and external auditors throughout the audit process.

How the audit committee influences auditor behaviour in disclosing KAM is still under-researched. Recent empirical studies show competent audit committees, as measured by their expertise in accounting, finance, industry specific knowledge, and the gender diversity of the board, impact the number of disclosures in the KAM section (Zhang and Shailer 2018) and the readability of

KAM (Velte 2018, 2019). However, how the task-specific expertise of audit committees affects the content of KAM and uncertain tone in KAM have never been studied.

2.3.2 Impacts of KAM properties

A significant increase in accessible electronic textual data and speedy growth in the knowledge of computational linguistics have enabled archival studies in accounting and finance to effectively investigate the information content of textual disclosures, such as notes to financial statements, management discussions in annual reports and conference call transcripts. Researchers can measure both the quantity and quality of information in the textual artifacts and parse out sentiment from disclosures that may or may not be intentionally presented by a source. Accounting and finance research usually tests the usefulness of disclosures from their textual composition, which includes many properties. The most examined properties of disclosures in accounting research are the size of the information, readability, and tone (Li 2010b).

2.3.2.1 The impacts of the properties of textual communication

1) Volume

In studies of market reaction to a disclosure, the length of the disclosure is used to capture either the extent of information or its complexity. Intuitively, longer disclosures include more information or longer explanations than shorter ones, which is expected to help investors understand today's complex transactions. Campbell et al. (2014) find that, from cross-section analyses, the amount of risk factor disclosure in Section 1A of the 10-K, as measured either by the total number of words or number of risk keywords in Section 1A, is negatively associated with bid-ask spreads and abnormal stock returns surrounding the release date of the 10-K filing, suggesting the market reacts to the information contained in mandatory risk disclosures in 10-K reports. Merkley (2011) measures the amount of voluntary R&D disclosures in the 10-K by using the number of R&D-related sentences and finds companies with lower earnings performance tend to disclose more information about their R&D. This is because a greater amount of R&D information is expected to help investors better predict future company performance, reducing information asymmetry, which may stem from low earnings performance.

On the other hand, many studies (Li 2008, Miller 2010, You and Zhang 2009) employ the length of disclosure to represent complexity. An excessive amount of disclosure has been criticised,

as it can hinder the informativeness of the disclosure. A lengthy document may discourage average investors from reading it or even obscure important messages (Radin 2007).

2) Specificity

Specificity is another interesting feature of disclosures, which has recently been investigated in accounting and finance studies (Dyer, Lang and Stice-Lawrence 2017, Hope, Hu and Lu 2016). Intuitively, more specific disclosures include more information than less precise ones, and precise information facilitates the use of that information. Utilising the Named Entity Recognition technique to determine specificity in disclosure, Hope, Hu and Lu (2016) find the capital market reacts more to management risk disclosures in the 10-K when a discussion includes more specific information, measured by the number of named entities.

3) Readability

In addition to the length of disclosures, the complexity (or transparency) of information is usually examined via the readability of disclosures. Information processing theory holds that the complexity of a disclosure increases processing costs, especially to unsophisticated investors when decision-making is performed during a short window. Increased readability of disclosure enhances the understandability of information and eases the consumption of disclosures. Therefore, users should correctly apprehend the messages therein as intended by the message providers. Companies with annual reports that are long or difficult to read are associated with lower performance and earnings persistence (Li 2008), and the risk of future stock price crashes (Ertugrul et al. 2017). This is in line with the fact management may use the readability of disclosures to conceal undesirable information.

Many empirical studies in accounting and finance have identified the influence of complexity and readability on financial statement users. Lehavy, Li and Merkley (2011) conclude the readability of annual reports is significantly and negatively associated with sell-side analyst forecast dispersion. The experimental findings of Rennekamp (2012) show small investors have stronger reactions to more readable management disclosures by adjusting their equity valuation. Miller (2010) reports the length and readability of 10-K filings are negatively associated with short-window trading activity and positively associated with dispersion in the price inference among small investors. These findings support small investors finding longer and less readable disclosures more costly to process. Examining long-term market prices, You and Zhang (2009) also find investors underreact to information in the 10-K when it is complex, as measured by word count.

4) Tone

The tone of disclosures, which conveys the sentiment or feeling of information providers, is another commonly used measure to capture information content in capital markets research. Prior studies usually measure tone by the frequency of particular words, such as positive, negative, and uncertain words. Kothari (2009) examines the effects of favourable and unfavourable corporate information on firm risk and finds that an increase in favourable (unfavourable) information is significantly associated with a decrease (increase) in cost of capital, stock return volatility, and analyst forecast dispersion. Further examining the tone of information provided by different sources, including management, analysts, and news reporters, Kothari (2009) finds the effects of the tone of information included in the business press on the cost of capital and stock return volatility are stronger than those from other sources. Hence, the informativeness of information depends on source credibility. Li (2010a) finds the level of tone in forward-looking statements in the management discussion and analysis section (MD&A) signals a company's future performance. Feldman et al. (2010) report the change in tone in MD&A is informative to the market as measured by short-window market reactions, especially when the information environment of a reporting entity is weak. Ertugrul et al. (2017) find the proportion of uncertain words in 10-K filings is positively associated with the strictness of borrowing contract terms and stock-price crash risk. This finding is in line with the fact that the greater the level of uncertain tone in 10-K filings makes information more ambiguous and less transparent, increasing information processing costs.

2.3.2.2 The need to consider several textual properties when studying KAM impacts

Despite the growing applications of textual analysis to disclosures in accounting and finance, the use of textual analysis in archival audit studies were quite limited in the past. This is because the main observable communication from the audit process was a traditional audit report which, most of the time, is quite static as it follows a prescribed language provided by audit reporting standards. Therefore, how users decipher information provided by auditors has not been well understood. This unanswered question is the main gap in the auditing literature, which needs to be investigated.

As discussed in Subsection 2.1.2, KAM contain a large amount of unstructured textual information which varies in the amount of information content and level of linguistic features. It is difficult to judge the usefulness of KAM by just looking at a KAM property individually because an observable effect is the sum of the forces produced by each property. It is possible that a force produced by one KAM property cancels out that generated by others.

Hence, if a study only focuses on a single KAM property without controlling for the others, it may lead to a type II error. Sometimes auditors may reduce the quality of a KAM property to enhance the quality of other properties (SCAOB 2018). For example, KAM that include too much information may be less readable and, despite containing useful information, readers overlook them due to their complexity. On the other hand, easy-to-read and concise KAM disclosures may be inadequate and fail to provide a complete view of a matter. If this is the case, one of these properties must be kept stable when examining how investors react to the variation of the volume of discussion in KAM or the readability of KAM.

In short, breaking information in KAM into its properties and including all of them in an analysis enables a study to examine the incremental effect of each property. This enhances understanding of how various stakeholders view, interpret and use each property of KAM information and how the combination of these properties affects the overall reactions of users. Although recent KAM studies have examined the market effects of several KAM properties either as variables of interest or as control variables (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019, Velte and Issa 2019), none have included a comprehensive list of KAM properties. This may explain why these studies fail to observe any information effect of KAM and KAM properties. Moreover, how sell-side analysts, who are also the main users of audits' reports, react to KAM properties have not been fully examined.

2.4 Summary of literature review

The limitations of the standardised auditor's report have been recognised by jurisdictions worldwide, leading to the adoption of new auditor reporting rules that include the KAM (RMM/CAM). The introduction of the KAM is aimed at addressing the shortcomings of the traditional auditor's report and enhancing its communicative value. The KAM standard (ISA 701) broadly requires a KAM section to at least discuss the nature of the KAM matter and audit procedures employed to address the matter. Regulators do not provide any KAM structured templates so the content and style for the KAM section are entirely the choice of the auditor.

Regulators expect several benefits from the introduction of the KAM section. Primarily, KAM should improve the communicative value of an auditor's report by reducing the expectation–performance gap, resulting from an imbalance between the user expectations of auditor performance and actual auditor performance. Second, the KAM section may inform users of the level of auditor assurance given to the audited financial statements, which should reduce the

information gap and information asymmetry. Finally, the KAM section should help readers focus on important accounting areas. These expectations are based on pre-KAM adoption interviews, surveys, and research syntheses. However, the observed outcomes and benefits of KAM adoption are still mixed.

The experience surveys in the UK, Singapore and Malaysia clearly show that the majority of financial statement users in the capital market favour KAM, although the surveys also provide some suggestions on how to enhance the informativeness of the KAM to meet regulators' original objectives. Some archival studies show the new KAM inclusive auditor's report improves financial reporting quality (Bens, Chang and Huang 2019, Reid et al. 2019), increases market reactions (Reid et al. 2015) and reduces information asymmetry (Bens, Chang and Huang 2019, Reid et al. 2015). Bens, Chang and Huang (2019) also find some types of KAM topics change user risk perception. Klevak et al. (2020) document that in the United States, investor and analyst reactions are significantly associated with the length of a CAM section and explain that an increase in KAM content is interpreted as an increase in uncertainty. However, other studies using data from the UK and Hongkong find no effects, resulting from the new auditor's report and the KAM section, on the capital market (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019). This may be due to investors not perceiving any incremental value from the KAM. Lennox, Schmidt and Thompson (2021) claim most of the information in KAM is not new, as it has already been disclosed elsewhere. However, it is also possible that the research method and design of some prior studies are insufficient to detect the effects of KAM.

Several gaps related to the methodology used in prior archival studies of KAM impacts are pointed out and should be addressed before justifying the usefulness of KAM. First, the prior studies partition KAM into only two levels of informativeness, informative and uninformative disclosures, while only focusing on one criterion at a time. For example, Lennox, Schmidt and Thompson (2021) partition KAM using seven separate criteria (e.g., account-level risk versus entity-level risk, and industry-wide versus company-specific) to determine whether each disclosure is useful or not. No study has yet combined several criteria to classify KAM. Interacting classification criteria produce detailed and meaningful categories that enable researchers to take account of several nature classifications within the same study. Second, only a few archival studies (Seebeck and Kaya 2022) have verified the standard setters' belief that KAM readability and specificity would increase usefulness of KAM to investors and analysts. Third, most studies examine an impact of a KAM property individually without controlling for other KAM properties, which can be confounding factors that also determine user reactions. Failing to account for confounding factors can result in either type I or type II errors. On the other hand, studying several measures of KAM content and

linguistic features in the same model would provide a comprehensive understanding of how users consume KAM.

The study of the determinants of audit output is another area of interest to researchers. KAM content or linguistic features are at auditors' discretion, as the KAM standard only provides a broad rule for KAM content. Few studies have examined the factors that influence KAM properties. Most of these studies only investigate the determinants of readability of KAM (Seebeck and Kaya 2022, Smith 2019, Velte 2018, 2019), while the determinants of KAM content and uncertain tone are largely uninvestigated.

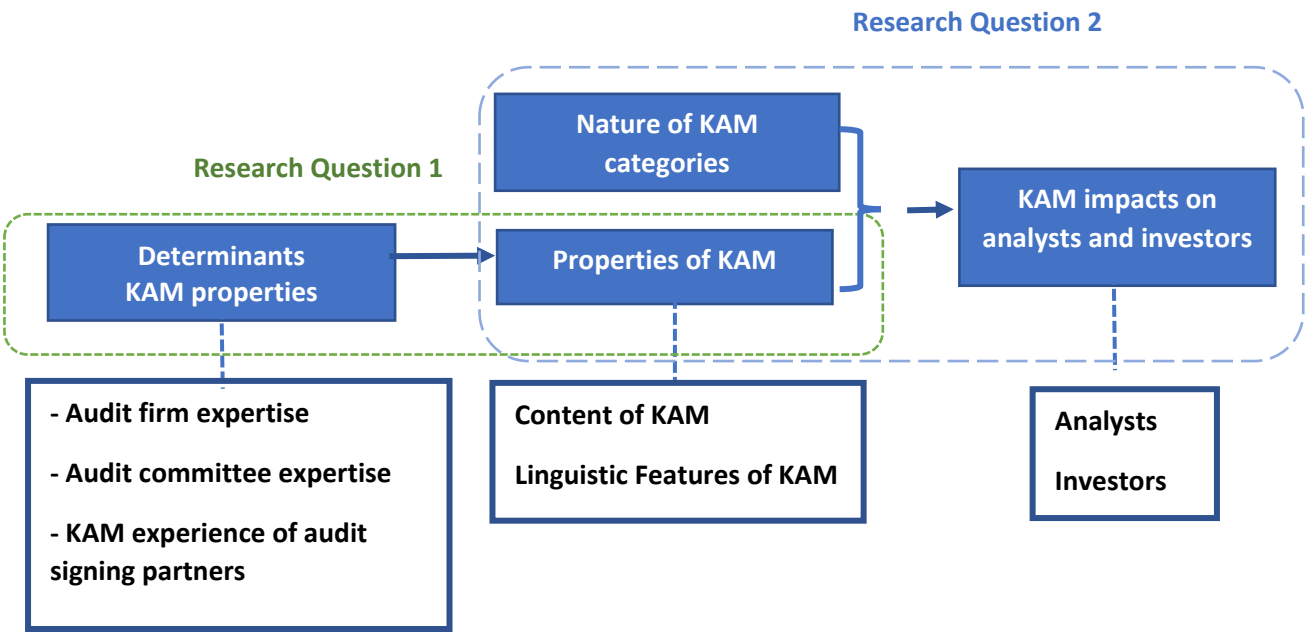
The KAM disclosure is one of the emerging areas of interest in audit research, as it has already been required of large companies worldwide. However, several studies provide some evidence that KAM may not work as effectively as standard setters have hoped. Therefore, increasing the understanding of how KAM are produced and consumed will provide standard setters with the right direction to improve the KAM rules or provide relevant guidance to stakeholders. Therefore, unexpected KAM effects may reduce, and, in turn, the use of KAM may successfully improve the communicative value of the auditor's report as intended. The following chapter will discuss the study's incremental contribution and attempts to address the gaps determined in the KAM literature.

Chapter 3: Incremental contribution of this thesis

3.1 Introduction

This thesis focuses on the determinants of KAM properties and the effects of KAM implementation, enhancing our understanding of both the supply and the demand of KAM and their properties. The study aims to answer two main questions (as shown in Figure 3.1). The first question is how audit firm expertise, audit committee expertise, and the KAM experience of audit signing partners influence the properties of KAM, i.e., the content and linguistic features of KAM. The second question is how variations in the nature, content, and linguistic features of information presented in the KAM change analyst and investor behaviours. Answers to these questions will help to fill several gaps in the KAM literature, as outlined in Chapter 2 and may also inform standard setters and regulators about the discrepancy between the supply and demand of the properties of KAM. With this understanding, authorities may be able to apply proper intervention to reduce the difference between the supply and demand of the properties of KAM, thereby reducing the expectation-performance gap, as well as improving the communicative value of KAM.

Figure 3.1 Research question diagram



3.2 The Determinants of KAM properties

Regarding the examination of the determinants of KAM properties, this study will only investigate how the expertise of audit firms and audit committees and the KAM experience of audit signing partners influence the properties of KAM; this study will examine neither the determinants of the KAM nor nature of KAM categories. This is because this study aims to examine ways to enhance the communicative value of KAM. The agents involved in the supply side of KAM are more likely to determine the properties of textual communication than the KAM and nature of KAM categories. On the other hand, the KAM and nature of KAM categories, which are required to communicate the most important matters in a current-period audit, are mainly driven by client characteristics (Ferreira and Morais 2019, Njenga 2019, Pinto and Morais 2019, Sierra-García et al. 2019, Zhang and Shailer 2018). Hence, manipulating the KAM or nature of KAM categories may be harder than the properties of KAM.

Prior studies show that properties of textual communication, such as readability and specificity, can enhance the informativeness of disclosure (Hope, Hu and Lu 2016, Lehavy, Li and Merkley 2011, Miller 2010, Rennekamp 2012). It is possible that some properties of KAM also enhance KAM informativeness. Therefore, understanding how the properties of KAM are influenced by the main inputs of the audit process, such as auditors and the audit committee, may help standard setters and regulators to properly intervene in the supply side of KAM to ensure the KAM are presented in a way that enhances communicative value of the auditor's report. Moreover, this knowledge should also be informative to shareholders when recruiting or reappointing auditors and audit committee members.

Archival audit studies usually employ the audit quality framework (DeFond and Zhang 2014) to explain the relationship between the observable inputs and outputs of the audit process. This study will employ the concept of incentives and competency of auditors and clients established in the audit quality framework to examine the determinants of the properties of KAM. This will not only promote the usability and validity of the audit quality framework but also enhance understanding of the decision-making process in the KAM supply side, which is considered a black box for archival research.

Moreover, studying the determinants of the properties of KAM increases the understanding of factors that explain variations in auditor communication, which was only narrowly explored because auditors rarely communicated unstructured information to the public before the KAM were implemented.

3.3 The impacts of KAM on users

Moving to the second part of this study, examines how the nature of KAM categories and KAM properties, as inputs to the investing process, affect user behaviour. Understanding the impacts on users is crucial as it shows how the nature of KAM and KAM properties are actually consumed and whether they work as successfully as standard setters expected. Many early KAM impact studies adopted an experimental approach, whose results may not be generalisable. Examining data from natural settings, archival KAM studies provide mixed evidence.

Prior archival studies employing pre- and post- International Standards on Auditing (UK and Ireland) 700 data only observe the overall effect of the new auditor's report but not the direct impact of KAM. Recent archival studies have started to examine the effects of the variations of a number of disclosures, nature categories, types, and properties using cross-sectional analyses. However, most of them focus on a particular nature classification criterion or a singular KAM property at a time. They do not examine the incremental effects of these KAM features in the same analysis. Abraham and Shrives (2014) advise it is the quality, not the quantity, of risk reporting that makes a difference to financial statement users. As a result, all aspects contributing to the informativeness of KAM should be incorporated into the analysis. The financial reporting environment is too dynamic and complex to understand user behaviour by simply testing each KAM feature alone or in a laboratory. Especially since a KAM section could include several different disclosures relating to several areas; therefore, each disclosure may affect users differently. Using a pre-post study or a limited number of nature categories could not capture these variations in the nature of KAM categories, which may not be randomly distributed. It is possible the effects of each nature of KAM category and property may occur in opposite directions. If this is the case, the outcomes of prior studies may be a result of noise from unmeasured KAM components.

This impact study adds to the existing research in several ways. Firstly, this study will extend the KAM components examined in prior KAM archival studies to cover a comprehensive list of nature of KAM categories and KAM properties. In measuring KAM, this study creates combined nature categories from several classification criteria used in prior studies, enabling the study to capture several nature of KAM categories in the same analysis and test the incremental effect of each category (See Subsection 5.2.2.4 (I.) for more detail). This impact study also explores several KAM properties which have not been widely examined in a natural setting. Moreover, this study focuses on the incremental effects of KAM properties by including all of them in the same analysis. The variations of some KAM properties have previously been proven to be non-random (Rousseau and Zehms 2020, Velte 2019). Therefore, the associations between the non-random variations of

KAM properties and user reactions will provide strong evidence to prove the impacts of KAM properties on users.

Most prior studies of the impact of KAM which find no reaction to KAM and conclude that KAM are not informative usually employ only market measures to examine user reactions. Using market measures alone as test variables may be insufficient to capture user reactions to KAM, especially at the start of KAM implementation. At the beginning of KAM adoption, investors may not be aware of the inclusion of KAM in auditors' reports or may hesitate to use the information, as they may not fully understand it. Therefore, this study extends prior studies by observing analysts' reactions, as measured by the dispersion of analyst earnings forecasts and the magnitude of analyst earnings forecast errors. Analysts are usually more sophisticated than average investors and are considered main users of corporate disclosures as well as auditors' reports. Sell-side Analysts are information intermediaries that play an important role to help gather useful information for investors. If sell-side analysts are found to use KAM, this means investors also indirectly benefit from KAM. Studying several measures of user reaction helps to gain a comprehensive understanding of how KAM and KAM properties are consumed.

In both themes of research, this study examines wide-ranging properties of KAM, capturing different dimensions of how KAM are presented, including both content and linguistic features. Most importantly, this study investigates the readability of and the specificity in KAM, as their relevance to users is emphasised by standard setters, regulators and investors; however, prior studies have not yet thoroughly validated the beliefs of these stakeholders. Therefore, this study employs textual analysis to a great extent.

In sum, the aims of this thesis are twofold: first, to identify determinants that contribute to the content and linguistic features of KAM; and second, to examine how the variations of the nature of KAM, KAM content, and KAM linguistic features affect analysts and investors.

Chapter 4: Hypotheses development

4.0 Introduction

To fill the gaps in KAM literature seen in Chapter 2, this thesis aims to provide an understanding of the supply of KAM properties and the demand for the nature and properties of KAM via answering two main streams of research questions as summarised in Chapter 3. This study not only validates standard setters' expected impacts of KAM adoption on users but also traces them back to the KAM production process.

This chapter will present two sets of hypotheses developed to answer these streams of research. For the supply side of KAM, Section 4.1 will develop three hypotheses (H1-H3) regarding the determinants of KAM properties to examine how KAM properties are influenced by the expertise and experience of the agents involved in KAM production, including auditors (at the firm and partner level) and audit committees. The audit quality framework (DeFond and Zhang 2014) (see Subsection 2.3.1.1) will be used to develop these hypotheses.

With respect to the demand side of KAM, the study will investigate how two groups of KAM users, analysts and investors, react to different nature of KAM categories and various properties of KAM. Section 4.2 will develop six hypotheses (H4 – H9) related to the impacts of KAM categories and KAM properties on analysts and investors. Since the study of KAM is a comparatively new area of research, the 'impact' hypotheses will be mainly derived from standard setters' expectations of KAM outcomes (see Subsections 2.1.2 and 2.1.3) and previous KAM literature (see Subsections 2.2.2.2 - 2.2.2.4) and other types of disclosure, such as 10-K disclosures (see Subsection 2.3.2).

4.1 The determinants of KAM properties

This section develops a set of hypotheses to investigate the determinants of KAM properties, as explained in Chapter 3. This study examines the relationship between the properties of KAM and the expertise and experience of auditors and audit committees, who are the primary agents[21] involved in the supply side of KAM. This will enhance the understanding of how these agents affect the properties of KAM. This is important because several properties of KAM are believed to be

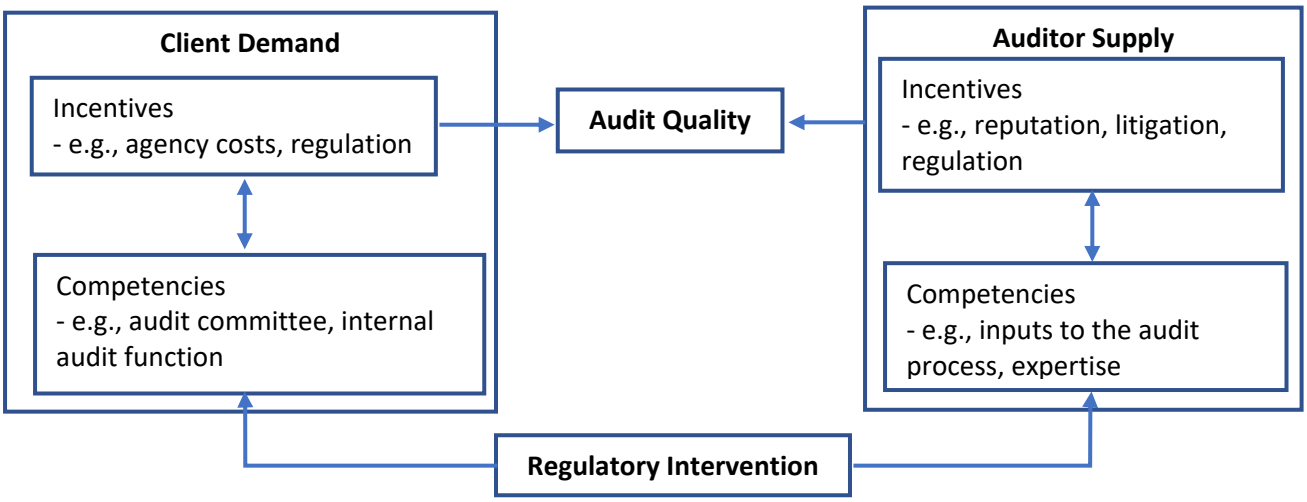
[21] ISA 701 requires auditors to choose KAM matters from those matters communicated to those charged with governance. Audit committees usually represent those charged with the governance of listed companies and work closely with auditors.

associated with the usefulness of KAM and thereby should improve the quality of financial reporting. If KAM properties relate to the characteristics of these agents, hiring auditors and audit committee members possessing such characteristics may enhance the quality of KAM and financial reporting.

As the KAM section is an output of the audit process, the study assumes the factors driving audit quality should also determine KAM properties. Therefore, to develop hypotheses related to the determinants of KAM properties, the study employs DeFond and Zhang's (2014) audit quality framework as depicted in Figure 4.1 below. This framework shows audit quality as an economic product jointly determined by two main economic forces - auditor supply of, and client demand for, audit quality -- which is also indirectly driven by regulator concerns. DeFond and Zhang (2014) posit that the auditor supply of audit quality is a function of auditor incentives and competencies; client demand for audit quality is a function of client incentives and competencies. Agent motives alone may not drive audit quality effectively; agents need to possess the required abilities to do so.

Moreover, incentives and competencies are not independent of each other, as one usually drives the other. Regulatory intervention, in turn, can affect both auditor and client incentives and competencies and, thereby, audit quality. In the same manner, it should be expected that competencies and incentives explain auditor and audit committee KAM preferences. Therefore, this study will extend the understanding of the roles of auditor and client incentives and competencies , as illustrated in DeFond and Zhang's (2014) audit quality framework, in regard to choices of disclosure.

Figure 4.1 Audit quality framework



This study examines two KAM attributes - content and linguistic features, capturing different informational dimensions presented in KAM as discussed in Subsections 2.1.2.2 – 2.1.2.3. The content is captured by three distinct KAM properties: the volume of discussion, the composition of information, and specificity. The linguistic features are investigated through readability and uncertain tone. Most of these properties have been previously used to examine non-KAM disclosures and are found to impact user consumption of disclosures, as discussed in Subsection 2.3.2.

The determinants examined in this study include audit firm expertise, audit committee expertise, and the KAM experience of audit signing partners. The study examines two different measures of audit firm expertise, namely expertise derived from being a large firm (Big N) and from client industry concentration (industry specialisation). Audit committee expertise captures client competencies in fulfilling their incentives, driving their demand for quality audit outputs. Two aspects of audit committee expertise are explored in this study - audit expertise and KAM governance experience. Since KAM are relatively new, particularly for the period covered in this study, audit committees may have a limited understanding of KAM. Therefore, it is worth exploring how audit committees collaborate with auditors to craft KAM, as observed through variations in KAM properties. To ease reading, a summary of the hypotheses regarding the determinants of KAM properties can be found in Table 4.1.

4.1.1 The expertise of audit firms (H1)

The broad guidance of International Standards on Auditing (ISA) 701 regarding KAM allows an auditor to decide on the extent of KAM. While the KAM requirement is mandated, the quantity and quality of KAM depend on auditor judgement. ISA 701 requires auditors to justify why each KAM matter is considered the most important issue in the audit and to disclose the audit procedures employed to address it. Therefore, the KAM section could be an effective channel for auditors to signal current period audit complications other than those which lead to a modified opinion. Moreover, auditors could potentially utilise KAM to show off their work.

Table 4.1 Hypotheses on the determinants of KAM properties

The determinants of KAM properties	**The properties of KAM**	
	The content of KAM a) The volume of discussion in KAM b) The composition of information in KAM c) The specificity	**The linguistic features of KAM** d) The readability e) The uncertain tone
H1: The expertise of the audit firms • Big N indicator (a measure of the variation in expertise across all samples) • Client industry specialisation (a measure of variation in expertise within Big N audit firms (DeFond and Zhang 2014))	H1 (a): Audit firm expertise is associated with the volume of discussion in KAM (?). H1 (b): Audit firm expertise is associated with the proportion of KAM devoted to the description of risk (?). H1 (c): Audit firm expertise is positively related to the specificity in KAM (+).	H1 (d): Audit firm expertise is associated with the readability of KAM (?). H1 (e): Audit firm expertise is associated with the use of uncertain tone in KAM (?).
H2: The expertise of the audit committee • Audit expertise • KAM governance experience	H2 (a): Audit Committee expertise is associated to the volume of discussion in KAM (?). H2 (b): Audit Committee expertise is negatively associated with the proportion of KAM devoted to the description of risk (-). H2 (c): Audit Committee expertise is positively related to the specificity in KAM (+).	H2 (d): Audit Committee expertise is associated with the readability of KAM(?) H2 (e): Audit Committee expertise is associated with the use of uncertain tone in KAM (?)
H3: The KAM experience of audit signing partners • Tenure in issuing KAM to a particular client	H3 (a): Audit signing partners' KAM experience is positively related to the volume of discussion in KAM (+). H3 (b): Audit signing partners' KAM experience is associated with the proportion of KAM devoted to the description of risk (?). H3 (c): Audit signing partners' KAM experience is positively related to the specificity in KAM (+).	H3 (d): Audit signing partners' KAM experience is negatively related to the readability of KAM (-). H3 (e): Audit signing partners' KAM experience is associated with the use of uncertain tone in KAM (?).

Note: (+), (-) and (?) represent positive, negative, and unspecified relationships, respectively.

That regulators continue to encourage auditors to provide readable and specific information to make KAM informative implies that auditors are believed to be the key agents driving the properties and quality of KAM. Moreover, audit firms seem to play an essential role in driving the quality of KAM. The Financial Reporting Council (2015) shows that, in the first year of UK KAM implementation, KPMG provided more granular (i.e., non-generic) KAM than the other Big 4 firms. An engagement partner for KPMG (UK) was also the first to voluntarily report detailed findings in KAM. PwC (Singapore) showed its seriousness in implementing KAM by publishing a report called "Enhanced auditor's report: Survey of first-year experience in Singapore". This report provides insight into first-year KAM implementation in Singapore by comparing it to that of Hong Kong. However, what drives these differences in KAM presentation styles is still a mystery and what influences auditor disclosure preferences has not been well studied in archival research. This may be due to the limited availability of unstructured disclosures provided by auditors before KAM were adopted. Therefore, studying the association between audit firm characteristics and the properties of KAM would help to reveal some of these mysteries.

In developing the hypotheses related to the association between the characteristics of audit firms and the properties of KAM, this study focuses on the incentives and competencies of audit firms – the two contributing factors to the auditor supply of audit quality in DeFond and Zhang's (2014) audit quality framework. Typically, the effects of incentives and competencies are difficult to separate in archival studies, as they are not independent of each other (DeFond and Zhang 2014). Audit firms with incentives to provide high audit quality tend to find a way to enhance their abilities to do so; hence their competencies increase. Also, audit firm competencies are usually accompanied by audit firm reputation, which, in turn, incentivises audit firms to supply greater audit quality. Therefore, in making assumptions in this subsection, this study would consider the effects of incentives and competencies together rather than trying to disentangle them.

This study chooses to examine two audit firm characteristics which are widely accepted in the audit literature as proxies for auditor supply of audit quality – the size of audit firms, captured by the Big N indicator, (Behn, Jong-Hag and Kang 2008, DeAngelo 1981, Lennox and Pittman 2010) and industry specialisation, captured by client industry concentration (Balsam, Krishnan and Yang 2003, Payne 2008, Wu and Wilson 2016). In theory, large audit firms have greater reputation and litigation-related incentives, and higher competency levels to supply high quality audits. Regarding audit firm industry specialisation, the concentration of knowledge of a client industry is expected to render audit firms competent in providing greater audit quality. Then, these audit firms usually gain reputation capital from being industry specialists and should therefore have greater incentives to provide high audit quality to preserve their hard-won reputation capital. Although Big N membership

and industry specialisation similarly capture the quality of inputs to the audit process, leading to high-quality audit output, focusing on industry specialisation is of incremental benefit because it enables the investigation of variations of the effect of audit firm incentives and competencies within the Big N group. Although many studies have probed how audit firm size and industry specialisation affect audit quality, there is a limited understanding of whether and how these audit firm characteristics contribute to the variations of KAM properties.

Since being either a Big N or industry specialised firm is associated with audit firm competence and having incentives to provide high audit quality, this study expects both audit firm characteristics will similarly affect the properties of KAM. Therefore, this study groups Big N and industry specialised audit firms together when developing audit firm expertise hypotheses and expresses them by the term "the expertise of audit firms" from this point onward.

In terms of competencies, audit firms with higher levels of expertise usually possess spillover knowledge and high-quality resources. They should make better use of time and resources to identify KAM matters, gather insightful information, and perform sufficient audit procedures to address KAM concerns than audit firms with lower levels of expertise. Superior abilities to obtain audit evidence may also increase audit firm confidence in clients and willingness to provide findings in the KAM section. Moreover, audit firms with expertise have greater reputation capital to protect; therefore, this study expects they may use KAM to build or protect their reputations. In addition, Big N firms are exposed to greater litigation risk, due to their having deep pockets. Such would encourage them to provide intensive risk explanations and extensive audit work to avoid future litigation costs. Based on these assumptions, the following subsections will further develop individual hypotheses about how audit firm expertise affects the KAM content (i.e., the volume of discussion, composition of information, and specificity) and KAM linguistic features (i.e., readability and uncertain tone).

4.1.1.1 *The content of KAM (H1(a) – H1(c))*

This subsection develops hypotheses related to the determinants of KAM content with respect to volume, information composition, and specificity.

1) The volume of discussion in KAM

The volume of discussion in KAM captures the amount of information presented by message providers. However, unnecessarily voluminous disclosures could also reflect the complexity of the

disclosure, reducing the quality of KAM. This is also supported by the fact that standard setters, regulators, and investors keep asking auditors to make KAM sections informative yet concise.

On the one hand, the audit firms with expertise are more likely to produce higher volume disclosures through having superior knowledge and resources to gain insight into risks and apply comprehensive audit procedures to gather sufficient evidence to address these risks. To preserve their high reputations, these expert auditors may be likely to disclose what they know and have done to show off their work, leading to voluminous disclosures. Moreover, financial statement users usually lower their expectations of auditor responsibility if matters found to be misstated have already been disclosed in a prior year KAM section (Kachelmeier et al. 2019). Therefore, it is reasonable to expect expert audit firms to provide themselves litigation protection by including more words in both the risk and the procedure descriptions than non-expert firms, leading to higher volume KAM.

On the other hand, regarding reputation incentives, these experts may also want to increase the quality of their outputs in a way that is desired by the public by making their KAM succinct while still containing all key information, which can be achieved by their superior in-house resources, such as a separate editorial team. If this is the case, it is possible that audit firm expertise could also lead to a reduction in KAM volume. Therefore, the direction of the effect of audit firm expertise on the volume is the net of these opposing forces. Therefore, this study makes the following unsigned alternative hypothesis regarding the effect of audit firm expertise on the volume of discussion in KAM:

H1 (a)*: Audit firm expertise is associated with the volume of discussion in KAM.*

2) The composition of information in KAM (H1 (b))

The proportion of KAM devoted to the risk description is a property of the content of KAM which captures the composition of the information in KAM. The proportion of KAM devoted to the risk description is the inverse of the proportion of KAM information describing audit procedures (and findings, which some auditors may voluntarily disclose in each KAM matter). Studying the effects of audit firm expertise on the composition of KAM information by holding the volume of KAM constant may reveal the KAM disclosure strategy used by experts to maintain their reputation or avoid future litigation costs.

On the one hand, it is likely that risk descriptions presented in KAM are viewed as negative signals of both audit quality and financial reporting quality, because they include information that

increases user awareness of audit risks. In contrast, descriptions of audit procedures and findings exhibit the auditor's efforts to address these risks, thereby increasing the transparency of audit work, perceived audit quality, and financial reporting quality. The experimental findings of Kipp (2017) show that an increase in the detail of an audit procedure description raises perceived audit quality of unsophisticated investors. Therefore, a high level of reputation capital may drive audit firms with expertise, who are also equipped with greater knowledge and resources, to perform extensive audit procedures, to write longer descriptions of audit procedures and findings than audit firms without such expertise.

On the other hand, it is also possible audit firms with and without expertise conduct audit procedures to the same extent by adhering to publicly available professional requirements. This is reasonable to expect, especially for a KAM matter regarding areas of the financial statements involving significant management judgement, such as accounting estimates (IAASB 2015b). For these KAM, auditors are required to evaluate management judgement by exercising their professional judgement and gathering evidence to support it. Most of the time, the evidence is merely historical experience. Still, there is high uncertainty surrounding the actual outcomes of these matters, which is hard to predict. Due to uncertainty regarding the actual outcomes of these matters, audit firms with expertise, who are at greater risk of lawsuits, may strategically attempt to reduce unreasonable user expectations regarding audit work by providing more explanation about the nature of the matters instead. Providing more explanation about the risks may increase user awareness of uncertainty, shifting the responsibilities for evaluating uncertainty onto users. As forewarning messages about uncertainty, KAM reduce assessments of auditor responsibility for various types of users, such as investors, analysts, and jurors, and therefore can lessen an adverse reaction should matters be subsequently found misstated (Kachelmeier et al. 2019). For example, KAM reduce auditor liability when they are sued in court (Brasel et al. 2016, Kachelmeier et al. 2019). In this scenario, expert audit firms should devote a greater proportion of KAM to describing risk, forewarning users about uncertainty, than non-expert audit firms. As it is still unknown whether expert audit firms utilise KAM to exhibit their superior performance through elaborating audit procedures and findings or mitigate their exposure to litigation risks by emphasising risk descriptions, this study forms an alternative hypothesis without specifying a direction:

H1 (b)*: Audit firm expertise is associated with the proportion of KAM devoted to the description of risk.*

3) The specificity in KAM (H1 (c))

The KAM specificity captures the quality of the information presented. Standard setters believe precise information presented in KAM should improve KAM informativeness. Through various communications with auditors, standard setters and regulators continue to encourage auditors to make KAM as granular as possible to benefit financial statements users. This is because they have high expectations that KAM will successfully improve user perceptions about the usefulness of auditor reports. To maintain their reputation and competitive advantage, expert audit firms may take a leading role in encouraging innovation in the audit industry or need to meet greater stakeholder expectations. Regulators' strong demand for granularity should drive Big N and industry-specialised firms to incorporate more specific information into their KAM than non-Big N and non-industry-specialised firms. Hence, a positive relationship between the audit firm expertise and KAM specificity is expected.

H1 (c): *Audit firm expertise is positively related to the specificity in KAM.*

4.1.1.2 *The linguistic features of KAM (H1(d) – H1(e))*

1) The readability of KAM (H1 (d))

Readability is another property of KAM which is expected to improve the informativeness of KAM. The reviews of KAM implementation across several countries, as discussed in Section 2.2.1, show investors place a higher value on disclosures which are concise and understandable. To win acclaim as leaders, expert audit firms may please regulators and users by providing more readable communications. With a high level of knowledge and high quality resources, expert audit firms are expected to be more efficient in performing and completing audits within shorter timeframes than non-expert audit firms. Therefore, audit firms with expertise should have extra time to improve KAM readability. It is possible economies of scale enable audit firms with expertise to hire specialists or have a specialist staff to fulfil editorial tasks. In contrast, audit firms without expertise may not have sufficient time and resources to do so. If this is the case, the KAM written by expert audit firms will be more readable than those produced by non-Big N and non-industry-specialised firms.

In contrast, KAM usually relate to complicated accounting issues which require auditors to apply extensive audit procedures. Explaining complex issues and audit procedures may require using complex terms and jargon. Consequently, it may be challenging for auditors to make KAM clear and concise while still maintaining sufficient circumstance-specific information. Therefore, expert auditors may sacrifice KAM readability to preserve insight into KAM circumstances. Based on these

opposing arguments, the directionality associated with effects of audit firm expertise on KAM readability cannot be predicted.

***H1 (d)**: Audit firm expertise is associated with the readability of KAM.*

2) The uncertain tone in KAM (H1 (e))

Tones in KAM reflect the auditor's view of or attitude toward issues or risks. This study examines the uncertain tone, which is expected to be a key sentiment within KAM because the information in KAM relates to uncertainty about the faithful representation of the information presented in the financial statements. The use of an uncertain tone could either enhance or diminish the communicative value of KAM. This is important because, the view of audit firms toward the benefits and drawbacks of using an uncertain tone in KAM may determine how these firms make use of it in KAM.

Smith (2019) claims KAM have become less boilerplate with the use of more tones. In other words, tones can provide users with precise additional information. Moreover, Kachelmeier et al. (2019) present evidence to support the view users see KAM matters related to high measurement uncertainty as forewarning misstatements and, therefore, reduce their expectations regarding auditor responsibilities if matters are later found misstated. In addition, a study (Rogers, Van Buskirk and Zechman 2011) on corporate disclosures finds companies using over-optimistic tones are usually targeted for lawsuits. It is possible auditors communicate their level of confidence regarding KAM issues via the use of uncertain tone, which may enable users to evaluate the matters themselves. These claims lead to the assumption expert audit firms who have reputations to maintain and/or are prone to lawsuits may have a greater incentive to use a more uncertain tone in their KAM to differentiate their work for others and/or mitigate litigation risks. Examining combined samples of pre and post-ISA 701 auditor reports, Smith (2019) shows Big N auditor reports include a more uncertain tone than those of non-Big N firms.

However, Lennox, Schmidt and Thompson (2019) argue an uncertain tone spoils the informativeness of KAM. This is in-line with findings which show using an uncertain tone in corporate disclosures increases user perceived information risks, since it reduces the user's ability to extract useful information (Ertugrul et al. 2017). So, it is likely the use of an excessively uncertain tone can hurt auditors' reputations, as uncertain tones may confuse readers or make them less confident about the overall audit opinion. By using a more uncertain tone in KAM, while issuing a

clean opinion, auditors can also be viewed as negligent in their duties. If this is the case, expert audit firms should reduce the use of uncertain tone in their KAM.

Christofferson and Grönberg (2018) find the decision on the use of uncertain tone is simply the choice of an audit firm and report that, in Sweden, PWC, Deloitte and KPMG use a more uncertain tone than EY and Mazars. If this the case, there may be no association between the expertise of audit firms and their respective use of uncertain tone.

Given the above discussion, audit firm expertise could have a positive, negative, or no effect on the use of uncertain tone in KAM. As a result, the following alternative hypothesis with no direction is employed to test the association between audit firm expertise and uncertain tone:

H1 (e)*: Audit firm expertise is associated with the use of uncertain tone in KAM.*

4.1.2 The expertise of the audit committee (H2)

This subsection develops hypotheses related to the effects of the expertise of audit committees, which is expected to capture client competencies in driving high audit quality, on the properties of KAM. Agency conflicts, driven by information asymmetry between managers and external financial statement users, are the main incentives which increase client demand for high-quality third-party assurance services to help verify the reliability of the public financial information provided by management. This client demand for high audit quality in turn enforces the recruitment of high-quality governance mechanisms, such as independent and competent audit committees and effective internal control functions, to ensure that the client demanded level of audit quality is attained.

This study focuses on the audit committee because it is designed to work in close collaboration with auditors to improve audit quality. The audit committee may influence auditors' KAM preferences because it works directly with auditors and monitors their work throughout the duration of the audit engagement. Most of the time, the KAM are chosen from topics which have already been communicated to the audit committee. A few KAM studies find characteristics of the audit committee, such as the proportion of female members and the proportion of financial and industry experts on the audit committee, are positively associated with KAM readability (Velte 2018, 2019). Zhang and Shailer (2018) report the accounting and supervisory expertise of audit committee members contribute to the effectiveness of communication between the audit committee and auditors. In line with agency theory, the findings from these KAM studies support the belief that the

presence of particular experts on the audit committee increases audit committee effectiveness in collaborating with auditors to produce informative KAM.

This study will examine variations in the competencies of audit committee from its level of specific expertise, including audit expertise and KAM governance experience. These audit committee characteristics have never been examined in the KAM literature. As explained in Section 2.3.1.1, the audit committee is likely to support auditors to perform specific tasks when it has expertise in that task (DeZoort 1998, DeZoort and Salterio 2001). This is because expertise in the task increases audit committee understanding of the task performed by auditors. Since audit committee experience in auditing and overseeing the issuance of KAM should increase their understanding of audit processes and familiarity with KAM objectives, these audit committees should be more willing to support auditors in the performance of the work necessary to address KAM issues and achieve KAM objectives. Therefore, audit committees with expertise may also encourage auditors to provide useful disclosures that benefit users, as recommended by regulators.

The above discussion provides the basis upon which this study will develop hypotheses about how audit committee expertise affects the content and linguistic features of KAM, as summarised in Table 4.1.

4.1.2.1 *The content of KAM (H2(a) – H2(c))*

1) The volume of discussion in KAM (H2 (a))

An audit committee with audit and KAM expertise can assist auditors by giving them access to sufficient information and supporting them in performing the tasks necessary to resolve KAM issues. Consequently, auditors with help from expert audit committees should access more insightful information, use more extensive audit procedures, and, therefore, write more words for both risk descriptions and audit procedures for each KAM disclosure than those without the help of an expert audit committee.

However, regulators keep suggesting KAM be concise (IAASB 2015a), showing a high volume of disclosure can also be viewed as a hindrance to easy understanding. It is possible that voluminous disclosure increases user information risk rather than helps reduce information asymmetry between management and outsiders. Therefore, expert audit committees may prefer concise KAM, as suggested by regulators, and would rather encourage auditors to communicate succinctly. Based on the above arguments, the following unsigned prediction is formed:

H2 (a)*: Audit committee expertise is associated with the volume of discussion in KAM.*

2) The composition of information in KAM (H2 (b))

Prior studies show the market adversely reacts to KAM, as it perceives greater uncertainty with an increase in KAM disclosures (Klevak et al. 2020). Longer audit procedure explanations are associated with investor perceptions of higher audit quality (Kipp 2017). Therefore, it is possible that, to increase perceived audit quality, alleviate perceived uncertainty, and avoid undesired market reactions, an expert audit committee may cooperate with auditors to do all necessary work to resolve KAM issues, and may prefer auditors to elaborate more regarding audit work rather than the risk descriptions. Consequently, an audit committee with audit and KAM expertise could lead to KAM which have a higher proportion of words describing audit procedures – implying a smaller proportion of KAM devoted to the risk description, than a committee without audit and KAM expertise. The study forms the following alternate hypothesis:

H2 (b)*: Audit Committee expertise is negatively associated with the proportion of KAM devoted to the description of risk.*

3) **The specificity in KAM (H2 (c))**

As described earlier in this subsection, experts are recruited into audit committees to enhance audit committee effectiveness in reducing agency conflicts. They are believed to be able to effectively collaborate with auditors to produce useful audit outputs that reduce user information risks resulting from agency conflicts. Moreover, it is possible audit committee members with audit expertise and governance experience have greater professional reputations to maintain than ones without such. Therefore, these expert members are more likely to encourage auditors to provide high-quality outputs to build their professional reputations. Since regulators promote the view that informative KAM contain company-specific information, audit committees with more audit or KAM governance experts should be familiar with this goal. Hence, they may be more willing to help auditors acquire the necessary information and back auditors to provide more company-specific information in KAM. According to this logic, this study predicts a direction for the effects of audit committee expertise on KAM specificity in the following alternate hypothesis:

H2 (c)*: Audit Committee expertise is positively related to the specificity in KAM.*

4.1.2.2 *The linguistic features of KAM (H2(d) – H2(e))*

1) The readability of KAM (H2 (d))

In terms of KAM readability, audit committees with more governance experience and task-specific expertise are likely to encourage auditors to increase KAM readability, thus attaining regulators' objective of the KAM being incremental information. Moreover, expert audit committees should prefer readable KAM because they reduce user misinterpretations, thereby reducing user information risks.

In contrast, KAM readability could be compromised if audit committees with expertise primarily want to reduce user uncertainty about KAM matters by encouraging auditors to disclose more information in the audit procedure descriptions. This is because audit procedures usually involve complex terms and audit jargon. As it is still unclear how these experts affect the readability of KAM, this study forms the following unsigned alternative hypothesis:

H2 (d)*: Audit Committee expertise is associated with the readability of KAM.*

2) The uncertain tone in KAM (H2 (e))

The effect of audit committee expertise on the use of uncertain tone in KAM is unclear. If the expert audit committee views the use of uncertain tone as incremental information helping readers better evaluate the level of uncertainty and make more accurate decisions, audit committee members with expertise may push auditors to include a more uncertain tone in the KAM than members without such.

It is also possible that the use of uncertain tone may hurt audit quality because an uncertain tone may increase user perception of uncertainties in the reliability of the financial reports, increase information risks, and even cause market opinion to diverge. In this scenario, audit committees with expertise may instead minimise the use of uncertain tone in KAM to avoid undesired market reactions. Hence, the study does not predict the direction for the relationship between audit committees expertise on the use of uncertain tone in KAM. This study forms the unsigned alternative hypothesis below:

H2 (e)*: Audit Committee expertise is associated with the use of uncertain tone in KAM.*

4.1.3 The KAM experience of audit signing partners (H3)

In addition to the hypotheses related to the effects of the expertise of audit firms, this study also investigates the effects of audit signing partner KAM experience. On one hand, long client tenure can increase auditor competencies in supplying audit quality, as auditors usually gain greater client-specific knowledge over time. On the other hand, long tenure can also be perceived as a threat to audit quality because becoming too familiar with clients may compromise auditor independence. This is why many jurisdictions mandate auditor rotation. Whether long auditor-client tenure improves audit quality is still unsettled, as the archival results are mixed. However, the available archival evidence supports that increasing tenure does not undermine but, in some studies, even improves audit quality (DeFond and Zhang 2014, p. 310, Geiger and Raghunandan 2002, Tepalagul and Lin 2015, p. 108).

How client tenure affects the style of auditor disclosures is still uninvestigated. Hence, this study will extend this understanding by investigating the association between the properties of KAM and the experience of audit signing partners in writing KAM for a given client. Following subsections will further develop individual hypotheses regarding how the experience of audit signing partners in issuing KAM to their clients affects the content and linguistic features of KAM, as summarised in Table 4.1.

4.1.3.1 *The content of KAM (H3(d) – H3(e))*

Auditors usually acquire insights about their clients and their KAM-related circumstances from every client visit. Therefore, they should increase the KAM risk descriptions over time. Moreover, long-tenured auditors may add audit procedures to address persistent KAM issues. As a result, increased audit tenure should lead to more information being disclosed in each KAM matter. However, it is hard to predict how the increased descriptions of risk and audit procedures would affect the composition of information in KAM. If longer tenured auditors add more explanation to risk descriptions than audit procedure descriptions, the proportion of KAM devoted to the risk description should increase; otherwise, if more explanations are added to audit procedures, the proportion of KAM devoted to the risk description should decline. Therefore, this study uses an unsigned alternate hypothesis to evaluate the effects of auditor KAM tenure on the proportion of KAM devoted to the risk description. Regarding KAM specificity, insights from every audit visit enable auditors with longer tenure to include more circumstance-specific information.

1) The volume of discussion in KAM (H3 (a))

H3 (a)*: Audit signing partners' KAM experience is positively related to the volume of discussion in KAM.*

2) The composition of information in KAM (H3 (b))

H3 (b)*: Audit signing partners' KAM experience is associated with the proportion of KAM devoted to the description of risk.*

3) The specificity in KAM (H3 (c))

H3 (c)*: Audit signing partners' KAM experience is positively related to the specificity in KAM.*

4.1.3.2 *The linguistic features of KAM (H3(d) – H3(e))*

An increase in KAM content, especially if auditors add onto audit procedure descriptions over time, could lead to less readable disclosures. Therefore, this study predicts a negative relationship between auditor KAM tenure and KAM readability.

Regarding the auditor use of uncertain tone, longer audit tenure may increase auditor understanding of the KAM circumstances and thereby may enable auditors to provide users with more information about the degree of uncertainty, as captured by their use of uncertain tone in the KAM. However, it is also possible long auditor tenure may undermine auditor independence, thereby lowering audit quality. If this is the case, auditors may favour clients by using a less uncertain tone to reduce market perceptions of greater uncertainties and avoid unfavourable market reactions. It is unclear in which direction auditors with longer tenure would go. So, this study will not predict the direction of the effect of auditor-KAM tenure on the use of uncertain tone.

Based on the above, this study forms alternative hypotheses related to the effects of the experience of audit singing partners in issuing KAM to a given client on the two linguistic features of KAM, as shown below:

1) The readability of KAM (H3 (d))

H3 (d)*: Audit signing partners' KAM experience is negatively related to the readability of KAM.*

2) The uncertain tone in KAM (H3 (e))

H3 (e): *Audit signing partners' KAM experience is associated with the use of uncertain tone in KAM.*

4.2 The impacts of the nature and properties of KAM on the analysts and investors

As discussed in Section 2.1.3, standard setters expect the KAM section to improve the informativeness of the new auditor's report by making current-period audit work transparent to financial statement users. This is because the KAM section informs readers of auditors' views of the most significant matters of the current-period audit and the actual audit procedures employed to address these matters. Therefore, regulators believe that KAM, especially those that include client-specific information and employ concise and readable language, should benefit the users of financial statements (IAASB 2015b, PCAOB 2016, FRC 2013).

The above regulatory belief is tested widely via several research methods, as presented in Section 2.2. Several experimental studies show that the particular information and properties of KAM change investors' perceptions of financial reporting quality (Doxey 2014, Elliott, Fanning and Peecher 2019, Kachelmeier et al. 2019, Kipp 2017, Köhler, Ratzinger-Sakel and Theis 2016). However, archival studies show mixed results. Most prior archival studies employ variations in market reactions (Bens, Chang and Huang 2019, Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2019, Liao et al. 2019, Reid et al. 2015) and analyst forecasts (Bens, Chang and Huang 2019) to verify the information content of the KAM. Some of these studies mainly examine the reactions of financial statement users on the new audit reporting rulings using pre- and post-ISA (UK and Ireland) 700 ruling data. Therefore, the results do not directly explain the effect of the inclusion of KAM. Where cross sectional analyses are sometimes used to examine the effects of the inclusion of KAM, prior archival studies only examine some nature of KAM categories and properties of KAM, which may not sufficiently capture the information included in the KAM and quality thereof, as described in Subsection 2.3.2.

To address these gaps, this section will add to the understanding of the impacts of KAM and their properties on the reactions of users by considering extensive lists of nature of KAM categories and properties of KAM. Moreover, the study will examine reactions from two main types of financial statement users, namely analysts and investors. This will provide extensive understanding of how different types of users view and consume the nature and properties of KAM. Most of the prior

archival studies claiming that KAM have no incremental value to users only investigate overall market reactions. This may be problematic as market measures may include a lot of noise, which can reduce the power of empirical analysis. For example, the market includes several types of investors, who may or may not directly use auditors' reports, as they may vary in knowledge, resources, and capabilities in processing complex information (Indjejikian 1991). However, those investors who do not read auditors' reports themselves may also be indirect users of auditors' reports via consuming information provided by intermediaries, such as analysts. Therefore, studying the reactions of sell-side analysts, who are more sophisticated and more likely to read auditors' reports than non-professional investors, should enable the study to investigate the benefits of KAM from the perspective of direct users.

As discussed in Subsection 2.2.2, released disclosures lacking incremental information will not affect user behaviours (Bao and Datta 2014, Kravet and Muslu 2013). Though, if analysts and investors react to the released information, it implies the released information has incremental information content, affecting their decision making. To test the incremental information value of KAM, this study employs several measures capturing the reactions of analysts and investors consistent with the prior risk disclosure literature. Analyst reactions are captured by examining the changes in beginning-of-year analyst earnings forecast dispersion and errors (Lang and Lundholm 1996, Lehavy, Li and Merkley 2011). Investor reactions are captured by three popular measures – cumulative absolute abnormal stock returns, abnormal trading volume, and abnormal bid-ask spreads around a short-window event period (Bens, Chang and Huang 2019, Campbell et al. 2014, Hope, Hu and Lu 2016, Reid et al. 2015). These measures capture different aspects of investor reactions, which will be described further.

The incremental information content can positively or negatively affect user risk perceptions (Bao and Datta 2014, Kravet and Muslu 2013) and information asymmetry (Amiram, Owens and Rozenbaum 2016). Examining the direction of the effects of KAM and their properties on analyst earnings forecast dispersion and abnormal bid-ask spreads enables this study to further validate and re-evaluate the effects of KAM on user risk perceptions and standard setters' expectation that KAM reduce information asymmetry.

If KAM reveal previously unknown audit risks to users, then user risk perceptions and uncertainties about their prior forecasts may rise, increasing the range of their expectations. Therefore, analyst earnings forecast dispersion should increase. Otherwise, if KAM provide additional information about audit risks that users are already aware of, KAM will be perceived as precise information that can be used to update user predictions, reducing their reliance on their

private information. In other words, precise public information will help resolve user disagreement and cause their expectations and beliefs about future firm performance to converge. Therefore, analyst earnings forecast dispersion should reduce.

Moreover, the KAM effect on the information asymmetry between sophisticated and unsophisticated investors can also be observed from the direction of change in abnormal bid-ask spreads. Theoretically, market makers price the quality of a firm's information environment into their cost of capital. Because sophisticated investors have more knowledge, better resources, and better abilities to interpret information, they usually take more advantage of newly released information than unsophisticated investors. Hence, KAM containing new information and KAM properties that are beneficial to both groups of users will enlarge the relative information gap between sophisticated and unsophisticated investors. Therefore, market makers will price information asymmetry costs into the spreads, leading to an increase in abnormal bid-ask spreads (Amiram, Owens and Rozenbaum 2016, Frino and Jones 2005, Gregoriou 2013, Menyah and Paudyal 2000). Though, if KAM contain information and have properties that are only useful to unsophisticated users, information asymmetry between these users should instead reduce, leading to a reduction in the abnormal bid-ask spread after the release of KAM.

An increase in cumulative absolute abnormal stock returns indicates the overall market reaction to disclosures. Investors are assumed to adjust their valuations when they receive a new piece of information about the range of future corporate cash flows and the quality of financial information used in their decision-making. KAM, as textual disclosures of risks and resolutions performed by an independent third party, should convey information about the range of future cash flows (Kravet and Muslu 2013) and financial statement quality. Moreover, the amount of information contained in KAM should vary according to their textual properties, such as volume, specificity, and uncertain tone.

A change in the abnormal trading volume captures individual investor reactions. Informative risk disclosures may either increase or decrease the abnormal trading volume. On the one hand, Elliott, Fanning and Peecher (2019) demonstrate KAM that indicate high quality corporate financial reporting to individual investors increase their willingness to invest in those shares. Hence, such KAM may lead to an increase in abnormal trading volume. On the other hand, the KAM section can also highlight undesirable news, as it usually outlines the underlying difficulty of an audit engagement. Christensen, Glover and Wolfe (2014) find that the KAM section reduces the tendency for nonprofessional investors to invest in a firm, as they see the KAM as a warning. Rapley, Robertson and Smith (2018) further report that nonprofessional investors hesitate to make

investments when the auditor's report presents KAM because KAM are perceived to signify management's inability to contribute to financial reporting quality. For these reasons, KAM may diminish the abnormal trading volume.

This study will investigate the informativeness of KAM via (1) changes in the dispersion of analyst earnings forecasts, (2) changes in the magnitude of analyst earnings forecast errors, (3) increases in the cumulative absolute abnormal stock returns, (4) changes in the abnormal trading volume, and (5) changes in abnormal bid-ask spreads. If KAM and their properties are not able to be associated with any of these changes, it may imply that KAM and their properties have no information content or are not beneficial to users. Based on the above, the following subsections will develop hypotheses on how analysts and investors react to variations of (1) the nature of KAM categories, (2) the content of KAM (i.e., KAM volume, composition, and specificity), and (3) the linguistic features of KAM (i.e., KAM readability and use of uncertain tone). Table 4.2 summarises all the hypotheses.

4.2.1 The nature of KAM categories (H4)

This subsection examines whether the nature of KAM categories provide incremental information content to users and whether and how they affect user risk perceptions and/or information asymmetry. These areas of KAM research need further investigation because prior studies are inconsistent. Most of them conclude that KAM may not include new information, implying that regulators' original reason for KAM implementation, improving the communicative value of auditor's reports and reducing information gaps, may not be realised.

Prior studies of corporate risk disclosures show that the types of disclosures impact user risk perceptions differently (Bao and Datta 2014, Kravet and Muslu 2013). Most of the time the KAM section includes several disclosures discussing various issues encountered by auditors during an engagement. Therefore, it seems possible the effects of KAM can also vary depending on the nature of the information conveyed in each disclosure. Therefore, it would be necessary to categorise the nature of the information presented in KAM to analyse their impact.

Table 4.2 Hypotheses on the impacts of the KAM properties on the analysts and investors

The properties of KAM	**User reactions**	
	Analyst reactions a) Analyst earnings forecast dispersion (information content & risk perceptions & information asymmetry) b) Analyst earnings forecast errors (information content & quality of information)	**Investor reactions** c) Cumulative absolute abnormal returns (overall market reaction to KAM information content) d) Abnormal trading volume (individual investor reaction to KAM information content) e) Abnormal bid-ask spreads (information content & perceived information asymmetry by market makers)
The Nature categories of KAM:		
H4: The nature of KAM categories *(to test whether different nature categories of KAM impact behaviours)*	H4 (a): The nature of KAM categories are associated with the dispersion of analyst earnings forecasts (?). H4 (b): The nature of KAM categories are associated with the magnitude of analyst earnings forecast errors (?).	H4 (c): The nature of KAM categories are positively associated with the size of cumulative absolute abnormal returns (+) H4 (d): The nature of KAM categories are associated with the size of abnormal trading volume (?). H4 (e): The nature of KAM categories are associated with abnormal bid-ask spreads (?).
The Content of KAM:		
H5: The volume of discussion in KAM the average word count of each KAM matter	H5 (a): The KAM volume is associated with the dispersion of analyst earnings forecasts (?). H5 (b): The KAM volume is associated with the magnitude of analyst earnings forecast errors (?).	H5 (c): The KAM volume is associated with the size of cumulative absolute abnormal returns (?) H5 (d): The KAM volume is associated with the size of abnormal trading volume (?). H5 (d): The KAM volume is associated with abnormal bid-ask spreads (?).
H6: The composition of information in KAM The proportion of KAM devoted to the description of risk	H6 (a): The proportion of KAM devoted to the description of risk is positively related to the dispersion of analyst earnings forecasts (+). H6 (b): The proportion of KAM devoted to the description of risk is positively related to the magnitude of analyst earnings forecast errors (+).	H6 (c): The proportion of KAM devoted to the description of risk is negatively related to the size of cumulative absolute abnormal returns (-). H6 (d): The proportion of KAM devoted to the description of risk is negatively related to the size of abnormal trading volume (-). H6 (e): The proportion of KAM devoted to the description of risk is positively related to abnormal bid-ask spreads (+).

Table 4.2 Hypotheses on the impacts of the KAM properties on the analysts and investors (continued)

The properties of KAM	User reactions	
	Analyst reactions a) Analyst earnings forecast dispersion (information content & risk perceptions & information asymmetry) b) Analyst earnings forecast errors (information content & quality of information)	**Investor reactions** c) Cumulative absolute abnormal returns (overall market reaction to KAM information content) d) Abnormal trading volume (individual investor reaction to KAM information content) e) Abnormal bid-ask spreads (information content & perceived information asymmetry by market makers)
The KAM linguistic features:		
H7: The specificity the specificity of KAM	H7 (a): The KAM specificity is negatively related to the dispersion of analyst earnings forecasts (-). H7 (b): The KAM specificity is negatively related to the magnitude of analyst earnings forecast errors (-).	H7 (c): The KAM specificity is positively related to the size of cumulative absolute abnormal returns (+). H7 (d): The KAM specificity is positively related to the size of abnormal trading volume (+). H7 (e): The KAM specificity is negatively related to abnormal bid-ask spreads (-).
H8: The readability *(to test whether the readability of KAM improves financial reporting quality)*	H8 (a): The KAM readability is associated with the dispersion of analyst earnings forecasts (?). H8 (b): The KAM readability is associated with the magnitude of analyst earnings forecast errors (?).	H8 (c): The KAM readability is positively related to the size of cumulative absolute abnormal returns (+). H8 (d): The KAM readability is associated with the size of abnormal trading volume (?). H8 (e): The KAM readability is associated with abnormal bid-ask spreads (?).
H9: The uncertain tone *(to test whether the uncertain tone impacts behaviours)*	H9 (a): The KAM uncertain tone is associated with the dispersion of analyst earnings forecasts (?). H9 (b): The KAM uncertain tone is associated with the magnitude of analyst earnings forecast errors (?).	H9 (c): The KAM uncertain tone is associated with the sizes of cumulative absolute abnormal returns (?). H9 (d) The KAM uncertain tone is associated with the sizes of abnormal trading volume (?). H9 (e): The KAM uncertain tone is associated with abnormal bid-ask spreads (?).

Note: (+), (-) and (?) represent positive, negative, and unspecified relationships, respectively.

Prior studies finding no relationship between KAM and market reactions usually examine the relationship using only the aggregate number of disclosures in the KAM section or, at most,

classifying KAM disclosures as either informative or uninformative, according to some binary criteria, while analysing market reactions (as discussed in Subsections 2.1.2.1 and 2.1.2.2). It is possible the total number of disclosures and these KAM binary categories are insufficiently or improperly capture the different natures of disclosures in KAM. Moreover, not every disclosure presented in KAM is meaningful or has new information. Simply combining all risks into one or two numbers would obscure the individual effects of risk disclosures, potentially leading to a false-negative finding.

As a result, this study will reexamine the effect of KAM on users by employing more detailed nature of KAM categories. In contrast to Lennox, Schmidt and Thompson (2021), Liao et al. (2019), who classify KAM into only two groups using one criterion at a time, i.e., recurring/non-recurring KAM, firm-specific/industry-related KAM, and account-effected/entity-wide-effected KAM, this thesis will combine these three criteria, thereby yielding more extensive categories (as explained in Subsection 5.2.2.4 (I)). Using such extensive categories to capture the heterogeneity of disclosures in KAM would enable the observation of whether some nature of KAM categories are informative to users and how they affect user risk perceptions and the information environment.

First, this study examines whether analysts, being direct financial statement users, make use of some nature of KAM categories. Nature of KAM categories that are informative to analysts should affect their outputs, such as their earnings forecast dispersions or errors. However, the direction of the effects of risk disclosures on analyst risk perceptions can vary according to the type of risk (Bao and Datta 2014). If nature of KAM categories inform analysts about previously unknown risk factors, analyst earnings forecasts will diverge, enlarging analyst earnings forecast dispersion. This may result from the KAM highlighting some previously unnoticed issues with financial statements (Dennis, Griffin and Zehms 2019, Sirois, Bédard and Bera 2018). The more unknown risk factors analysts are exposed to, the more complicated their forecasting task may become. This is because analysts need to make more predictions about how these new unknow risk factors will affect the range of assumptions about future performance, adding uncertainty to their forecasts and perhaps making their predictions less precise.

It is also possible that some nature of KAM categories provide more precise information about known risk factors, since the audit procedures presented in KAM may enable analysts to evaluate audit efforts and adjust their prior beliefs about the quality of financial reporting (Doxey 2014, Kachelmeier et al. 2019, Kipp 2017). If this is the case, analysts should reduce their reliance on private information, narrowing the information gap. Therefore, analyst earnings forecasts should converge, reducing dispersion. Precise information may also increase the accuracy of analyst

earnings forecasts, as seen via the reduction of the magnitude of beginning-of-year analyst earnings forecast errors.

However, it is also possible that KAM do not present new information, or auditors may use boilerplate language to explain particular nature of KAM categories. Categories described with generic language may not be of interest to analysts and thereby not change the characteristics of their outputs. As it is unclear how nature of KAM categories affect analyst risk perceptions or whether they provide precise information. Consequently, this study does not predict the direction of the KAM effects on analyst earnings forecast outputs as the below hypotheses are formed.

(A) Analysts:

H4 (a)*: The nature of KAM categories are associated with the dispersion of analyst earnings forecasts.*

H4 (b)*: The nature of KAM categories are associated with the magnitude of analyst earnings forecast errors.*

Regarding investor reactions, any nature of KAM categories containing useful information will lead to changes in the size of investor reactions. So, nature of KAM categories informative to capital markets should be associated with increases in cumulative absolute abnormal returns. However, the direction of individual investor reaction could vary. Nature of KAM categories which reveal desirable news to individual investors should lead to increased abnormal trading volume, whereas nature of KAM categories that bare unfavourable information to investors should result in a decrease in abnormal trading volume.

In terms of information asymmetry, when nature of KAM categories reveal unknown risk factors to both sophisticated and unsophisticated investors, information asymmetry should widen as sophisticated investors, who have greater capabilities in processing information, are believed to take greater advantage of new information than unsophisticated ones. On the contrary, if KAM provide information only previously unknown to unsophisticated investors, the information gap between investors should instead reduce, decreasing information asymmetry. In sum, the nature of KAM categoires with incremental information value can be either positively or negatively associated with abnormal bid-ask spreads. At this early stage, it is hard to predict how each nature of KAM category affects individual investor behaviour and information asymmetry, so this study would only explore their associations rather than make directional predictions for their associations. Investor reactions to the nature of KAM categories are investigated by using the following alternate hypotheses.

(B) Investors:

H4 (c)*: The nature of KAM categories are positively associated with the size of* cumulative absolute abnormal returns.

H4 (d)*: The nature of KAM categories are* associated with the size of abnormal trading volume.

H4 (e)*: The nature of KAM categories are associated with abnormal bid-ask spreads.*

4.2.2 The content of KAM (H5 – H7)

This subsection develops hypotheses about how users react to the three different properties of KAM content: (1) the volume of discussion; (2) information composition; and (3) specificity.

1) The volume of discussion in KAM (H5)

In the corporate disclosure literature, the word count in disclosure is used to capture either its complexity or the amount of the information provided. Regarding the former, a voluminous word count makes disclosure complex, requiring a great deal of users' time and effort to read, and may even discourage users from reading it at all. If this is the case, a greater volume of discussion in KAM may be associated with fewer user reactions to KAM. In other words, the volume of discussion may counteract the effects of the nature of KAM categories on financial statement users. On the other hand, the volume of discussion in KAM also reflects the amount of information contained within each KAM topic. More words used in each KAM can simply mean readers are provided with more information about risk, i.e., why an auditor is highly concerned about a given matter, and the actual auditor's work. Therefore, if users find KAM informative and react to any of nature of KAM categories, the greater volume of discussion in KAM should reinforce their reactions to that category. For example, if financial statement users ignore reading the inside of the audit report in the first place, the changes in the volume of discussion in KAM should make no difference to users and no change would be observed in their reactions. Should users take KAM into account, then disclosure could either increase or decrease disagreements on audit risks among market participants, the increase in the KAM volume should further enlarge or reduce such disagreements, which may be measured through the changes in analyst earnings forecast dispersion, trading volume, or bid-ask spreads. Moreover, if the KAM provide users with precise or imprecise information about known risk factors, the greater volume included in the KAM section should increase or decrease the accuracy of analyst earnings forecasts and increase or decrease the size of stock price movement accordingly.

The above discussion indicates the difficulty in predicting the exact effects of the volume of discussion on user reactions because the volume of the discussion in KAM can either increase or decrease the effects of KAM on user reactions. Moreover, as discussed in Section 4.2.1, it is still uncertain how analysts and markets react to the nature of KAM categories. Therefore, this study forms an alternative hypothesis without specifying a direction to explore the effects of the volume of discussion in KAM on user reactions as follows:

(A) Analysts:

H5 (a)*: The KAM volume is associated with the dispersion of analyst earnings forecasts.*

H5 (b)*: The KAM volume is associated with the magnitude of analyst earnings forecast errors.*

(B) Investors:

H5 (c)*: The KAM volume is associated with the size of cumulative absolute abnormal returns.*

H5 (d)*: The KAM volume is associated with the size of abnormal trading volume.*

H5 (e)*: The KAM volume is associated with bid-ask spreads.*

2) The composition of information in KAM (H6)

This study captures KAM information composition through the proportion of KAM devoted to the risk description. As the KAM section, at a minimum, discusses the nature of risks and audit procedures used to address them, the greater the proportion of KAM spent discussing risk, the lower the proportion of KAM content dedicated to descriptions of audit procedures and vice versa. Apart from the volume of information in each KAM disclosure, the variation of the proportion of KAM devoted to the risk description may also provide incremental information to users.

Regarding analyst risk perceptions, this study predicts the proportion of KAM spent on the risk description is positively associated the dispersion of analyst earnings forecasts because risk descriptions usually inform readers why a matter is of concern to an auditor or makes them aware of audit risk; therefore, it should increase user risk perceptions or uncertainties about the level of assurance provided by the audit. In contrast, the audit procedure description presents the auditor's effort to address the matter, and thereby, should reduce readers' risk perceptions and increase their confidence in the audit work. Therefore, when the proportion of KAM devoted to risk increases, user risk perceptions and uncertainties should increase as users are given more information about risk

but less information about audit procedures, thereby leading to an increase in analyst earnings forecast dispersion. Moreover, Hope and Kang (2005) provide evidence that an increase in task complexity can result in a decrease in the accuracy of analyst forecasts. This study argues that a high level of analyst uncertainty introduced by KAM sections possessing a high proportion of risk descriptions can contribute to analyst task complexity and, hence, reduce their forecast accuracy, as the more uncertainties analysts face, the more private information they need to predict the range of future corporate performance. From the above discussion, this study argues the proportion of KAM devoted to the risk description is positively associated with the dispersion of analyst earnings forecasts and the magnitude of analyst earnings forecast errors.

As seen above, a higher proportion of KAM devoted to the risk description may reflect a low level of assurance from the audit and increase user uncertainty. Therefore, it could impair investor confidence in the financial reporting quality and, thereby, reduce their willingness to invest. Moreover, a lower level of financial reporting quality also implies a poor-quality corporate information environment and, hence, high information asymmetry. Therefore, when auditors dedicate a high proportion of KAM to the risk description, market makers may increase bid-ask spreads to capture the higher costs of information asymmetry.

Regarding the arguments above, the study forms alternate hypotheses as below:

(A) Analysts:

H6 (a)*: The proportion of KAM devoted to the description of risk is positively related to the dispersion of analyst earnings forecasts.*

H6 (b)*: The proportion of KAM devoted to the description of risk is positively related to the magnitude of analyst earnings forecast errors.*

(B) Investors:

H6 (c)*: The proportion of KAM devoted to the description of risk is negatively related to the size of cumulative absolute abnormal returns.*

H6 (d): *The proportion of KAM devoted to the description of risk is negatively related to the size of abnormal trading volume.*

H6 (e)*: The proportion of KAM devoted to the description of risk is positively related to bid-ask spreads.*

3) The specificity in KAM (H7)

Standard setters and regulators encourage auditors to include more company-specific information in the KAM section as company-specific information is believed to enhance the usefulness of KAM. Kipp (2017) tested this expectation on unsophisticated investors in the laboratory and found that more detailed (i.e., less generic) descriptions of risk and audit procedures are associated with higher perceived financial reporting quality and audit quality. Therefore, the study extends Kipp's (2017) findings to investigate the impacts of specificity in KAM on analysts and markets, including both sophisticated and unsophisticated investors.

Prior studies show that more specific information presented in disclosures enhances the accuracy of the shared information (Hope, Hu and Lu 2016, Lang and Lundholm 1996). With more specific insights into circumstances, users should be able to better incorporate the information into their decision-making processes and be less likely to rely on private information. Therefore, with greater specificity in KAM, analyst earnings forecasts should converge, becoming more accurate, thereby lowering the dispersion of analyst earnings forecasts and the magnitude of analyst earnings forecast errors. Moreover, the information gap between sophisticated and unsophisticated financial statement users should be narrowed and market makers may also perceive a lower risk of information asymmetry if more specific disclosures are available. Accordingly, they may reduce the cost of information asymmetry by reducing spreads. On the contrary, unspecific information can both confuse readers by leaving them with unclear views of the matters and make them doubtful about the quality of the auditor's work. Hence, an increase in unspecific information in the KAM section can discourage users from trading the stock of the audited company.

Given the above, greater specificity in KAM should decrease the dispersion of analyst earnings forecasts, the magnitude of analyst forecast errors, and bid-ask spreads. As specificity makes the disclosures more informative, it should increase market reactions, and we should see greater changes in the stock price and trading volume.

Hence, these hypotheses for the specificity of the KAM are formed below:

(A) Analysts:

H7 (a)*: The KAM specificity is negatively related to the dispersion of analyst earnings forecasts.*

H7 (b)*: The KAM specificity is negatively related to the magnitude of analyst earnings forecast errors.*

(B) Investors:

H7 (c)*: The KAM specificity is positively related to the size of cumulative absolute abnormal returns.*

H7 (d)*: The KAM specificity is positively related to the size of abnormal trading volume.*

H7 (e)*: The KAM specificity is negatively related to bid-ask spreads.*

4.2.3 The linguistic features of KAM (H8 – H9)

1) The readability of KAM (H8)

Investors prominently demand clear and understandable KAM (ACCA 2017, The Securities Commission Malaysia (SC)'s Audit Oversight Board (AOB) 2018). The complexity of the disclosures could increase both the time and resources needed to decipher the information (Lehavy, Li and Merkley 2011) and thus discourage users from taking the information into account. Experimenting with nonprofessional investors, Carver and Trinkle (2017) support that the value relevance of KAM is contingent on the readability of the disclosures. Moreover, prior studies show investors are less likely to react to the disclosures presented in a cognitively costly form (Lawrence 2013, Miller 2010, You and Zhang 2009) and react more positively(negatively) to the good(bad) news presented in the more readable disclosures (Rennekamp 2012). So, more readable KAM should further increase the size of market reactions, as measured by absolute cumulative abnormal returns and abnormal trading volume. Specifically, more readable KAM should be associated with higher cumulative absolute abnormal returns. However, the direction of the KAM readability effect on abnormal trading volume is contingent on the type of news. That is, the KAM readability should lead to a further increase in abnormal trading volume for KAM sections containing more good news than bad, and for the reverse, KAM readability should instead reduce abnormal trading volume. Since it is difficult to determine the type of news found in a given KAM section, this thesis predicts an unsigned association between readability and the abnormal trading volume.

Similarly, it is hard to predict the direction of the effects of the readability of KAM on user risk perceptions and information asymmetry. Similar to Rennekamp (2012), it seems a higher levels of KAM readability would strengthen the effects of the KAM section on user risk perceptions and

information asymmetry. Therefore, the effects of KAM readability may be contingent on the actual impacts of the nature of KAM categories on analyst forecast properties and bid-ask spreads, as examined in Section 4.2.1. i.e., if KAM cause analysts forecast divergence (convergence), a higher readability should increase (decrease) analyst forecast dispersion. As it is unclear how the nature of KAM categories affect user risk perceptions and information asymmetry, this study will only explore the effect of KAM readability on the characteristics of analyst earnings forecasts and bid-ask spreads by employing unsigned alternate hypotheses.

Hence, this study forms the unsigned alternate hypotheses below:

(A) Analysts:

H8 (a)*: The KAM readability is associated with the dispersion of analyst earnings forecasts.*

H8 (b)*: The KAM readability is associated with the magnitude of analyst earnings forecast errors.*

(B) Investors:

H8 (c)*: The KAM readability is positively related to the size of cumulative absolute abnormal returns.*

H8 (d)*: The KAM readability is associated with the size of abnormal trading volume.*

H8 (e)*: The KAM readability is associated with bid-ask spreads.*

2) The uncertain tone in KAM (H9)

The KAM section usually includes information about matters involving a lot of management judgment and estimates (IAASB 2015c), so it is common to see auditors use an uncertain tone to describe KAM. However, there is not much knowledge about how the level of uncertain tone expressed in KAM affects the characteristics of analyst earnings forecasts and market reactions. Particularly, it is unknown whether users perceive good, bad, or no news from variations in the proportion of words indicating uncertainty within the KAM section.

On the one hand, the use of a more uncertain tone in KAM may adversely affect the informativeness and transparency of the disclosure. Ertugrul et al. (2017) used the words from Loughran and McDonald's (2011) uncertain word list to measure the ambiguity of corporate disclosures and found that lenders perceive greater ambiguity as information risk and thus increase

borrowing costs. If the uncertain tone in KAM also increases user perceptions of risk and uncertainties in audit and financial reporting quality, as seen in corporate disclosures, then KAM with a greater uncertain tone should cause analyst beliefs to diverge, reducing forecast accuracy, increasing information asymmetry, and detering investors from investing in the audited company. This means that a less uncertain tone may increase market reactions. However, Lennox, Schmidt and Thompson (2019) tested this claim and found no evidence to support it.

On the other hand, the inclusion of a more uncertain tone in KAM may be informative to users, as it is possible the auditors' use of tone helps readers perceive a more precise degree of uncertainty in the KAM-related information presented in corporate financial statements. This is in line with Smith (2019), who claims that using variations of tone makes the auditors' reports less boilerplate. In this case, more usage of uncertain tone should lead to more precise analyst earnings forecasts. If average investors similarly perceive the increase in uncertain tone provides new information, an increase in market reaction should also be seen. Regarding information asymmetry, the precise information conveyed by an auditor's use of uncertain tone could either widen or narrow information asymmetry among investors, depending on whether this information was previously unknown to all users, or only unsophisticated ones. If both groups of users are informed by the auditor's use of uncertain tone, sophisticated users should take greater benefit from it, as they have better capabilities than unsophisticated ones; thereby enlarging information asymmetry. Conversely, if sophisticated users do not perceive incremental value from the use of uncertain tone in KAM, as they may be able to extract similar information directly from financial statements, the KAM information conveyed would be beneficial to only unsophisticated users, potentially reducing information asymmetry.

Due to the unclear direction of the effect of uncertain tone in KAM on both analyst and investor reactions, this study tests the following unsigned alternate hypotheses:

(A) Analysts:

H9 (a)*: The KAM uncertain tone is associated with the dispersion of analyst earnings forecasts.*

H9 (b)*: The KAM uncertain tone is associated with the magnitude of analyst earnings forecast errors.*

(B) Investors:

H9 (c)*: The KAM uncertain tone is associated with the size of cumulative absolute abnormal returns.*

H9 (d)*: The KAM uncertain tone is associated with the size of abnormal trading volume.*

H9 (e)*: The KAM uncertain tone is associated with bid-ask spreads.*

4.3 Summary of hypotheses development

This chapter outlined two sets of hypotheses related to both the supply and demand of KAM. The first set, which included three groups of hypotheses, was developed to examine the determinants of KAM properties by applying the audit quality framework and introducing the idea that KAM properties are the combined efforts of the audit firm, audit committee, and audit signing partner. Therefore, the first section of this chapter was divided into three subsections focusing on audit firm expertise, audit committee expertise, and audit signing partner KAM experience hypotheses. Then, each subsection developed five hypotheses regarding the volume, composition, specificity, readability, and uncertain tone of the information in KAM. In total, this study developed 15 KAM determinants hypotheses.

The other set of hypotheses was developed to test how each of the nature of KAM categories and KAM properties benefit two groups of KAM users, i.e., analysts and investors. These hypotheses were developed based on the assumption that information incrementally informative to users should alter user behaviour. Following this idea, the KAM impact hypotheses were developed for the nature of KAM categories and each KAM property and examined via changes in analyst and investor behaviour. In terms of analyst reactions, this study focuses on analyst risk perceptions and information asymmetry, as captured by analyst earnings forecast dispersion, and analyst decision quality, captured by the magnitude of analyst earnings forecast errors. The study examines investor reactions in three views, including overall market reactions, captured by changes in returns, individual investor reactions, captured by changes in trading volume, and information asymmetry captured by changes in abnormal bid-ask spreads. In total, the KAM impact hypotheses consist of 30 hypotheses. The next chapter will discuss the research design developed to test these hypotheses.

Chapter 5: Research design

5.0 Introduction

The previous chapter described two sets of hypotheses. The first set of hypotheses, examining the determinants of KAM properties, was developed based on the widely-accepted audit quality framework of DeFond and Zhang (2014). This framework shows that audit quality is a function of auditor supply and client demand for audit quality. DeFond and Zhang (2014) explain that the expertise and experience of auditors and clients are associated with the levels of their incentives and competencies in driving the quality of the audit outputs. Therefore, this study predicts that the expertise of audit firms and audit committees and the experience of audit signing partners in issuing KAM to a given client will affect the properties of KAM, which are vital audit outputs. The second set of hypotheses focuses on the affects the variations in the nature of KAM categories and KAM properties have on analyst and investor behaviours. This study predicts that the nature of KAM categories and KAM properties are associated with analyst risk perceptions, information asymmetry, and information content. Accordingly, variations in the nature of KAM categories and KAM properties are expected to change analyst earnings forecast characteristics and investor trading behaviours.

This chapter will develop the research designs and methodologies used to test these two sets of hypotheses. Section 5.1 will discuss the designs and the methodologies to test the hypotheses related to the determinants of KAM properties. Section 5.2 will present the designs and the methodologies to investigate the hypotheses related to the impacts of the nature of KAM categories and KAM properties on analyst and investor behaviours. Each section will explain sample selection, data collection methods, and data analysis methods. Finally, Section 5.3 will be the chapter summary.

5.1 Examining the determinants of KAM properties (H1 to H3)

This section begins with Section 5.1.1, which describes the sample and data collection process employed to study the determinants of KAM properties. Section 5.1.2 describes and discusses the methods employed for the KAM determinants analyses, including the main models, variables, and tests designed to address endogeneity.

5.1.1 Sample selection and data collection methods for the KAM determinants study

5.1.1.1 Data for the KAM determinants study

The sample for the KAM determinants study covers premium listed companies on the London Stock Exchange (LSE). The LSE is a highly developed market with 639 Main Market listed firms, with a total market capitalisation of £2.6 trillion as of August 2017 (London Stock Exchange Group plc 2017, p. 22). This study uses UK data for three reasons. Firstly, the initial KAM ruling (ISA (UK and Ireland) 700) adopted in the UK is similar to the final IAASB KAM ruling (ISA 701), possibly resulting from close collaboration between the FRC and the IAASB in improving audit reporting standards since 2011 (IAASB n.d.).

Secondly, the UK is the first jurisdiction to pioneer a KAM-like ruling, ISA (UK and Ireland) 700, in 2013. Most other jurisdictions adopted a KAM ruling for auditors' reports issued on or after December 2016, as required by IAASB ISA 701. Therefore, the UK already had several KAM data periods to be examined when this study began in 2017. Data with more periods mean a larger sample size and more variations within the variables of interest, leading to more substantial statistical power.

Lastly, the FRC enthusiastically encourages auditors to provide meaningful KAM disclosures by making KAM concise, readable, and specific (FRC 2015, 2016b). Some auditors are praised in the FRC KAM review reports for presenting information with specific details and innovative graphics. The FRC's focus on disclosure quality motivates the examination of whether UK practitioners with expertise and experience differentiate their KAM disclosures from those without expertise and experience. Perhaps, for these reasons, prior KAM studies also use UK data in examining the determinants of KAM characteristics (Rousseau and Zehms 2020, Sierra-García et al. 2019, Velte 2018, 2019).

The samples employed in this study cover four KAM years[22] starting from September 2013, the effective date of ISA (UK and Ireland) 700. Due to the tremendous manual work required, the study makes use of only four years of data.

[22] Study periods covered by other determinants studies using cross-sectional analyses vary from two (Velte 2018) to five year-periods (Rousseau and Zehms 2020). However, most studies (Sierra-García et al. 2019, Velte 2019) cover four year-periods.

5.1.1.2 Data collection of the variables for the KAM determinants study

This study retrieved the list of companies with premium listings from the LSE website[23]. Most annual reports and auditors' reports are available in PDF format on corporate websites, Audit Analytics, or Companies House's website[24]. This study manually extracted the required information from these PDF files to create processable texts in an Excel spreadsheet. For example, the audit committee information needed for constructing variables related to audit committee expertise and gender diversity was hand-collected from the board member profiles found in the respective annual reports. Audit reports provided primary data, i.e., KAM, audit firms, audit signing partners, and going concern matters. This study manually labeled each disclosure in KAM by topic type and separated KAM explanations into descriptions of risk and audit procedures. These data were used to generate proxy variables for the KAM properties, the dependent variables of this KAM determinants study. Audit firm and audit signing partner names, used in generating proxy variables related to audit firm expertise and audit signing partner KAM experience, were also manually acquired from the auditors' reports.

Excel and open-source Python programs were then used to code all processible data. spaCy (Honnibal et al. 2020), Textstat (Bansal and Aggarwal 2021), and Pyparsing (McGuire 2021) were used to collect descriptive information about the texts, such as the numbers of words and specific words (such as named entities and uncertain modal words), and parse textual information into sentences. These are vital components for performing textual analysis. Excel spreadsheets performed easy textual analytical tasks, such as searching for "auditing" keywords used to determine the audit expertise of the audit committees.

This study gathered audit fee data and industry codes (SIC) from the Europe Module of Audit Analytics and obtained fundamentals and market data from Compustat Global (WRDS) – Fundamentals Annual and Security Daily. Segment data were obtained from Refinitiv Datastream.

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[23] The list of companies listed in the LSE is available at https://www.londonstockexchange.com/reports?tab=issuers.

[24] Most of the annual reports are available on corporate websites. For those companies that do not post reports on their websites, their annual reports were retrieved from Audit Analytics or Company House's website. On Company House's website, annual reports are available at "Accounts" in Section "Filing History" at https://beta.companieshouse.gov.uk/.

5.1.1.3 Sample and subsample construction for the KAM determinants study

Panel A and Panel B of Table 5.1 describe the sample selection process for the initial observations and the observations of the KAM determinants analyses, respectively. Initially, there were 878 firm observations from premium equity listed firms, as of 30 September 2013, as shown on the website of the LSE (London Stock Exchange plc 2013). The sample excluded firms that did not publish their audit reports online or published their reports in encrypted formats[25] (137 firm observations). Further, the study excluded an additional 46 firm observations, which were missing SIC data on Audit Analytics. Consistent with prior studies examining the UK KAM, this study excluded another 369 financial firms (SIC codes 6000 to 6999), which are subject to stricter auditing and corporate governance rules (Gutierrez et al. 2018, Reid et al. 2015, Velte 2019). The remaining 326 sample firms generated 1,291 initial firm-year observations during the sample period, from 2013 to 2017.

Table 5.1 Sample construction for the determinants analyses (H1 to H3)

Panel A: Original sample	**Firm observations**	**Firm-year observations**	**Audit firm observations**	**Audit partners observations**
Premium equity listing firm-years during 30 September 2013 (the commencement of the new auditor's report regime)	878			
Less: Not in compliance with / missing the new reporting regime in the post-period	(137)			
Less: Firms without valid identifiers to extract data from Audit Analytics	(46)			
Less: Financial firms (SIC 6000 - 6999)	(369)			
Compliance firms and firm-years	**326**	**1,291**	**14**	**325**
Panel B: H1 to H3 - Analysis samples for the determinants analyses	**Firm observations**	**Firm-year observations**	**Audit firm observations**	**Audit partners observations**
Less: Missing necessary data to ascertain audit committee expertise & governance experience		(37)		
Less: Missing data necessary to compute control variables		(108)		
Final sample for KAM determinants analysis	**296**	**1,146**	**12**	**295**
Big N subsample	**277**	**1,066**	**4**	**263**
Non-Big N subsample	**19**	**80**	**8**	**32**

For the KAM determinants analyses, 37 firm-year observations without audit committee data were further excluded from the initial observations. An additional 108 firm-year observations were removed because data needed for computing control variables were missing. A total of 1,146 observations were used to examine the determinants of KAM properties, with 1,066 firm-year

[25] Some annual reports and auditors' reports were encrypted to prevent data from being manipulated and extracted. Since this study required processible textual data to use in automated textual analyses, those data in protected formats were excluded from the study.

observations related to Big N firm audit engagements and 80 firm-year observations related to non-Big N audit firms.

5.1.2 Data analysis methods of the KAM determinants study

This section is divided into four main parts. Subsection 5.1.2.1 will present the main multiple linear regression models used to examine the KAM determinants hypotheses (H1 to H3 (a)-(e)). Subsection 5.1.2.2 will provide details regarding the variables of interest, outcome variables, and control variables. Then, Subsection 5.1.2.3 will explain the estimation method employed in the KAM determinants analyses. Finally, Subsection 5.1.2.4 will describe the propensity score matched regression models employed as robustness tests, addressing the potential endogenous selection of audit firms, audit committees, and audit signing partners

5.1.2.1 Multiple linear regression models

Consistent with prior literature about the determinants of KAM properties (Ferreira and Morais 2019, Njenga 2019, Rousseau and Zehms 2020, Velte 2018, 2019), this study hypothesises a linear relationship between KAM properties and their determinants. Therefore, this study develops two multiple linear regression models to test how each KAM property (*KAMProp*$_{i,t}$) - i.e., *Len_KAM*, *Risk_Total*, *Specificity*, *Readability, and Uncertainty* [26]- is associated with the expertise of audit firms (H1 (a)-(e)), the expertise of audit committees (H2 (a)-(e)), and the KAM experience of audit signing partners (H3 (a)-(e)). Each model employs four variables of interest[27], as shown below:

Model 1a:

$$KAMProp_{i,t} = \beta_0 + \beta_1 BigN_{i,t} + \beta_2 AComGov_{i,t} + \beta_3 AComAud_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1a)$$

Model 1b:

$$KAMProp_{i,t} = \beta_0 + \beta_1 AudInd_{i,t} + \beta_2 AComGov_{i,t} + \beta_3 AComAud_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1b)$$

To test the effect of audit firm expertise on KAM properties, Model 1a applies audit firm size (the Big N indicator: *BigN*) and tests its effect using the entire sample - including both Big N and non-

[26] Section 5.1.2.2 (II) and Appendix A illustrate the detailed definitions for these KAM properties.
[27] See Section 5.1.2.2 (I) and Appendix A for the detailed definitions of the variables related to audit firm expertise (*BigN* and *AudInd*), audit committee expertise (*AComGov* and *AComAud*), and audit signing partner experience (*Audit_KAMExp*).

Big N subsamples. Audit firm size is commonly used in the audit literature to reflect both auditor incentives and expertise in providing high-quality audit outputs (Becker et al. 1998, DeFond and Zhang 2014, Eshleman and Guo 2014). Since Big N audit firms produced 93% of the sample observations, Model 1b further studies the effects of variations in expertise within the Big N audit firm subsample, using a measure of audit firm industry specialisation (*AudInd*). The dramatic difference in the distribution of *AudInd* between the Big N and non-Big N subsamples[28] justifies testing the effect of audit firm industry specialisation on the Big N subsample. Moreover, restricting the examination of audit firm industry specialisation to the Big N subsample further helps control for the effect of audit firm size or brand name on KAM properties.

Both KAM determinant models include the same variables capturing the expertise of the audit committee (*AComGov* and *AComAud*) and the KAM experience of audit signing partners (*Aud_KAMExp*). Figure 5.1 summarises the hypotheses, models, variables of interest, and the dependent variables of the KAM determinants study.

The control variables (*Controls*) account for effects from other factors related to client characteristics and auditor engagement features. This study includes year fixed effects to control for time-specific factors, such as economic factors and regulatory changes, that may impact all companies across the market. Moreover, industry fixed effects are also employed to control for systematic differences in risk and performance across industries[29].

5.1.2.2 Variable definitions for the KAM determinants study

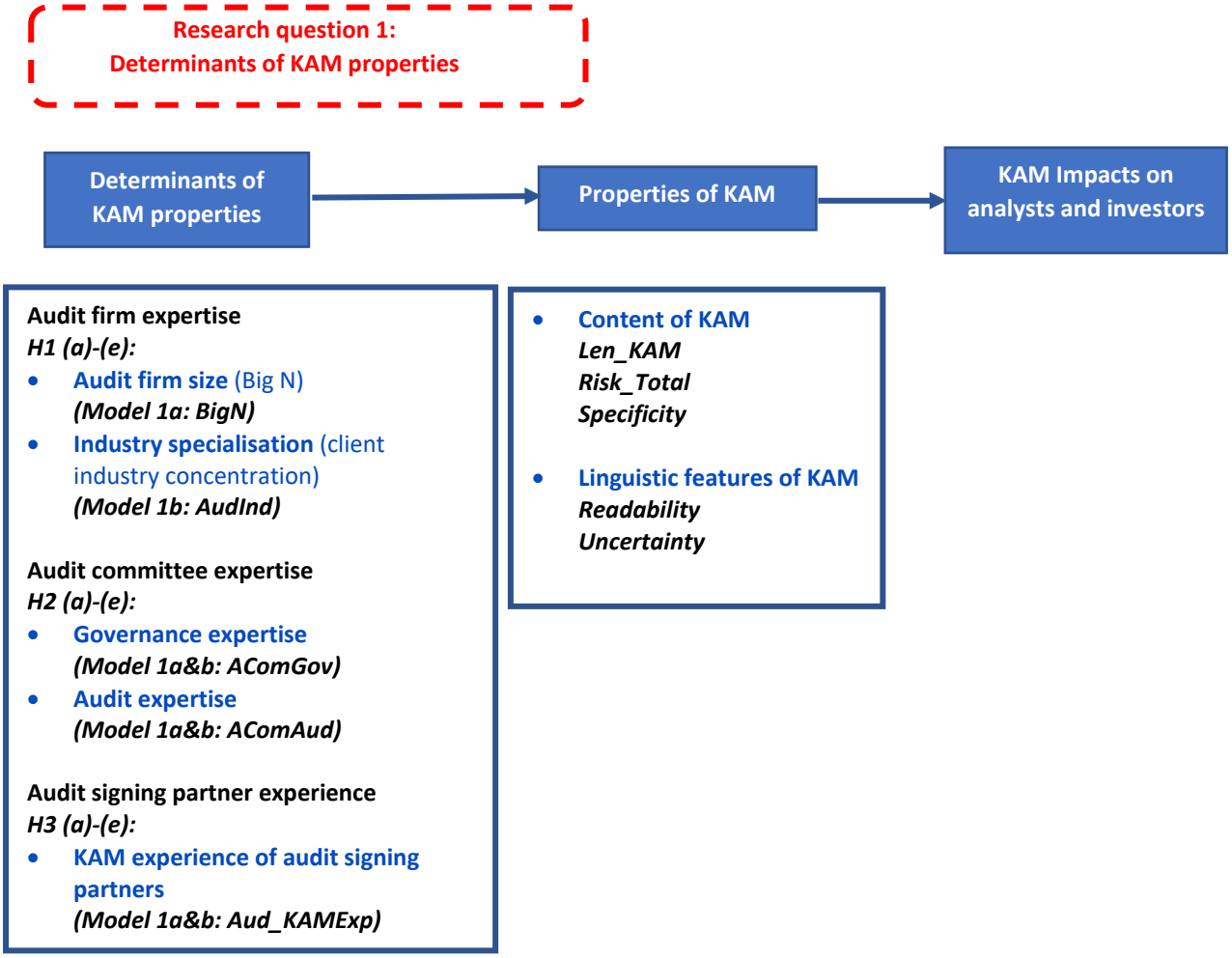
This section presents all the variables used in the KAM determinants analyses in three subsections. The first subsection will describe the independent variables, i.e., proxy variables for audit firm expertise, audit committee expertise, and audit signing partner KAM experience. The second subsection will describe the dependent variables, capturing the KAM content and linguistic features. The final subsection will present the control variables used for the determinants models.

[28] *AudInd* is only tested on the Big N subsample because *AudInd* highly varies within the Big N subsample. It has a minimum, an average and a maximum value of 3.28%, 26.5% and 42.71%, respectively. In contrast, the range of *AudInd* for the non-Big N subsample is limited, with an average of 0.80% (min: 0.05%, max: 4.16%)
[29] The control variables and fixed effects are discussed in Section 5.1.2.2 (III) and Appendix A.

I. The independent variables for the KAM determinants study

The variables of interest are indirect measures of the expertise of audit firms and audit committees, and the KAM experience of audit signing partners. These characteristics are expected to influence KAM properties. Table 5.2 lists the independent variables included in equations 1a and 1b.

Figure 5.1 Summary of hypotheses, models, and variables for the KAM determinants study



Audit firm expertise

Audit firm expertise is captured by the size and industry specialisation of an audit firm. Model 1a measures the firm expertise of the entire sample using the size of audit firms, as captured by the Big N indicator (*BigN*). *BigN* is set equal to one if an audit firm is a Big 4 firm, i.e., PwC, Deloitte, EY, or KPMG, and zero otherwise. As discussed in Subsection 2.3.1, reputation and litigation incentives are believed to drive Big N audit firms to provide high-quality audit outputs (DeFond and Zhang 2014). Moreover, Big N firms usually have high-quality resources (DeFond and Zhang 2014,

Dopuch and Simunic 1982). Therefore, they can provide high-quality audit work. Ex-ante, this study expects differences in the incentives and competencies between Big N and non-Big N audit firms to influence their KAM properties because KAM are audit process outputs. For example, it could be that high public demand for particular KAM properties, like high readability and increased specificity, motivates audit firms with high reputations to supply these KAM properties.

Table 5.2 Independent variables for the KAM determinants study

1. ***Audit firm expertise: H1 (a)-(e)***
   Audit firm size
   - *(Model 1a: **BigN**)*

   Industry specialisation
   - *(Model 1b: **AudInd**)*

2. ***Audit committee expertise: H2 (a)-(e)***
   Governance expertise
   - *(Model 1a&b: **AComGov**)*

   Audit expertise
   - *(Model 1a&b: **AComAud**)*

3. ***KAM experience of audit signing partners: H3 (a)-(e)***
   - *(Model 1a&b: **Aud_KAMExp**)*

Model 1b captures audit firm expertise through industry specialisation (*AudInd*) and tests its effect on the Big N subsample. The audit literature finds audit firm industry specialisation an important characteristic contributing to audit quality (Habib and Bhuiyan 2011, Krishnan 2003, Payne 2008, Wu and Wilson 2016). Prior research (Gramling and Stone 2001, Rousseau and Zehms 2020) has used audit firm market share within given client industries to measure audit firm industry specialisation. This study employs this "market share" concept, assuming that audit firms can develop industry specialisation through an iterative process of providing similar services to clients (Balsam, Krishnan and Yang 2003), and industry-specific knowledge can be applied to the audits of other clients in the same industry, which are usually alike in economic, strategic, and operational aspects (Neal and Riley Jr 2004). Moreover, audit firms may be likely to invest more resources in industries, in which they already are specialised, to maintain their industry-specific reputations. Therefore, audit firm market share variations capture differences in the reputations and competencies of audit firms, potentially affecting KAM properties.

$AudInd_{ikt}$ is defined as audit firm *i*'s market share of industry *k* in year *t*, as measured by the percentage of audit fees that audit firm *i* earns from industry *k* in year *t* (Gramling and Stone 2001). In the percentage calculation, the denominator is the total audit fees paid by industry *k* to all audit

firms in year *t*. Nine industrial classifications are used to group firms and are derived from the first two digits of the Standard Industrial Classification (SIC) codes[30] (see Subsection 5.1.2.3 (III) under "Industry and year fixed effects" for the details regarding industry classification). Hence, audit-firm market share can be expressed using the following formula:

$$AudInd_{ikt} = \frac{\sum_{j=1}^{J_{ikt}} Audit\ fees_{ijkt}}{\sum_{i=1}^{I_{kt}} \sum_{j=1}^{J_{ikt}} Audit\ fees_{ijkt}}$$

where:

$\sum_{j=1}^{J_{ikt}} Audit\ fees_{ijkt}$ = audit fees of J_{ikt} clients of audit firm *i* in industry *k* of year *t*, and

$\sum_{i=1}^{I_{kt}} \sum_{j=1}^{J_{ikt}} Audit\ fees_{ijkt}$ = audit fees of J_{ikt} clients in industry *k* of year *t* summed over all I_{kt} audit firms with clients (J_{ikt}) in industry *k* of year *t*.

Audit committee expertise

Some audit committee characteristics reflecting governance effectiveness have been found to influence the readability of KAM (Velte 2018, 2019). This may suggest that audit committees influence the KAM production process. This study further examines the effects of audit committee effectiveness on KAM properties by using two measures of audit committee expertise, i.e., governance (*AComGov*) and audit (*AComAud*) expertise. *AComGov* and *AComAud* are constructed as continuous variables to avoid issues arising from arbitrarily chosen cut-off points and lost information[31].

Prior studies find that having audit committee members who possess multiple directorships is positively associated with a given audit committee's governing effectiveness (Bédard, Chtourou and Courteau 2004). This suggests that audit committee members with more outside directorships are more competent, have more governance expertise, and have increased reputation risk, if found less than competent. Moreover, DeZoort (1998) documents that audit committee members with more independent directorship experience and audit knowledge are more likely to side with auditors in disputes with management. As the KAM ruling is relatively new, most audit committee members may not fully understand its utility and effect. This study predicts that an increase in audit

[30] In the sensitivity tests, audit firm industry specialisation is additionally constructed from two-digit SIC codes.
[31] Some cut off methods, such as using tercile rank, reduce the number of observations and, thereby, lower the statistical power of the test. Moreover, data detail is lost after transforming a continuous variable into a dummy variable.

committee KAM familiarity and understanding through outside directorships or audit experience should enhance their effectiveness in working with auditors to issue KAM – an audit committee with greater governance or audit expertise may encourage auditors to write more useful KAM, thereby accounting for KAM variations.

This study captures the KAM expertise of the audit committee via *AComGov*, which is constructed as the percentage of audit committee members[32] serving on the audit committees of other premium listed companies in year *t*. As UK premium listed companies are required to disclose KAM, a position in an audit committee at one of these companies should increase an audit committee member's understanding of KAM and KAM governance expertise.

Prior studies[33] (Krishnan and Visvanathan 2008, Lee, Mande and Ortman 2004, Lisic et al. 2017, Mangena and Tauringana 2008, Othman et al. 2014, Sun, Lan and Liu 2014, Velte 2019) examine audit committee accounting, financial, and industry expertise by measuring the proportion of audit committee members who have such expertise. To be consistent with these studies, *AComAud* is the percentage of audit committee members of a given company who possess audit expertise. This study measures audit expertise by searching for audit experience[34] related keywords in each audit committee member's profile.

Audit signing partners' KAM experience

Prior studies find that audit partner tenure affects audit quality; however, the direction of the effect is unclear. On the one hand, long tenure may threaten auditor independence and erode audit quality (Carey and Simnett 2006). On the other hand, audit partners who have long client tenure can accumulate client-specific knowledge and expertise. Hence, they should be more

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[32] Prior studies (Othman et al. 2014, Sun, Lan and Liu 2014) measure the audit committee governance expertise using the average number of other companies' boards served by audit committee members. This measure is not adopted because it may not capture the overall KAM expertise of the audit committee. For example, a high value of this measure possible resulted from only one or a few members having a high number of outside directorships. Therefore, this study uses the proportion of members with multiple outside directorships to better capture the KAM understanding of overall audit committees.

[33] Although prior studies usually examine the effect of accounting, financial, and industry experts, this study only focuses on audit experts, a subset of accounting and financial experts, because KAM disclosure is auditing-specific knowledge. Therefore, this study hypothesised that the audit committees' effectiveness in monitoring auditors' KAM production should be more associated with their auditing knowledge. DeFond, Hann and Hu (2005) define accounting and financial experts as those audit committee members that have audit experience – i.e., a public accounting, CPA, or auditor - and corporate accounting experience – i.e., principal financial officer, CFO, controller, principal accounting officer, or chief accounting officer.

[34] The keywords for audit experience include "chartered accountant, qualified accountant, audit partner, auditor, CPA, ACA, auditing and audit firms' names". The study includes 30 audit firms, such as PWC, EY, and Grant Thornton, in the search. These audit firms are retrieved from audit firms that issue auditors' reports to the UK companies with a premium listing in the LSE during the period examined by the study (See Appendix D for the full list of audit firms used in the search.)

competent in detecting misstatements, reducing audit risk, and, thereby, increasing audit quality (Chen, Lin and Lin 2008, Ghosh and Moon 2005, Myers, Myers and Omer 2003).

Ex-ante, this study predicts that audit signing partner client-specific KAM knowledge should impact KAM properties. Therefore, the final test variable in the KAM determinants model is audit signing partner KAM experience with the client (*Aud_KAMExp*). Like a measure of audit partner tenure, *Aud_KAMExp* equals the number of consecutive audit reports with a KAM section that the signing audit partner has issued to the given client. The names of signing audit partners are manually gathered from audit reports containing a KAM section and issued to the client company.

II. The dependent variables for the KAM determinants study

The dependent variables for the KAM determinants study are all proxies for KAM properties which can be grouped either as KAM content or KAM linguistic features. The first subsection discusses three variables (*Len_KAM, Risk_Total*, *and Specificity*) used to capture the content of KAM. The second part explains the two linguistic features of KAM (*Readability and Uncertainty*).

The content of KAM

The content of KAM explains the overall composition of information disclosed in KAM. This study uses three variables to measure three distinct features of KAM content - the disclosure volume (*Len_KAM*), the proportion of the KAM section devoted to the risk description (*Risk_Total*), and the proportion of words related to specific entity names (*Specificity*).

The first measure, disclosure volume, captures both the extent of information and the complexity of disclosure. On the one hand, an extended disclosure usually includes more information. On the other hand, a longer description requires greater reader effort and resources to decipher. This study measures the disclosure volume (*Len_KAM*) by dividing the total word count of the KAM section by the number of disclosures in it (Rousseau and Zehms 2020).

Secondly, the proportion of KAM used to explain the risk (*Risk_Total*) captures the extent of KAM information an auditor devotes to explaining the nature of risk. In general, each KAM disclosure includes two pieces of information, (1) the nature of the risk, explaining why the auditor defines the issue as a KAM item, and (2) audit procedures employed to examine the issue. However, some KAM samples may include voluntary discussions of audit findings. Prior studies find that the variation in information about risk and audit procedures is associated with investor confidence in audit quality (Kipp 2017) and increased trading volume (Liao et al. 2019). These findings suggest that the description of risk differs from the description of audit procedures. This study constructs *Risk_Total* by dividing the total number of words in the KAM used to explain the nature of risk by the total

number of words in the KAM section. This measure is a continuous variable ranging between 0 and 1 - implying that as the proportion of KAM devoted to risk description increases, the proportion of KAM devoted to audit procedure descriptions must decrease.

KAM specificity (*Specificity*) is also a focus of this study because it is seen to improve the usefulness of KAM (FRC 2015, Gray et al. 2011, ICAEW 2007). Unique information in the KAM should help readers relate specific accounts to events, stakeholders, and business segments, and incorporate KAM information into their decision making. Following Hope, Hu and Lu (2016), this study captures KAM specificity using the proportion of words related to named entities (i.e., entity/organisation names, person names, locations, dates, monetary quantities, percentages, and other numerical quantities). Named entities, such as "83%", are more meaningful than general words or phrases such as "a large proportion." Therefore, the specificity of a sentence increases with the inclusion of words identified as named entities. For example, the sentence "the revenue related to permanent placements accounted for 83% of the Group's recruitment business in 2016 (2015: 83%)" is more specific than the sentence "The revenue related to permanent placements accounted for a large proportion of the Group's recruitment business" since the former sentence includes several named entities, i.e., percentages (83%) and the date (2015, 2016).

This study calculates *Specificity* by dividing the number of words related to all named entities in the KAM section by the number of total words in the KAM section[35]. This study uses the Named Entity Recognition (NER) feature in spaCy[36] (Honnibal et al. 2020) to identify named entities in the KAM section. spaCy's NER can label any named real-world objects in unstructured textual data using 18 classes[37] of named entities, such as persons, organisations, and dates (see Appendix E for the detailed classes of spaCy's named entities and examples). spaCy's NER uses the program-available model, pre-trained by its developers, to predict whether an object is a named entity. Appendix F shows two visual examples of KAM disclosures as processed by spaCy's NER. However, spaCy's NER may not be perfect for identifying specific words in KAM because spaCy's model was pre-trained on general examples. For example, Appendix F shows that spaCy's NER determines

[35] Hope, Hu and Lu (2016)'s specificity formula uses the number of specific words or phrases conveying specific information as a numerator. This study employs only the number of words related to specific information (named entities) in a numerator because it is more consistent with the denominator part of the specificity measure, which is the total number of words in the KAM section.

[36] spaCy is an open-source library for advanced Natural Language Processing (NLP) in Python. spaCy enables the study to process and understand natural language and recognise named entities in unstructured texts as it includes a default in-built pipeline, "ner", for named-entity recognition.

[37] Hope, Hu and Lu (2016) use a 7-class model in the Stanford NER, which can sort named entities into seven classes, including location, person, organisation, money, per cent, date, and time. spaCy can label named entities into 18 classes (See Appendix E), including the same classes in the Stanford NER and another 11 classes.

"Group's" as a named entity, although this word may not provide much specific information outside of the KAM context. To make spaCy's NER fit a specific task, users need to train the model with task-specific examples using the available training feature in spaCy. However, the study does not perform any model training[38] as it is out of the scope of the study. Instead, the study simply fine-tunes the results derived from the spaCy trained model to better capture the specificity in KAM by writing a Python command to scan through and exclude results[39] that do not identify sufficiently specific information.

The linguistic features of KAM

This study investigates two linguistic features of KAM: readability and uncertain tone. This study adopts the Gunning fog index, which was introduced to empirical accounting research by Li (2008) and used widely in previous KAM studies (Seebeck and Kaya 2022, Smith 2019, Velte 2018, 2019), to measure KAM readability. The Gunning fog index is a popular measure for readability used in the accounting, audit, and finance literature. According to Li (2008), the Gunning fog index is a function of words per sentence and the percentage of complex words in the passage and calculated as follows:

$$FOG = 0.4 \times \left(\frac{Total\ words}{Total\ sentences} + 100 \times \left(\frac{Total\ complex\ words}{Total\ words} \right) \right)$$

This formula accounts for complex sentences by using the average number of words per sentence. Moreover, it further captures complex vocabulary, through the percentage of words with three or more syllables. The average sentence length of the KAM section captures how difficult it is for readers to recall information after reading the whole KAM section. The greater the fog index, the less readable is the passage. Passages with a *FOG* between 8 and 10 are considered childish; between 10 and 12 are considered acceptable; between 12 and 14 are considered ideal; between 14 and 18 are considered difficult and; greater than or equal to 18 are considered unreadable (Li 2008). To enhance interpretation, this study uses an inverse measure of the fog index of a given KAM

[38] Employing a model trained by using task-specific data would ensure that a prediction will be more accurate than using a pre-trained model. However, training a new model is difficult, time consuming, and costly especially because it requires a data annotation and a large training dataset to prevent a model from overfitting. On the other hand, using a publicly-available pre-trained model in this thesis enables reproducibility and replicability of this KAM study.

[39] The named entities excluded from the calculation of *Specificity* comprise "s, 's, Group, Group's, Group's, the Group's, Company, Company's, Companies, Companies', third-party, third, the Audit Committee, the year, the year end, year, year-end, the current year, the year-end date, annual, Refer".

section in the analyses (*Readability* = $\frac{1}{FOG_KAM}$), so higher values of *Readability* reflect higher measured readability.

The uncertain tone (*Uncertainty*) captures how much uncertainty an auditor expresses about the KAM. Following Lennox, Schmidt and Thompson (2019), Smith (2019), this study uses the proportion of uncertainty terms[40] within KAM to measure the uncertain tone. The uncertainty terms are those 297 words presented in the Loughran-McDonald Sentiment Word Lists (Loughran and McDonald 2020). A complete list of uncertainty words is in Appendix G.

III. The control variables for the KAM determinants study

To evaluate the effects of audit firm expertise, audit committee expertise, and audit signing partner KAM experience on KAM properties, this study controls for client-related factors and audit engagement features which may influence KAM content and linguistic features. The KAM determinants models include 18 control variables described in the following two subsections. Furthermore, the last subsection discusses the inclusion of industry fixed effects and year fixed effects to control for the effects of the variations of KAM within industries and KAM reporting years.

Client-related factors

This subsection explains the variables which control for client-related factors, including the fundamental characteristics of the client, economic activities occurring in the current engagement, and audit committee gender diversity. In line with prior KAM determinants studies (Christofferson and Grönberg 2018, Ferreira and Morais 2019, Njenga 2019, Pinto and Morais 2019, Rousseau and Zehms 2020, Sierra-García et al. 2019, Smith 2019, Velte 2018, 2019, Zhang and Shailer 2018) and corporate disclosures (Abraham and Cox 2007, Franco et al. 2015), this study controls for audited company characteristics by including *Curr*, *GoingCon*, *Lev*, *Age*, *LnSeg*, *LnSize*, *Loss*, *ReternVol*, *ROA*, and *MB*. This study further controls for engagement-specific economic activities by using *Acq*, *CrossList*, *EquityIssue, RD,* and *SP_Item*. These client-related variables capture client performance, complexity, riskiness, and information environment, as further described below.

The performance measures include loss (*Loss*) and return on assets (*ROA*). *Loss* is a dummy variable that equals one if the client's current-period net income is negative and equals zero otherwise (Rousseau and Zehms 2020, Sierra-García et al. 2019). Negative performance indicates client financial stress, thereby possibly increasing the likelihood of financial statement manipulation and audit risk (Ireland and Lennox 2002). In response, auditors may perform more intense audit

[40] The uncertainty terms are those words, i.e., almost, perhaps and unsettled, presented in the Loughran-McDonald Sentiment Word Lists (2018), published on <https://sraf.nd.edu/textual-analysis/resources/>.

work to mitigate the potential risk of future litigation. Therefore, the study expects positive relationships between *Loss* and *Len_KAM*, *Specificity*, and *Uncertainty* and negative relationships between *Loss* and *Risk_Total* and *Readability*. *ROA* is another measure of client performance, calculated as net income before extraordinary items divided by total assets (Sierra-García et al. 2019, Velte 2018). A profit number is normally used to calculate the materiality of the audit, which is then used to determine the scope of audit work. A lower profit means a lower materiality level, implying greater audit risk and a greater audit scope. Consistent with Christofferson and Grönberg's (2018) findings, this study expects a decrease in client performance to increase audit risk and work. Therefore, increasing client performance may be associated with more words in KAM, a greater proportion of the KAM section describing audit procedures, more specific information, a more uncertain tone, and possibly less KAM readability.

The complexity of audit engagement is captured via client characteristics (i.e., *Age*, *LnSize*, *LnSeg*, and *MB*) and economic activities (i.e., *Acq*, *Cross_List*, *EquityIssue*, and *SP_Item*). Pinto and Morais (2019) argue that complexity is usually associated with audit risk, leading to increased auditor reputation and litigation risks. In response, auditors may pay more attention and perform more extensive audit procedures. Moreover, KAM can help reduce auditor litigation costs because auditors are found to be less responsible for misstatement when their prior KAM include information related to the misstated area and a measurement uncertainty (Kachelmeier et al. 2019). This study predicts that complexity is positively associated with the content and uncertain tone in KAM, but negatively associated with KAM readability.

Age is equal to the number of years a company has been listed on the LSE (Amiram et al. 2017, Franco et al. 2015, Smith 2019). This is a measure of client complexity because younger clients usually have more complex businesses and need more auditor attention than more mature clients. On the one hand, young firms, usually at the beginning of their growth stages, will undergo a lot of strategic changes, face uncertainties, and may not have well-developed internal control mechanisms. On the other hand, older firms are associated with a better information environment and lower information uncertainty (Li 2008). This study predicts that *Age* is negatively associated with *Len_KAM*, *Specificity*, and *Uncertainty* and positively associated with *Risk_Total* and *Readability*. *LnSize* is the natural logarithm of total assets (unit: thousand) at the firm's fiscal year-end (Sierra-García et al. 2019, Velte 2019). Large companies usually have more complex operations and are more likely to hire outside managers than small companies, meaning they are more related to agency problems. Therefore, auditors should pay more attention to the audit of larger companies. *LnSeg* is the natural logarithm of one plus the number of company business segments at the end of the previous fiscal year (Smith 2019, Velte 2019). Prior studies argue that segments are channels

management exploits to manipulate earnings (Pinto and Morais 2019). This study predicts that businesses with more units or geographic segments are more complex because auditors expend more effort and resources to understand the business and gather audit evidence. *LnSeg* and *LnSize* are logarithmic transformations to minimize scaling issues. The study also controls for client growth opportunities by using the market-to-book ratio (*MB*). *MB* is the market value at the end of the fiscal year divided by the book value at the end of the fiscal year (Amiram et al. 2017, Li 2008, Smith 2019, Zhang and Shailer 2018). Companies are usually involved in more complex activities or operations during their growth stage, in line with the Li's (2008) findings, showing growth firms annual reports are difficult to read. Hence, this study predicts that client complexity (*LnSize*, *LnSeg*, and *MB*) is positively related to average KAM length, proportion of KAM devoted to the audit procedure description, specificity, and uncertain tone in KAM, and is negatively associated with KAM readability.

This study includes several measures of client economic activities believed to increase the complexity of the audit engagement and, therefore, increase audit risk. The first variable captures special items in the financial statements (*SP_Item*), defined as a dummy variable equal to one if the audit report includes KAM related to exceptional or special items and zero otherwise. Special items in the KAM section reflect significant unusual events, as viewed by auditors. In addition, this study controls for the presence of unusual activities, including acquisition activities (*Acq*) and equity issuance (*EquityIssue*) (Li 2008, Rousseau and Zehms 2020, Smith 2019). *Acq* is a dummy variable that equals one if the company has acquisition expenditures in the current fiscal year and zero otherwise (Smith 2019). *EquityIssue* is a dummy variable equal to one if the company is listed in the Thomson One Equity Issuance Database as having issued an equity offering in the current fiscal year (Smith 2019). Companies trading their shares on multiple stock exchanges (*Cross_List*) (Amiram et al. 2017, Njenga 2019) may have complex transactions, accounting, and reporting because they are subject to multiple requirements across jurisdictions (Njenga 2019). The complexity of their operations may increase the need for experienced external managers, increasing agency problems and audit risk. This study assumes the aforementioned economic activities are complex for auditors and may be associated with uncertainty. Hence, they require more auditor attention and extra audit work. Therefore, this study predicts that the presence of these events may make KAM lengthier, less readable, and more specific, while increasing uncertain tone.

To control for client riskiness, the KAM determinants models include proxies for current assets (*Curr*) (Velte 2018, 2019), solvency (*Lev*) (Velte 2018, 2019), return volatility (*ReturnVol*) (Abraham and Cox 2007, Franco et al. 2015), and going concern issue (*GoingCon*) (Velte 2018, 2019). *Curr* is defined as current assets divided by total assets. Velte (2019) argues that a greater

proportion of current assets increases the opportunity for earnings management, giving rise to audit risk. *Lev* measures client financial risk, potentially affecting audit risk, and is calculated by dividing total debt by total assets. *ReturnVol* is the standard deviation of daily stock returns of the previous year. Companies with high stock volatility are associated with greater risk (Abraham and Cox 2007), higher complexity (Franco et al. 2015), and more information risk (Lehavy, Li and Merkley 2011). The last proxy for client riskiness is *GoingCon,* the dummy variable equal to one if the auditor's report includes a modified going concern audit opinion and zero otherwise (Velte 2019). Auditors include a going concern emphasis paragraph when they perceive a high level of uncertainty about a company's long-run survival. In other words, the indicator of a going concern disclosure is associated with firm risk (Ferreira and Morais 2019, Velte 2019). Since business risk, as determined by auditors, is highly related to audit risk (Kotchetova, Kozloski and Messier Jr 2006), this study predicts that client riskiness may be associated with KAM properties. When auditors undertake a high-risk engagement, auditors need to perform extensive audit work to reduce audit risk to an acceptable level. If auditors fail to detect material misstatements, auditors are less likely to be exposed to lawsuits if they have previously disclosed the area of misstatement in KAM and discussed measurement uncertainty (Kachelmeier et al. 2019). For these reasons, auditors facing greater audit risk may provide more voluminous KAM, dedicate a higher proportion of KAM to audit procedures, and use more uncertain-modal words in KAM.

Moreover, this study controls for proprietary costs by using the level of R&D investment (*RD*) (Hope, Hu and Lu 2016). This study assumes that clients with higher proprietary costs may be less willing to share insider information with auditors, especially when KAM may create a higher risk of information leakage. As a result, this study expects that businesses with high proprietary costs will have less specific and less readable KAM.

This study further controls for the effectiveness of client corporate governance, as measured by the percentage of female audit committee members (*AComFem*). Velte (2018) finds that the proportion of female audit committee members is positively associated with KAM readability. Velte (2018) reasons that female audit committee members are more risk-averse and conservative. Therefore, they are likely to promote activities which reduce agency conflicts and closely collaborate with external auditors to increase financial reporting quality. Besides KAM readability, this study predicts that the high risk-aversion of female audit committee members may also influence the KAM content and uncertain tone. To ensure the audit is sufficient to address risks of material misstatement, these female members may support auditors to perform extensive audit work, leading to a greater average length of each KAM disclosure and a higher proportion of KAM dedicated to audit procedures. Moreover, a risk-averse person usually dislikes uncertainty.

Therefore, this study predicts that *AComFem* is negatively associated with the proportion of uncertain tone in KAM.

Audit engagement features

Regulators are usually concerned that audit firms may be less independent and compromise audit quality when the client is their primary source of income, yet archival evidence shows that auditors provide higher-quality work to large clients (DeFond and Zhang 2014). No matter the direction of the effect of this economic tie between audit firms and clients regarding audit quality, the auditor-client economic bond may affect the audit outcome and KAM properties. Therefore, the KAM determinants models include a control variable to capture the economic relationship between an auditor and a client (*AudFee*). *AudFee* is calculated by dividing the audit fees earned from a given client by the total audit fees an audit firm generates from all clients during the same fiscal year (Rousseau and Zehms 2020).

Moreover, this study controls for the possible effect of audit busy seasons (*DecYE*) on KAM properties. Following Rousseau and Zehms (2020), *DecYE* is equal to one for audits having a fiscal year ending in December and zero otherwise, because most listed firms have December fiscal year-ends. During the busy period, fewer senior auditors are allocated to each engagement, thereby reducing audit quality (Heo, Kwon and Tan 2021). Perhaps, imbalanced workloads during this busy period reduces auditor ability to conduct in-depth investigations. Hence, this study expects *DecYE* to be negatively associated with the average length of each KAM disclosure and the specificity in KAM and positively associated with the proportion of KAM devoted to the risk description, KAM readability, and uncertain tone.

For the specificity analysis, for which *Specificity* is an outcome variable, models 1a and 1b additionally control for the proportion of KAM devoted to the risk description (*Risk_Total*). This is because most specific information usually explains risk factors rather than audit procedures. Therefore, the higher the proportion of KAM devoted to describing risk, the more specific information the KAM section contains.

Industry and year fixed effects

Consistent with prior KAM determinants research (Njenga 2019, Rousseau and Zehms 2020, Sierra-García et al. 2019, Velte 2018, 2019), the KAM determinants models include both industry and year fixed effects controlling for systematic changes in KAM properties across sectors and reporting periods. Although firm fixed effects may be better than industry fixed effects in controlling for

unobservable company effects, the determinants study does not include firm fixed effects due to the low variation of auditor and audit committee characteristics within the sample.

Industry fixed effects account for variations in the complexity of accounting requirements, transactions, and business activities across sectors, which should be directly associated with the audit nature and scope. Hence, the content and the linguistic features of KAM should vary by industry as KAM include both the most significant issues and audit procedures used in an audit engagement. Each observation is classified into one of eight business sectors (as identified from the first two digits of the SIC[41]): (1) 01 - 09 agriculture, forestry, & fishing, (2) 10 - 14 mining, (3) 15 - 17 construction, (4) 20 - 39 manufacturing, (5) 40 - 49 transportation & public utilities, (6) 50 - 51 wholesale trade, (7) 52 - 59 retail trade, and (8) 70 - 79 services.

Year fixed effects are employed to control for KAM disclosure trends and address macro-level events which may impact the content and linguistic features of KAM. For example, in a given prior year period, auditors may have been unsure what to include in the KAM while still producing short and readable KAM. In following years, when auditors have more experience writing KAM and see more KAM reviews and guidelines, auditors may have a better sense of what to include. Therefore, they would write longer KAM, possibly affecting the other KAM properties. Each observation is classified into one of the four KAM periods observed during the study. The first-year period[42] is the first year of which KAM disclosure is available for a given company.

5.1.2.3 Estimation method – OLS with clustering

In a panel data analysis, the residuals of the data set may likely correlate across firms and time. Hence, using the conventional ordinary least squares (OLS) method with unadjusted standard errors (OLS standard errors) or heteroscedasticity-adjusted standard errors (i.e., White standard errors) may still yield biased standard errors because both estimation methods are based on the assumptions that there is no correlation of the errors across observations. Petersen (2009) suggests that when analysing panel data with a short time series, researchers may employ time fixed effects (a parametric approach) to address the correlation structure of the residuals within time and estimate the standard errors clustered by firms to address the correlation between observations of

[41] This study follows the SIC structure presented on https://siccode.com/page/structure-of-sic-codes, including ten major categories. There is no observation from finance, insurance, real estate (60 - 76) and public administration (91 - 99), so the determinants analyses do not include these two categories.
[42] The first KAM disclosure issued for each company is between 2013 and 2014, depending on the fiscal year-end dates as the KAM ruling is applied for the financial statement audit of the periods commencing on or after 1 October 2012 (FRC 2013).

the same firms in different years. Petersen (2009) shows that following this approach will yield unbiased standard errors and correct confidence intervals.

Given the structure of the KAM sample drawn from the data over a short period of three to four years, the KAM determinants study employs OLS with year dummies and cluster-adjusted standard errors at the firm level to address the potential correlation of errors across observations. Following Rousseau and Zehms (2020), this study employs several control variables which capture client characteristics (see Subsection 5.1.2.2 (III)) to mitigate possible endogeneity problems arising from clients with similar economic circumstances which have similar demand for expert audit firms or audit committees and KAM properties. In all KAM determinants models, continuous variables are winsorised at the 1st and 99th percentiles to reduce the potentially confounding effects of outlier observations, following prior KAM determinants studies (Rousseau and Zehms 2020, Zhang and Shailer 2018).

5.1.2.4 Measures to address endogeneity

Regarding the nature of the archival data, the models, and the sample structure of this study, it is possible that audit firms, audit committees, and audit partners are not randomly recruited. For example, companies with particular KAM characteristics may prefer hiring specialised, experienced auditors, and nominating high-quality audit committee members. If this is the case, results based on OLS regression may be biased by endogenous selection. In the primary analysis models for the KAM determinants hypotheses (H1 to H3), multiple linear regression (MLR) models with industry fixed effects could partially address the endogeneity issues introduced by this non-random treatment assignment. This study has attempted to include a comprehensive list of control variables to capture the characteristics of firms that may influence both outcome variables and explanatory variables. However, the MLR models require a strong assumption of a linear relationship between these confounding variables and the outcome variables. If the relationships are non-linear, using multiple linear regressions in the estimates can lead to biased coefficients and error terms, leading to bias in parameter estimation (Shipman, Swanquist and Whited 2016).

Therefore, this study employs a propensity score-matched (PSM) regression to reduce the reliance on a strong assumption of the functional form of the variables while still addressing endogenous selection (Rosenbaum and Rubin 1983). The PSM regression is a commonly used technique (Guo and Fraser 2014). In audit research, PSM is often used to address the endogenous selection of expert auditors, such as regarding Big N firms (DeFond, Erkens and Zhang 2017,

Lawrence, Minutti-Meza and Zhang 2011) and industry-specialised audit firms (Ali, Klasa and Yeung 2014, Wu and Wilson 2016).

PSM regression employs two-stage regression models to estimate a treatment effect by controlling for observed unbalanced characteristics within the sample that may lead to an endogenous selection. The purpose of the first-stage regression is to estimate a model to compute a propensity score for each observation in the sample. The scores, which are fitted values from the estimated model, reflect the conditional probability that an observation is assigned to a particular treatment (i.e., the company will hire an expert audit firm, expert audit committee members, or a KAM-experienced audit signing partner) given a set of observed characteristics. Observations with similar propensity scores are alike in their observed baseline characteristics. Then, this study matches the treated with the non-treated observations with similar propensity scores in the original sample to create a new subsample with balanced baseline characteristics. The second-stage regression is employed to validate the treatment effect by re-estimating the primary multiple regression model, in which the characteristic of interest is captured as a dummy variable, using the subsample generated from the previous matching step. This second-stage regression further controls for other unbalanced covariates not fully mitigated by the first matching step.

This study employs separate PSM regressions to test the effects of audit firm expertise, audit committee expertise, and audit signing partner KAM experience. In the sensitivity tests of hypotheses H1 and H3, the first stages of the PSM regressions employ logit models (see a binary logistic model in Equation 1c) to estimate the inherent likelihood of a given client hiring an expert audit firm, an expert audit committee, and an audit signing partner with KAM experience. This study assumes a linear relationship between the explanatory variables and the log-odds of the event such that Y = 1. In the test of the effects of audit firm expertise (H1) and audit signing partner KAM experience (H3), the first-stage models (see Equation 1d) include variables capturing audit committee expertise (*AComGov* and *AComAud*), industry dummies, year dummies, and all controls used in the main models 1a and 1b, except *AudFee* and *GoingCon*. In the test of the effects of audit committee expertise (H2), the first-stage models (see Equation 1e) include only industry dummies, year dummies, and control variables. The linear relationships are expressed as below:

P (Y=1|X = x) for all observations in the full sample ---------- (*1c*)

$$ln\left(\frac{P}{1-P}\right) = \boldsymbol{\delta}_0 + \boldsymbol{\delta}_1 AComGov + \boldsymbol{\delta}_2 AComAud + \sum_{j=3}^{k} \boldsymbol{\delta}_k Controls + \varepsilon \quad \text{---------- (1d)}$$

$$ln\left(\frac{P}{1-P}\right) = \boldsymbol{\delta}_0 + \sum_{j=1}^{k} \boldsymbol{\delta}_k Controls + \varepsilon \quad \text{---------- (1e)}$$

The dependent variable (*Y*) in Equation 1c is one of the dummy variables capturing the effects of Big N, audit firm industry specialisation, audit committee audit expertise, audit committee governance expertise, and audit signing partner KAM experience. Since all the variables of interest in the main models, except for *BigN*, are constructed as either continuous variables (*AudInd*, *AComGov*, and *AComAud*) or discrete variables (*Aud_KAMExp*) to preserve the original information, these non-binary variables of interest are transformed into dummy variables (*AudInd_dm*, *AComGov_dm*, *AComAud_dm,* and *Aud_KAMExp_dm*) for the first-stage PSM regressions.

In transforming *AudInd* to *AudInd_dm*, the cut off threshold is determined by multiplying the average percentage of each Big N firm's market fee share by 1.20, while assuming all Big N firms earn market share from an industry equally (Neal and Riley Jr 2004), meaning that audit firms are industry specialists when they earn at least 20 per cent more market fee share than average. Given the four big firms dominating the UK market, this rule yields a 30 per cent[43,44] fee market share as the cut-off for audit firm industry specialisation.

The non-dichotomous variables of interest related to audit committees (*AComGov* and *AComAud*) are converted to binary variables by using their lowest and highest terciles. When the values of *AComGov* and *AComAud* fall into the highest (lowest) terciles, *AComGov_dm* and *AComAud_dm* are coded as one (zero). Observations in the middle tercile are not used as their values are close to their group medians. Regarding audit signing partner KAM experience, the study constructs *Aud_KAMExp_dm* by using a classification of auditor turnover to study the effects of audit signing partners with and without KAM experience on KAM properties. *Aud_KAMExp_dm* equals one if the *Aud_KAMExp* is one and zero otherwise.

After the first-stage estimations, this study follows prior audit research by employing one-to-one nearest neighbour matching (without replacement), subject to a maximum tolerance distance, known as a caliper. Following Rosenbaum and Rubin (1983), the caliper is set at 0.02[45], which is less than a quarter of the standard deviation of the propensity score obtained from the first stage logit model. Before the new subsamples are employed in the second-stage regression analyses, this study

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[43] In prior research, the cut-off in determining the audit-firm industry specialisation varies from 20 per cent (Ferdous 2015, Palmrose 1986) to 30 per cent (Reichelt and Wang 2010, Sierra-García et al. 2019) of the market fee shared by an audit firm within a client industry.

[44] The UK audit market is dominated by four big audit firms. Therefore, on average, each big firm without specialisation would share 25 per cent (100% / 4 firms) of the market fee share. Multiplying this 25 per cent by 1.20 yields 30 per cent.

[45] The study additionally employs caliper distances of 0.01 and 0.03 in the sensitivity tests. All the untabulated PSM regression results are held, except that the Big N effects on *Readability* and *Uncertainty* disappear when the study imposes 0.01 and 0.03 as caliper distances. The Big N effect on *Len_KAM* has gone when 0.03 is used as a caliper.

checks the univariate results of the mean differences in the matching covariates to ensure the observations in the matched subsamples have balanced baseline characteristics.

In the second-stage regressions, the non-dichotomous variables of interest in the main regression models (*Model 1a* or *Model 1b*) are substituted with dummy variables. The models employed in the second-stage regression analyses are presented below:

<u>The full sample second-stage PSM models</u>

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{BigN}_{i,t} + \beta_2 AComGov_{i,t} + \beta_3 AComAud_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1f)$$

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{AComGov_dm}_{i,t} + \beta_2 BigN_{i,t} + \beta_3 AComAud_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1g)$$

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{AComAud_dm}_{i,t} + \beta_2 BigN_{i,t} + \beta_3 AComGov_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1h)$$

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{Aud_KAMExp_dm}_{i,t} + \beta_2 BigN_{i,t} + \beta_3 AComGov_{i,t} + \beta_4 AComAud_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1i)$$

<u>The Big-N subsample second-stage PSM models</u>

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{AudInd_dm}_{i,t} + \beta_2 AComGov_{i,t} + \beta_3 AComAud_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1j)$$

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{AComGov_dm}_{i,t} + \beta_2 AudInd_{i,t} + \beta_3 AComAud_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1k)$$

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{AComAud_dm}_{i,t} + \beta_2 AudInd_{i,t} + \beta_3 AComGov_{i,t} + \beta_4 Aud_KAMExp_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1l)$$

$$KAMProp_{i,t} = \beta_0 + \beta_1 \boldsymbol{Aud_KAMExp_dm}_{i,t} + \beta_2 AudInd_{i,t} + \beta_3 AComGov_{i,t} + \beta_4 AComAud_{i,t} + \sum_{j=5}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1m)$$

Equations *1f* to *1i* are used to test treatment effects on the PSM-full subsample created from the entire sample, while equations *1j* - *1m* are for analysing the treatment effects within the PSM-Big N subsample.

5.2 Examining the impacts of the nature of KAM categories and KAM properties on analysts and markets (H4 to H9)

Section 5.2.1 will describe the sample and the data collection process used in the KAM impact study. Finally, Section 5.2.2 will present the models and variables used to examine the impacts of KAM categories and KAM properties on analysts and investors.

5.2.1 Sample selection and data collection methods for the KAM impact study

5.2.1.1 Data for the impact study

Like the KAM determinants study, the impact study is conducted on data from UK public companies with premium equity listings on the LSE and covers a four-year[46] window beginning with ISA (UK and Ireland) 700 adoption, i.e., the last quarter of 2013 (see the rationale for the sample selection in Section 5.1.1.1). Since the UK KAM are similar to the IAASB KAM, examining the UK user reactions to the KAM should enhance the understanding of the potential outcomes of KAM implementation in other jurisdictions. In addition, using UK data to examine KAM impact is acceptable in audit research, as most prior KAM impact studies employ UK evidence (Bens, Chang and Huang 2019, Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Reid et al. 2015). However, the results of these studies are mixed[47] and, therefore, worth further investigation by examining whether market reactions to KAM are conditioned by the nature of KAM categories and KAM properties.

5.2.1.2 Data collection of the variables for the impact study

As seen in the study of KAM determinants, this KAM impact study focuses on KAM properties (see the KAM data collection process in Subsection 5.1.1.2). Moreover, this study expands to examine the impact of the nature of KAM categories, requiring us to classify each disclosure within a given KAM section manually. The classification process will be explained thoroughly in Subsection 5.2.2.2. Data used to determine several control variables related to auditor reports and annual reports, i.e., the

[46] This scope of post-ISA (UK and Ireland) 700 covered by this study is lengthier than most scopes coved by prior market impact studies, using a year (Lennox, Schmidt and Thompson 2019) or two years (Gutierrez et al. 2018, Reid et al. 2015) of post-ISA (UK and Ireland) 700. Bens, Chang and Huang (2019), who utilise a five-year post-ISA 700 period, support that the use of a too short-period sample in the prior studies may limit the power of the tests since the one or two-year samples may not reveal enough variations in audit disclosures for the researcher to study the KAM effects.

[47] While some studies (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021) do not find evidence that KAM is valuable to UK's market, others (Bens, Chang and Huang 2019, Reid et al. 2015) do

numbers of words in audit reports and annual reports, a materiality level, a going-concern audit opinion, are manually collected from audit reports.

Analyst-related data, such as analyst earnings forecasts and the number of analysts following a company are gathered from I/B/E/S via WRDS. Market data used to compute cumulative absolute abnormal returns and abnormal trading volume are obtained from Compustat-Capital IQ: Global (WRDS) –Security Daily. Bid and ask prices not available on Compustat are gathered from Refinitiv Datastream. Other data, including earnings release dates, and annual report release dates, are obtained from Refinitiv Datastream and Refinitiv Eikon.

5.2.1.3 Sample construction of the impact study

Table 5.3 reports the sample selections for the impact analyses which test hypotheses H4 to H9. Each sample construction starts with 326 initial firm observations and 1,291 firm-year observations (see Subsection 5.1.1.3 and Panel A of Table 5.1). Each sample set requires data to be complete for all dependent and independent variables. Moreover, each firm observation is required to have at least two firm-year observations, enabling a firm fixed effects transformation, which will be employed to address endogeneity. Therefore, for each sample used in the KAM impact analyses, this study further excludes from the initial firm-year observations the following observations: (1) firm-year observations without data necessary to compute the dependent variable of the analysis, (2) firm-year observations without complete data for determining the control variables of the analysis, and (3) firm observations that have only one firm-year observation with complete data for all variables of the analysis.

Panel A and Panel B present the samples used in the analyses of analyst earnings forecast dispersion (H4-9 (a)) and errors (H4-9 (b)), respectively. As the data regarding analyst earnings forecast dispersion and errors are from the I/B/E/S summary, this study uses only summary forecast data which includes at least three analyst estimates.[48] Therefore, 274 and 275 firm-year observations without such I/B/E/S identifiers or with less than three analyst estimates are further excluded from the initial samples in panels A and B. After excluding firm-year observations with missing data necessary to determine control variables and firm observations with only one firm-year

[48] A meaningful number of analysts is required to compute the standard deviation of the analyst estimates. Consistent with the analyst earnings forecast dispersion analyses, the same number of analysts is required to determine the magnitude of errors in the analyst consensus estimates.

observation, analyst earnings forecast dispersion dataset includes 954 firm-year observations and the error analyses dataset includes 952 firm-year observations.

Table 5.3 Sample construction for the impact analyses (H4 to H9)

Analysis samples for the impact analyses (H4 to H9)		
Panel A: H4-9 (a) - The analyst earnings forecast dispersion (*AnlDisp*) analyses	**Firm observations**	**Firm-year observations**
Compliance firm-years from Table 5.1 Panel A	326	1,291
Less: Missing data necessary to calculate ***AnlDisp***		(274)
Less: Missing data necessary to compute control variables and observations of firms that have fewer than two-year observations		(63)
Final Sample for analyst forecast dispersion analysis	253	954
Panel B: H4-9 (b) - The analyst earnings forecast error (*AnlErr*) analyses		
Compliance firm-years from Table 5.1 Panel A	326	1,291
Less: Missing data necessary to calculate ***AnlErr***		(275)
Less: Missing data necessary to compute control variables and observations of firms that have fewer than two-year observations		(64)
Final Sample for analyst earnings forecast error analyses	252	952
Panel C: H4-9 (c)-(d) - The cumulative absolute abnormal returns (*AB_RET*) & abnormal volume (*AB_VOL*) analyses		
Compliance firm-years from Table 5.1 Panel A	326	1,291
Less: Missing data necessary to calculate ***AB_RET*** & ***AB_VOL***		(47)
Less: Missing data necessary to compute control variables and observations of firms that have fewer than two-year observations		(198)
Final Sample for abnormal returns and **abnormal volume analyses**	278	1,046
Panel D: H4-9 (e) - The abnormal bid-ask spread (*AB_BAS*) analyses		
Compliance firm-years from Table 5.1 Panel A	326	1,291
Less: Missing data necessary to calculate ***AB_BAS***		(452)
Less: Missing data necessary to compute control variables and observations of firms that have fewer than two-year observations		(144)
Final Sample for abnormal bid-ask spread analyses	185	695

The analyses of cumulative absolute abnormal returns (H4-9 (c)) and abnormal trading volume (H4-9 (d)) employ the same sample seen in Panel C of Table 5.3. From the initial 1,291 observations, this study further removes 47 firm-year observations lacking the stock data necessary to compute cumulative absolute abnormal returns and abnormal volume. Further, this study excludes another 198 observations, which have incomplete data for determining the control variables for the market model or are the sole observation of a firm. The final sample for the abnormal returns and volume analyses is 1,046 firm-year observations.

Finally, Panel D of Table 5.3 shows that the study had to remove 452 firm-year observations because they do not have the Datastream identifiers needed to retrieve the bid and ask price data from Refinitiv Datastream. After observations with incomplete data for computing the dependent

and control variables of the bid-ask spread analyses are eliminated, only 695 firm-year observations remain for the bid-ask spread analyses (H4-9 (e)).

5.2.2 Data analysis methods of the impact study

This section has two main parts. Subsection 5.2.2.1 will explain the main multiple linear regression models and estimation methods used to examine the KAM impact hypotheses (H4 to H9 (a)-(e)). Subsection 5.2.2.2 will detail the variables of interest, outcome variables, and control variables included in the KAM impact models. Finally, Subsection 5.2.2.3 will explain the estimation method employed in the KAM impact analyses.

5.2.2.1 Multiple linear regression models

This subsection presents the multiple linear regression models employed to evaluate the impacts of KAM categories and properties on sell-side analysts and investors from several perspectives: (1) analyst risk perceptions and information asymmetry (H4 to H9 (a)); (2) analyst decision quality (H4 to 9 (b)); (3) information content (H4 to H9 (c)-(d)); and (4) information asymmetry among investors (H4 to 9 (e)).

Two sets of models are employed in the KAM impact study. The first set, which includes *Model 2a* and *Model 2b*, is designed to test sell-side analyst reactions. Model 2a examines the KAM effects on analyst risk perception and information asymmetry by using sell-side analyst earnings forecast dispersion (*AnlDisp*). Model 2b further validates the influence of the KAM on analyst dispersion quality, as measured by the magnitude of analyst beginning-of-year earnings forecast errors (*AnlErr*). The other set (Model 3), for which the dependent variable is a market proxy for investor reactions ($Investor_Reaction_{i,t}$), is developed to examine the KAM impacts on information content by using cumulative absolute abnormal returns (*AB_RET*) and abnormal trading volume (*AB_VOL*) and information asymmetry from the investor perspective by using abnormal bid-ask spreads (*AB_BAS*). Detailed explanations of all dependent variables used in the KAM impact analysis models will be presented in Subsection 5.2.2.2 (II). Figure 5.2 summarises the hypotheses, models, variables of interest, and outcome variables of the KAM impact study.

Sell-side analysts' reactions

Model 2a:

$$AnlDisp_{i,t} = \beta_0 + \beta_1 WIA_{i,t} + \beta_2 WIE_{i,t} + \beta_3 WCA_{i,t} + \beta_4 WCE_{i,t} + \beta_5 NIA_{i,t} + \beta_6 NIE_{i,t} + \beta_7 NCA_{i,t} + \beta_8 NCE_{i,t} + \beta_9 RIA_{i,t} + \beta_{10} RIE_{i,t} + \beta_{11} RCA_{i,t} + \beta_{12} RCE_{i,t} + \beta_{13} KAM_Len_{i,t} + \beta_{14} Risk_by_Total_{i,t} + \beta_{15} Specificity_{i,t} + \beta_{16} Readability_{i,t} + \beta_{17} Uncertainty_{i,t} + \sum_{j=18}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2a)$$

Model 2b:

$$AnlErr_{i,t} = \beta_0 + \beta_1 WIA_{i,t} + \beta_2 WIE_{i,t} + \beta_3 WCA_{i,t} + \beta_4 WCE_{i,t} + \beta_5 NIA_{i,t} + \beta_6 NIE_{i,t} + \beta_7 NCA_{i,t} + \beta_8 NCE_{i,t} + \beta_9 RIA_{i,t} + \beta_{10} RIE_{i,t} + \beta_{11} RCA_{i,t} + \beta_{12} RCE_{i,t} + \beta_{13} KAM_Len_{i,t} + \beta_{14} Risk_by_Total_{i,t} + \beta_{15} Specificity_{i,t} + \beta_{16} Readability_{i,t} + \beta_{17} Uncertainty_{i,t} + \sum_{j=18}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2b)$$

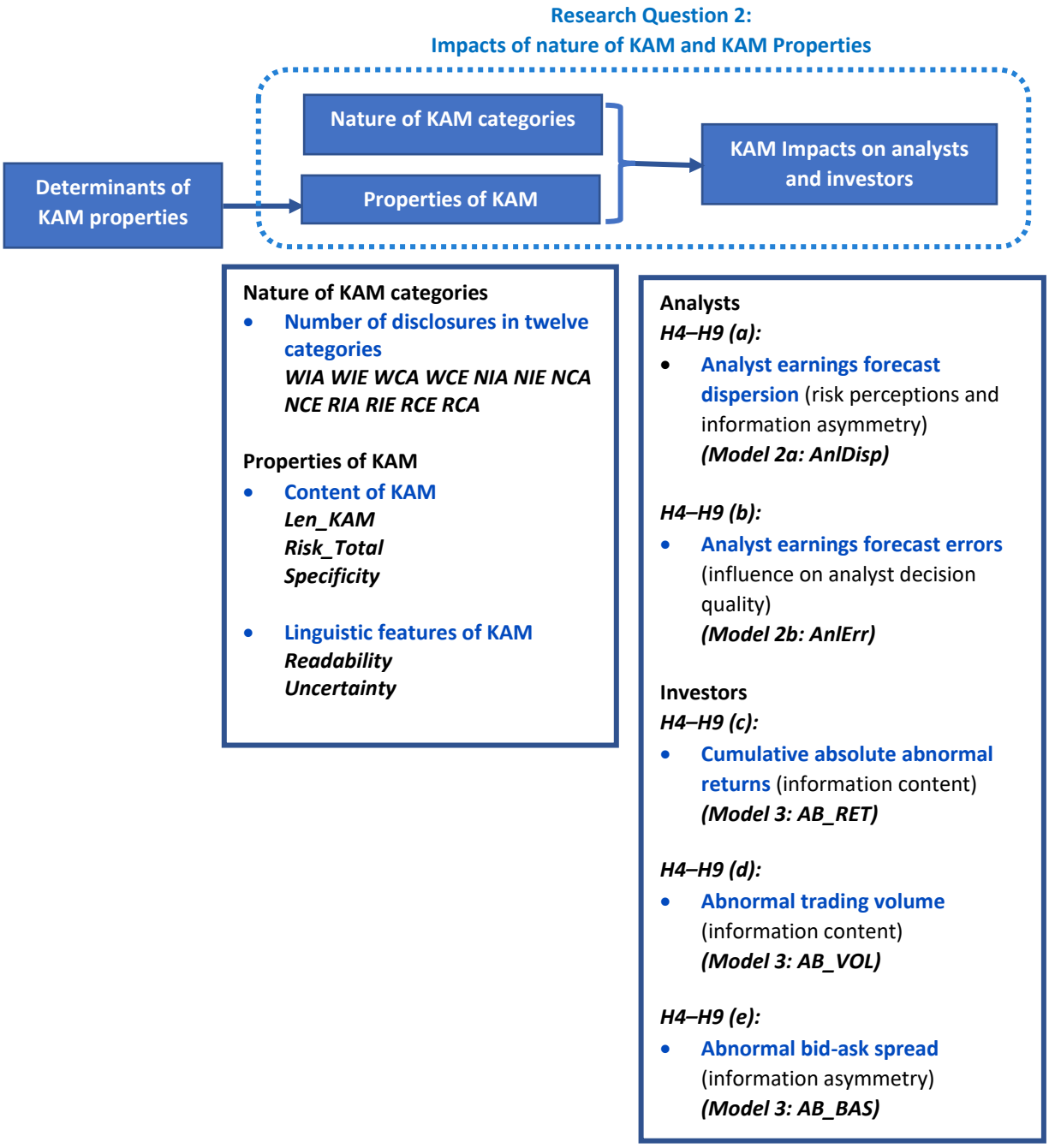
Investor's reactions

Model 3:

$$Investor_Reaction_{i,t} = \beta_0 + \beta_1 WIA_{i,t} + \beta_2 WIE_{i,t} + \beta_3 WCA_{i,t} + \beta_4 WCE_{i,t} + \beta_5 NIA_{i,t} + \beta_6 NIE_{i,t} + \beta_7 NCA_{i,t} + \beta_8 NCE_{i,t} + \beta_9 RIA_{i,t} + \beta_{10} RIE_{i,t} + \beta_{11} RCA_{i,t} + \beta_{12} RCE_{i,t} + \beta_{13} KAM_Len_{i,t} + \beta_{14} Risk_by_Total_{i,t} + \beta_{15} Specificity_{i,t} + \beta_{16} Readability_{i,t} + \beta_{17} Uncertainty_{i,t} + \sum_{j=18}^{k} \beta_j Controls_{i,t} + Fixed\ Effects + \varepsilon_{i,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The right-hand sides of equations (2a), (2b), and (3) include the two sets of variables of interest. The first set captures the nature of information in each KAM disclosure using twelve measures (*WIA, WIE, WCA, WCE, NIA, NIE, NCA, NCE, RIA, RIE, RCA*, and *RCE*). Each captures the number of disclosures in each of the twelve nature of KAM categories (see Subsection 5.2.2.2 (I) for the details regarding the measurements of the nature of KAM categories). The second set includes proxies for the KAM properties, as explained in Subsection 5.1.2.2 (II). Specifically, *Len_KAM*, *Risk_Total*, and *Specificity* are used to examine the effects of KAM content, and *Readability* and *Uncertainty* are used to test the effects of the KAM linguistic features. Figure 5.2 summarises all the variables of interest and dependent variables included in the impact analysis models.

Figure 5.2 Summary of hypotheses, models, and variables for the impact study



The combinations of variables used as control variables ($Controls_{it}$) in the three equations are different. Most of the variables in *Controls* of *Model 2a* and *2b* are the same, except that *Model 2b* additionally includes *Horizon*, which captures the duration (in days) between the mean forecast estimation date and the subsequent actual earnings announcement date. The set of control variables in *Model 3* is very different from those of models 2a and 2b because they are drawn from the literature related to market reactions. An in-depth explanation of the control variables is presented in Subsection 5.2.2.2 (III).

5.2.2.2 Variable definitions for the KAM impact study

This section presents the variables employed in the KAM impact analyses and is divided into three subsections: (I) the independent variables, (II) the dependent variables, and (III) the control variables used in the impact analyses. Figure 5.2 gives an overview of the independent and dependent variables (in italics) included in all models for analysing the KAM impacts on analysts and investors.

I. The independent variables for the KAM impact study

The KAM impact study consists of three proxies of KAM content (*Len_KAM*, *Risk_Total*, and *Specificity*) and two proxies of KAM linguistic features (*Readability* and *Uncertainty*), which are the same as the outcome variables examined in the KAM determinants study (see Section 5.1.2.2 (II) for the explanation for each proxy for KAM content and linguistic features). Moreover, the KAM impact study explores how the nature of the information presented in each KAM disclosure influences the reactions of analysts and markets. This study categorises the information in each KAM disclosure into one of the twelve KAM categories and captures these categories via twelve discrete variables (*WIA*, *WIE*, *WCA*, *WCE*, *NIA*, *NIE*, *NCA*, *NCE*, *RIA*, *RIE*, *RCA*, and *RCE*). Each variable presents the number of KAM disclosures pertaining to a given nature of KAM category. The classification method is explained in detail below.

The nature of KAM categories

Prior studies usually classify KAM disclosures into topic types, such as impairment of goodwill (intangible assets) and revenue recognition (Bens, Chang and Huang 2019, Liao et al. 2019) and the nature of information, such as recurring or non-recurring KAM disclosures (Bradbury and Almulla 2019, Lennox, Schmidt and Thompson 2021, Liao et al. 2019, Sierra-García et al. 2019). Regarding the nature of information, prior studies typically examine one dimension of such binary KAM data at a time, using either a dummy variable or two discrete variables in a model. However, several previously examined KAM dimensions are not mutually exclusive. Hence, examining each dimension in a separate analysis, as previously done, may not fully capture the information contained in the KAM.

Therefore, unlike these prior studies, this KAM impact study examines ***three*** dimensions of the nature of KAM (i.e., continuation, industry commonality, and extent of the KAM effect on financial statements) in a single model, using the interactions among these three dimensions to form twelve nature of KAM categories, captured by twelve discrete variables (see the formation of these categories in Table 5.4). Each variable captures the number of disclosures in the KAM section pertaining to a given nature of KAM category.

Table 5.4 The formation of the categories of information disclosed in KAM

Dimensions of Nature of KAM			Twelve discrete variables
The continuation	**The industry commonality**	**The extent of the KAM effect on financial statements**	
Withdrawn (W)	Industry-common (I)	Account-level-related (A)	WIA_{it}
		Entity-level-related (E)	WIE_{it}
	Company-specific (C)	Account-level-related (A)	WCA_{it}
		Entity-level-related (E)	WCE_{it}
Non-Repeated (New) (N)	Industry-common (I)	Account-level-related (A)	NIA_{it}
		Entity-level-related (E)	NIE_{it}
	Company-specific (C)	Account-level-related (A)	NCA_{it}
		Entity-level-related (E)	NCE_{it}
Repeated (R)	Industry-common (I)	Account-level-related (A)	RIA_{it}
		Entity-level-related (E)	RIE_{it}
	Company-specific (C)	Account-level-related (A)	RCA_{it}
		Entity-level-related (E)	RCE_{it}

*Note: **WIA** captures the number of prior-year disclosures excluded from the current year's KAM section, commonly disclosed by other companies in the same industry in the year before, and related to specific accounts. **WIE** captures the number of prior-year disclosures excluded from the current year's KAM section, commonly disclosed by other companies in the same industry in the year before, and related to many accounts in financial statements. **WCA** captures the number of prior-year disclosures excluded from the current year's KAM section, not commonly disclosed by other companies in the same industry in the year before, and related to specific accounts. **WCE** captures the number of prior-year disclosures excluded from the current year's KAM section, not commonly disclosed by other companies in the same industry in the year before, and related to many accounts pervasive throughout financial statements. **NIA** captures the number of current-year disclosures which do not repeat prior-year disclosures, are commonly disclosed by other companies in the same industry, and are related to specific accounts. **NIE** captures the number of current-year disclosures which do not repeat prior-year disclosures, are commonly disclosed by other companies in the same industry, and are related to many accounts in financial statements. **NCA** captures the number of current-year disclosures which do not repeat prior-year disclosures, are not commonly disclosed by other companies in the same industry, and are related to specific accounts. **NCE** captures the number of current-year disclosures which do not repeat prior-year disclosures, are not commonly disclosed by other companies in the same industry, and are related to many accounts in financial statements. **RIA** captures the number of current-year disclosures which repeat prior-year disclosures, are commonly disclosed by other companies in the same industry, and are related to specific accounts. **RIE** captures the number of current-year disclosures which repeat prior-year disclosures, are commonly disclosed by other companies in the same industry, and are related to many accounts in financial statements. **RCA** captures the number of current-year disclosures which repeat prior-year disclosures, are not commonly disclosed by other companies in the same industry, and are related to specific accounts. **RCE** captures the number of current-year disclosures which repeat prior-year disclosures, are not commonly disclosed by other companies in the same industry, and are related to many accounts in financial statements.*

The first dimension of the nature of KAM captures the continuation of risk disclosures. Eight of the twelve categorical variables capture the number of current-year KAM. Half of these variables relate to the current-year KAM and capture disclosures that are not repeated from the prior-year KAM and are defined as "Non-repeated disclosures: ***N***" (*NIA*, *NIE*, *NCA*, and *NCE*); the other half represent KAM disclosures that are repeated from the prior-year KAM and are defined as "Repeated disclosures: ***R***" (*RIA*, *RIE*, *RCA*, and *RCE*) (Bédard, Gonthier-Besacier and Schatt 2019, Lennox, Schmidt and Thompson 2019) [49]. Four variables present the number of prior-year KAM that have been excluded from the current-year KAM section and are denoted as "Withdrawn disclosures: ***W***" (*WIA*, *WIE*, *WCA*, and *WCE*). While prior studies only examine the impact of current-year KAM, this study explores the effect of the exclusion of prior-year KAM from the current-year KAM. In particular, this study tests analyst and investor reactions when a prior-year KAM disclosure is excluded from the current-year KAM section. If users react to this KAM reduction, it may imply that comparative KAM information is relevant to them.

In short, the first dimension of the nature of KAM places KAM into three groups: (1) disclosures from year *t-1* that no longer exist in year *t* (Withdrawn disclosures: W) ; (2) disclosures from year *t* that are not repeated from the disclosures occurring in year *t-1* (Non-repeated disclosures: N); and (3) disclosures from year *t* that are repeated from the disclosures found in the KAM of year *t-1* (Repeated disclosures: R). In short, the sum of these twelve KAM variables equals the sum of the number of current-year disclosures and the number of the prior-year withdrawn disclosures.

The second dimension discerns within-industry commonalities (industry-common or non-industry-common disclosures (i.e., company-specific))[50]. Each disclosure in a KAM section considered to be industry-common is given a label of "Industry-common: ***I***", and included in one of the six variables (i.e., W*I*A, W*I*E, N*I*A, N*I*E, R*I*A, and R*I*E) if it relates to topics that occur in at least fifty per cent of the auditors' reports of companies within the same industry (Lennox, Schmidt and Thompson 2021, Liao et al. 2019). Other disclosures not meeting this fifty per cent threshold are labelled as

[49] Bédard, Gonthier-Besacier and Schatt (2019) use a continuous variable which is a percentage of new matters included in the JOA section. Lennox, Schmidt and Thompson (2019) include two discrete variables; one captures the number of new disclosures that have never been disclosed in the prior-period KAM section, and the other captures the number of old disclosures that have been disclosed in the prior-period KAM section.
[50] Lennox, Schmidt and Thompson (2019) and Liao et al. 2019 employ two discrete variables to capture the number of industry-common and non-industry-common disclosures. A disclosure is classified as industry-common if its topic is commonly disclosed by other companies with the same-SIC industry code as the sample company. The benchmark is at least 50 per cent of the companies in the industry presenting the same topic. The other disclosures that do not comply with the definition of "industry-common" are grouped as non-industry-common. Bradbury and Almulla 2019 only employ a dummy variable to capture whether a KAM section includes a non-industry-common disclosure(s).

"Company-specific: ***C***" and included in one of these six variables, i.e., WCA, WCE, NCA, NCE, RCA, and RCE. In determining which topics are industry-common for industry *m* in year *t*, this study manually classifies all disclosures found in the observations in industry *m* in year *t* by topic type (as per Table 5.5). Table 5.5 presents the 31 types of KAM topics employed by this KAM impact study, including 28 topic types identified by the FRC (2015) and three topic types (contingent liabilities, IT-related matters and related-party transactions), which this study has added to account for KAM types which are frequently seen but have not been included in the FRC's (2015) list. Then, each of the 31 KAM-topic types from industry *m* in year *t* is classified as "industry-common" if it occurs in at least fifty per cent of the auditors' reports of industry *m* year *t*. Otherwise, it is defined as "company-specific".

Table 5.5 Thirty-one categories of disclosures

1	Accounting for long-term/complex contracts
2	Accounting for mining/oil/gas
3	Accruals
4	Acquisitions and disposals
5	Assets held for sale
6	Capitalisation
7	Contingent liabilities
8	Controls
9	Development costs
10	Exceptionals/Special items
11	Financial instruments
12	Fraud in revenue recognition
13	Going concern
14	Impairment of assets
15	Impairment of goodwill (intangible asset)
16	Insurance
17	Investments/Joint venture/ consolidation
18	IT-related
19	Legal provisions
20	Management override of controls
21	Other
22	Pensions
23	Provisions
24	Receivables
25	Related party transaction
26	Revenue
27	Share-based payments
28	Supplier discounts/incentives/rebates
29	Tax/taxation
30	Valuation of inventories
31	Valuation of property

Note: The categories are from 28 types of risk reported in the UK first-year experience review of KAM adoption (FRC 2015, p. 18) and the UK further review of experience (FRC 2016, p. 14). Three categories, including contingent liabilities, IT-related matters and related-party transactions, are added to the FRC's list to make it more comprehensive.

The third dimension captures the extent of the effect of each KAM disclosure (account-level or entity-level disclosures)[51] (Bradbury and Almulla 2019, Lennox, Schmidt and Thompson 2019, Sierra-García et al. 2019). Regarding the extent of the KAM effect on financial statements, disclosures classified into one of the four topics (controls, going concern, IT-related, and management override of controls) tend to have effects on several accounts in the financial statements (Bradbury and Almulla 2019, Doyle, Ge and McVay 2007, Lennox, Schmidt and Thompson 2019, Sierra-García et al. 2019); and are therefore labelled as "Entity-level-related: ***E***" KAM and included into one of these six variables, i.e., *WCE*, *WIE*, *NCE*, *NIE*, *RCE*, and *RIE*. KAM unrelated to these four topic types are classified as "Account(s)-level-related: ***A***" KAM and classified into one of these six variables, i.e., *WCA*, *WIA*, *NCA*, *NIA*, *RCA*, and *RIA*.

II. The dependent variables for the KAM impact study

There are two sets of dependent variables. The first set describes the properties of analyst forecasts used to examine the impacts of KAM on analysts, including (i) analyst earnings forecast dispersion (*AnlDisp*) and (ii) magnitude of beginning-of-year analyst forecast errors (*AnlErr*). The second set includes indicators for investor behaviours: (i) cumulative absolute abnormal returns (*AB_RET*); (ii) abnormal trading volume (*AB_VOL*); and (iii) abnormal bid-ask spread (*AB_BAS*).

The analyses of *AnlDisp* and *AB_BAS* examine how the nature of KAM categories and KAM properties affect user risk perceptions and information asymmetry. The analyses of *AB_RET* and *AB_VOL* help answer whether KAM categories and properties relate to information content perceived by markets or individual investors. The analyses of *AnlErr* enable examination of the influence of the nature of KAM categories and KAM properties on analyst decision quality.

Properties of analysts' earnings forecasts

This subsection discusses the outcome variables employed to examine the effects of KAM categories and KAM properties on sell-side financial analysts, who play a crucial role in collecting, analysing, and distributing complex financial information to investors. Therefore, how analysts react to the nature of KAM categories and KAM properties may be evidence of their relevancy, usability, and usefulness.

Following the definition used in prior literature (Lang and Lundholm 1996, Lehavy, Li and Merkley 2011), this study defines analyst earnings forecast dispersion (*AnlDisp*) as the standard

[51] This classification considers whether an impact of a KAM based on a topic type is limited to a specific account(s) in financial statements or pervasive throughout the financial statements

deviation of the annual earnings per share forecast after the issuance of the current year's audit report, scaled by the closing share price.

Consistent with Wu and Wilson (2016), this study employs the magnitude of beginning-of-year earnings forecast errors (*AnlErr*), an inverse of analyst forecast accuracy which is claimed to be a less noisy and a more direct measure to study the impact of audit quality on forecast accuracy (Wu and Wilson 2016, p. 177). *AnlErr* is the absolute value of the difference between actual I/B/E/S earnings per share and the mean of the first analyst annual earnings per share forecasts issued immediately after the current year's audit report has come out, deflated by the closing share price.

This study requires at least three analyst forecasts to compute these two variables and uses the closing share price 30 days prior to the I/B/E/S statistical period date to scale the measure of analyst forecast dispersion and error[52].

Indicators for investor behaviours

This subsection explains the variables capturing investor reactions. Such individuals are expected to be the primary users of audited financial reports and to use KAM in making their investment decisions. This study employs three standard market measures commonly used in the KAM literature to explore how individual market participants and the market react to KAM. These three measures include: (1) cumulative absolute abnormal returns (*AB_RET*), (2) abnormal trading volume (*AB_VOL*), and (3) abnormal bid-ask spread (*AB_BAS*). This KAM impact study examines several investor behaviour measures because KAM disclosures were new to the market in the first four years of UK KAM implementation. It is still unclear how the market and individual market participants perceive and use KAM information. Exploring several proxies helps fully understand market participant reactions and enhances the KAM impact tests, especially those with small sample sizes (Gutierrez et al. 2018).

Following prior KAM impact literature (Bens, Chang and Huang 2019, Gutierrez et al. 2018, Liao et al. 2019) in measuring the market reaction to KAM disclosure, this study uses the abnormal change in a given company's share price to capture the change in market beliefs around the KAM release date. This change in share price is observed by the cumulative absolute abnormal returns (*AB_RET*). *AB_RET* is calculated as the absolute value of the three-day cumulative abnormal returns of the period surrounding the filing date of the annual report (t-1, t, and t+1). Abnormal returns are the difference between the daily return of the company and the expected return predicted by the

[52] The inferences do not change when using the share price at 90 days before the I/B/E/S statistical period date to scale the measures of the analysts' properties, as used in Lehavy, Li and Merkely (2011).

same-day LSE market index. The company return is the difference between the closing prices of the current day and the previous day, scaled by the previous day's closing price.

This study further examines if individual investors react to the information disclosed in the KAM by examining the change in abnormal trading volume (*AB_VOL*) of the sample companies around the KAM filing date. Therefore, abnormal trading volume (*AB_VOL*), a measure of the mean event-period volume relative to the mean estimation-period volume, is a dependent variable in the analyses. Consistent with (Gutierrez et al. 2018), *AB_VOL* is the natural logarithm of the company's mean event-period trading volume divided by the company's mean estimation-period volume. The mean event-period volume is the average daily volume of the three days surrounding the filing date of the annual report (*t*-1, *t,* and *t*+1), scaled by the number of shares outstanding during the event period. The mean estimation-period volume is calculated similarly to the mean event-period volume but measured over the trading period beginning 61 days before the earnings announcement date and ending 40 days after[53]. This study expects to observe an increase in *AB_VOL* if individual market participants find KAM useful.

The last outcome variable under investigation is the abnormal bid-ask spread (*AB_BAS*), capturing the change in information asymmetry perceived by market makers after the dissemination of KAM. Following prior literature (Blankespoor, Miller and White 2014, Reid et al. 2015) in measuring the spread, *AB_BAS* is the difference between the mean event-period daily spread and the mean estimation-period daily spread. The mean event-period daily spread is the average daily bid-ask spread over the three-day event window surrounding the filing date of the annual report (*t*-1, *t*, and *t*+1). The mean estimation-period daily spread is determined similarly to the event-period[54] daily spread but measured over the trading period beginning 61 days before the earnings announcement date and ending 40 days after. The daily bid-ask spread is the difference between the ask and the bid prices divided by the mid-point price.

III. The control variables for the KAM impact study

This section presents two different sets of control variables employed in the analyses of the impacts of KAM. The first set of control variables is used in *Model 2a* and *Model 2b* to control for factors documented in prior literature known to affect analyst earnings forecast dispersion (*AnlDisp*) and errors (*AnlErr*). The second set of controls is included in *Model 3* to control for factors that influence

[53] As in Reid et al. (2015), the estimation period is made relative to the earnings announcement date to ensure that the earnings announcement effects are not included when calculating the estimation-period volume.
[54] The event and estimation periods used to calculate *AB_BAS* are consistent with those used to determine *AB_VOL*.

the investor indicators (*AB_RET*, *AB_VOL*, and *AB_BAS*). In addition, the analyses of reactions of both analysts and investors are performed on two different sets of fixed effects: (1) the industry and the year fixed effects and (2) the firm and the year fixed effects, enhancing the understanding of how these differential combinations affect the results of the impact analyses (Bens, Chang and Huang 2019).

Control variables related to analyst earnings forecasts

First, the study controls for company characteristics, capturing the information environment, performance variability, and complexity. These factors may influence an analyst to gather information about a company and, therefore, may also impact analyst earnings forecast properties.

Regarding information environments, better information environments should lead to lower information asymmetry. Therefore, the level of information environment should negatively correlate with the dispersion of analyst forecasts and the magnitude of analyst forecast errors. This study controls for information environment using several proxies, i.e., *LnMarket*, *ReturnVol*, *AnlCoverage*, and *Lev*.

The size of the company (*LnMarket*), measured via the natural logarithm of market value (unit: thousand) at the fiscal year-end date, was predicted and found to negatively correlate with analyst forecast dispersion and the magnitude of analyst forecast errors (Lehavy, Li and Merkley 2011). A large company size implies high business complexity and greater investor demand for information, thereby motivating the company to supply more informative disclosures (Lang and Lundholm 1993) and attracting analysts to follow the company (Lang and Lundholm 1996, Lehavy, Li and Merkley 2011). The availability of information and competition among analysts may lead to less dispersed and more accurate analyst earnings forecasts. *ReturnVol* is the standard deviation of daily stock market returns in year *t-1*. Lehavy, Li and Merkley (2011) document that stock return volatility significantly and positively correlates with analyst forecast dispersion and the magnitude of analyst forecast error. They explain that high stock return volatility reflects information uncertainty and the need for private information, resulting in higher information asymmetry.

Analyst coverage (*AnlCoverage*), calculated from the natural logarithm of one plus the average number of analysts issuing forecasts for the firm's current fiscal period (Bens, Chang and Huang 2019), is predicted to negatively correlate with the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors. A company with a close analyst following may likely provide more transparent public information, reducing analyst reliance on private information and lessening the differences among analyst estimations. Moreover, more transparency may lessen the

analyst cost of information gathering and interpretation, improving the precision of their estimations. The solvency ratio (*Lev*), constructed as the total book value of liabilities divided by the total book value of assets (Bens, Chang and Huang 2019), is used to further control for information asymmetry. Gao and Zhu (2015) find that information asymmetry is positively associated with a firm's leverage and explain that information asymmetry increases the cost of equity capital and forces companies to rely on more on debt financing. Therefore, this study predicts that analyst earnings forecasts of highly levered companies may be more dispersed and less accurate.

In terms of performance variability, empirical evidence (Lang and Lundholm 1996, Wu and Wilson 2016) shows that several proxies for performance variability positively correlate with the dispersion of analyst forecasts and the magnitude of analyst forecast errors. This is because an increase in the variability of a given company's performance makes earnings less predictable. This study controls for performance variability using measures of return on assets (*ROA*), negative performance (*Loss*), and absolute value of earnings surprises (*ForecastErr*). This study includes *ROA*, defined as net income before extraordinary items divided by total assets (Bens, Chang and Huang 2019), to account for difficulties in making forecasts for high growth companies (Lehavy, Li and Merkley 2011). *ROA* is predicted to correlate positively with the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors. Following Behn, Jong-Hag and Kang (2008), Klevak et al. (2020), Payne (2008), Wu and Wilson (2016), this study further includes *Loss* and *ForecastErr* to capture the uncertainty of company earnings. *Loss* is constructed as a dummy variable equal to one if the net income for the period is less than zero and zero otherwise (Wu and Wilson 2016). Consistent with Payne (2008), this study predicts that *Loss* positively correlates to the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors. *ForecastErr* is the end-of-year analyst earnings forecast errors defined as the absolute value of the difference between the most recent earnings per share forecast issued before the current-period earnings announcement date and its corresponding actual I/B/E/S earnings per share, deflated by the share price 30 days prior to the consensus forecast date (Reid et al. 2015). Consistent with Klevak et al. (2020), this study predicts that *ForecastErr* is positively associated with *AnlDisp* and *AnlErr*.

A company's complexity increases investor demand for information and analyst advice and, concomitantly, may also complicate analyst forecasting tasks, thereby increasing the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors. Models 2a and 2b further control for client business complexity as measured by the natural logarithm of the number of company segments (*LnSeg*) (Lehavy, Li and Merkley 2011). *LnSeg* captures the diversity of client businesses and is predicted to correlate positively with *AnlDisp* and *AnlErr*. Analysts may find the

earnings of companies with more segments more complicated to predict than those with fewer segments.

In the analyses of analyst beginning-of-year forecast errors using Model 2b, the study also controls for forecast horizon (*Horizon*), using the natural logarithm of the number of calendar days between the I/B/E/S forecast summary date and corresponding actual earnings announcement date (Wu and Wilson 2016). A shorter horizon should relate to more accurate analyst earnings forecasts (Behn, Jong-Hag and Kang 2008).

Furthermore, the analyses of analyst earnings forecasts include the Big N indicator (*BigN)* to control for the financial reporting quality and audit quality, which may also affect the properties of analyst earnings forecasts (Bens, Chang and Huang 2019). This study predicts *BigN* to be negatively associated with *AnlDisp* and *AnlErr*. The study further controls for variations in the characteristics of auditor reports, i.e., the volume of auditor reports (*SizeAudit*), information about materiality used in the audit (*MatPerc*), and the inclusion of the going concern paragraph *(GoingCon)*. *SizeAudit* is defined as the natural logarithm of the word count in an auditor's report and captures the auditor's supply of information and the audit transparency. Therefore, it is predicted to correlate negatively with the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors. *MatPerc* is the ratio of overall materiality adopted in the audit engagement divided by total assets (Gutierrez et al. 2018, Sierra-García et al. 2019). A lower level of materiality reflects a higher level of audit risk. When audit risk is high, auditors usually reduce the threshold of their tolerable misstatement, increasing the scope of audit work and, thereby, audit quality. Since *MatPerc* can capture both high audit risk and better audit quality, its effects on analyst earnings forecast characteristics are hard to predict. *GoingCon* is constructed as a dummy variable that takes a value of one if an auditor's report includes a going concern emphasis paragraph and zero otherwise.

Following Hope, Hu and Lu (2016), Lehavy, Li and Merkley (2011), this study also controls for variations in the amount of corporate disclosure using the volume of the annual report (*SizeAnnual*), calculated by taking the natural logarithm of the number of pages in an annual report excluding the audit report section. As the length of annual reports can capture both the information content and complexity of corporate disclosures, it is hard to predict the effect of *SizeAnnual* on analyst earnings forecast dispersion and error. On the one hand, it is possible that annual reports with more pages provide more information from which analysts may make more accurate earnings forecasts. On the other hand, sizable annual reports can increase the overall complexity of information within annual reports and, therefore, undermine analysts' forecasting abilities.

Moreover, Christensen, Glover and Wolfe (2014) find KAM resolutions, which are voluntarily disclosed at the end of each disclosure in some auditor reports, can cancel the effect of KAM on investor behaviours. Therefore, this study controls for the effect of findings disclosures (*FindKAM*). *FindKAM* is a dummy variable which equals one if an auditor voluntarily includes findings from the audit procedures undertaken and equals zero otherwise.

Control variables related to market indicators

Following prior studies (Amiram, Owens and Rozenbaum 2016, Czerney, Schmidt and Thompson 2019, Gutierrez et al. 2018, Hope, Hu and Lu 2016, Lennox, Schmidt and Thompson 2019, Liao et al. 2019, Reid et al. 2015), this study controls for other factors which may determine market reactions, information asymmetry, and KAM to prevent endogeneity arising from omitted variables by including control variables related to corporate risk, company characteristics, effect of earnings information and announcement, financial report quality, and variations in other disclosures within annual reports.

In controlling for variations in corporate risk, this study includes BETA, which is defined as the slope coefficient obtained from the regression of a given company's daily return and the daily returns of the London Stock Market value-weighted portfolio over a 200 trading-day period (*t*-260, *t*-61) relative to the filing date (Czerney, Schmidt and Thompson 2019, Gutierrez et al. 2018, Liao et al. 2019). Consistent with prior KAM impact literature, the impact analyses control for the informativeness of accounting information by using the market-to-book ratio (*MB*) (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Liao et al. 2019),

Like the controls found in the analyst reaction models, the investor reaction models include control variables which capture the information environment (*LnMarket*, *ReturnVol*, *AnlCoverage*, and *Lev*)[55,56] (see previous subsection "control variables related to analyst earnings forecasts"). Company size is a primary element in explaining stock returns (Fama and French 1993) and trading volume (Bamber 1987). Moreover, information asymmetry problems are less severe for companies with higher market values, lower stock return volatility, greater analyst coverage, and less debt financing. This study predicts *AB_BAS* to be negatively associated with *LnMarket* and *AnlCoverage* and positively associated with *ReturnVol* and *Lev.*

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[55] Prior market impact studies also account for the effects of leverage (Gutierrez et al. 2018, Liao et al. 2019), company size (Amiram, Owens and Rozenbaum 2016, Czerney, Schmidt and Thompson 2019, Gutierrez et al. 2018, Reid et al. 2015), analyst coverage (Gutierrez et al. 2018, Reid et al. 2015), and stock return volatility (Amiram, Owens and Rozenbaum 2016).

[56] See Appendix A for variable definitions.

Regarding the effects of earnings information, the model for the market reactions (*Model 3*) includes control variables related to performance variability, i.e., *ROA*, *Loss*, *ForecastErr*,[57] *Chg_NI*, and *EarnVol*, capturing earnings news which investors may glean from earnings announcements or financial information included in annual reports (Bédard, Gonthier-Besacier and Schatt 2019, Czerney, Schmidt and Thompson 2019, Gutierrez et al. 2018, Liao et al. 2019). *Chg_NI* is the absolute value of the change in earnings scaled by average total assets (Gutierrez et al. 2018). *EarnVol* is the standard deviation of return on assets computed from year *t-6* to year *t* (Gutierrez et al. 2018). Earnings news has been empirically found to be valuation relevant and affect investor expectations, and it may increase information asymmetry, as investors have different information processing abilities. Therefore, the release of earnings news usually leads to changes in stock price, trading volume, and spreads (Bamber 1987, Beaver 1968, Kim and Verrecchia 1991, 1994, Lee, Mucklow and Ready 1993).

Moreover, in controlling for the prolonged effect of earnings news, the market models further include variables for the market reactions to earnings (*AB_RetEarn*) and the duration between the earnings announcement date and the KAM release date (*Rep_Lag*) (Gutierrez et al. 2018, Hope, Hu and Lu 2016, Reid et al. 2015). *AB_RetEarn* is the cumulative absolute abnormal return calculated for a short window surrounding the earnings announcement date. *Rep_Lag* is the number of calendar days between the earnings announcement date and the subsequent annual report release date (Gutierrez et al. 2018). This study expects that market reactions (*AB_RET* and *AB_VOL*) are positively correlated with *AB_RetEarn*. The effect of the earnings announcement should reduce over time, so *Rep_Lag* is predicted to be negatively associated with the market reactions.

Consistent with the control variables employed in the analyses of the impacts on analyst behaviours, the market study controls for market reactions to financial reporting and audit quality (*BigN*), non-KAM information disclosed in auditor reports (i.e., *SizeAudit, MatPerc*, and *GoingCon*), voluntarily disclosed findings in the KAM section (*FindKAM*), and other information provided in the annual report (*SizeAnnual*).

Fixed effects

Following Bens, Chang and Huang (2019), this study explores the impacts of KAM using different sets of fixed effects. Every model includes year fixed effects to address changes in analyst and investor behaviour stemming from time trends or macroeconomic events. Industry fixed effects

[57] The measurements for the performance variability (*ROA*, *Loss*, and *ForecastErr*) are the same as those included in models 2a and 2b and explained in the subsection "control variables related to analyst earnings forecast".

are only employed in the main analyses to control for time-invariant differences across sectors, such as variations in complexity and the information environment across industries, which may drive analyst and market behaviour. In the sensitivity tests, the study substitutes firm fixed effects for industry fixed effects. Firm fixed effects help control for factors that vary across sectors as industry fixed effects do. However, they also control for other time-invariant firm characteristics, which may or may not be observable. Therefore, when possible, firm fixed effects are used to address omitted endogenous variables.

5.2.2.3 Estimation method

As mentioned, the KAM impact study explores KAM impacts via two differential pairs of fixed effects (*Fixed FE*). The primary impact analyses include industry and year fixed effects, while the sensitivity analyses employ firm and year fixed effects. The primary analyses, which include an extensive list of control variables and industry and year fixed effects, partially control for the effect of potentially omitted variables. However, regarding the short-panel structure of the data, unobserved heterogeneity across individual observations, which are costly or impossible to observe, may still exist. If these unobserved individual-specific effects, α_i, are also correlated with other explanatory variables of interest $(Cov(\alpha_i, \boldsymbol{x}_{it}) \neq 0)$ in the model and are not adequately accounted for, the analyses will still be threatened by endogeneity arising from omitting such variables. In econometrics, this endogeneity problem can be addressed by using a fixed effects estimator, which is an ordinary least square estimation of the time-demeaned dependent variable on the time-demeaned independent variable. This estimation cancels out individual-specific effects (α_i). Therefore, in the sensitivity analyses for H4 to H9, firm fixed effects models are employed to account for unobservable time-invariant company-specific variables.

Each model employed in the impact study is estimated using OLS with year dummies and standard errors adjusted for within-firm clustering to account for within-year and within-firm correlation of residuals, as per the method of Petersen (2009). Following normal practice in capital market studies and KAM impact studies (Bens, Chang and Huang 2019, Gutierrez et al. 2018), all continuous variables are winsorised at the 1st and 99th percentiles to mitigate the effects of outliers.

5.3 Summary of research design

This chapter outlined the research design and models employed to explore the two thematic streams of interest: the determinants of KAM properties and the impacts of KAM on analyst and

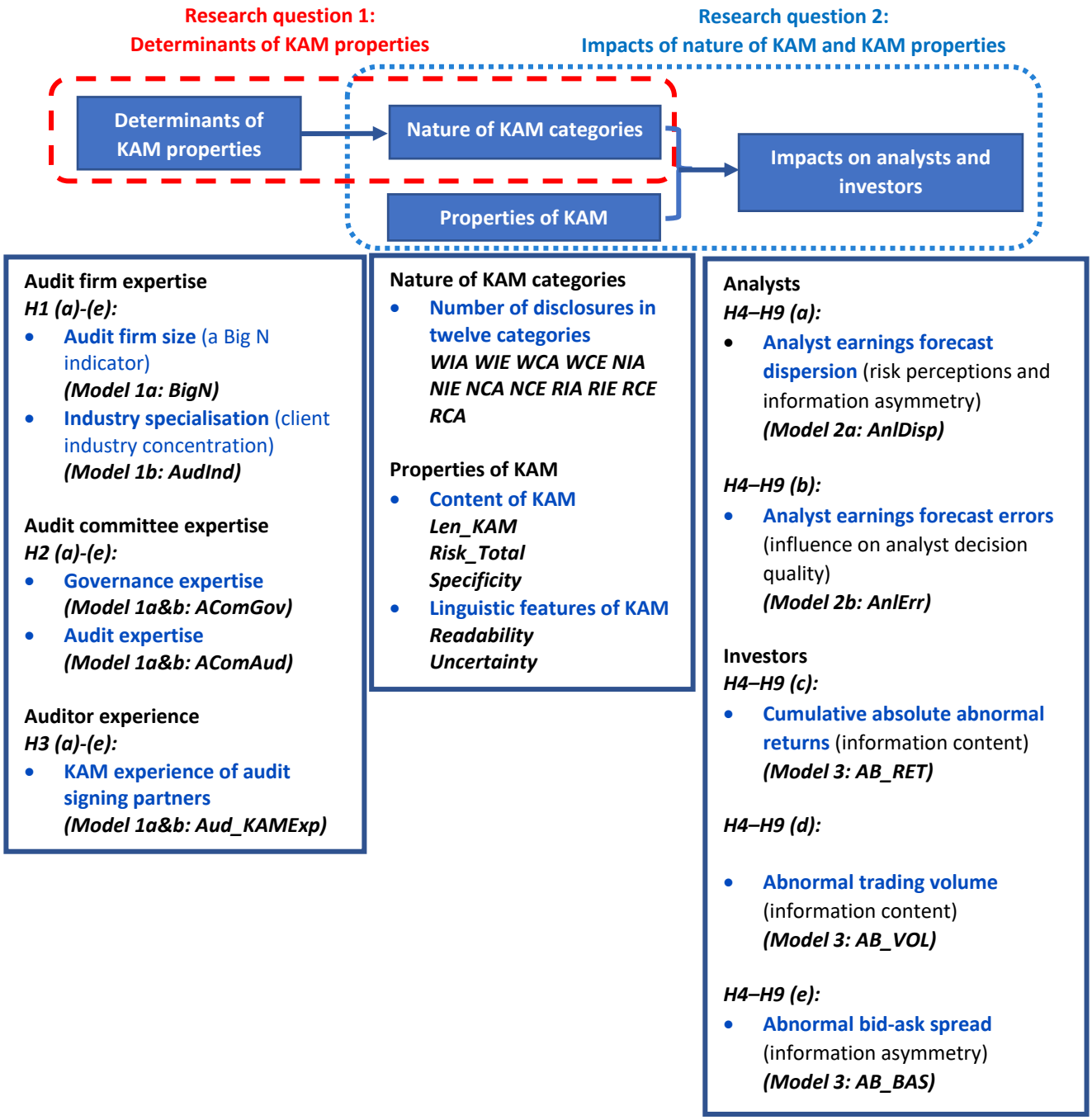
investor behaviours via the tests of H1 to H3 and H4 to H9, respectively. Therefore, this section was divided into two subsections elaborating these two sets of hypotheses. Each subsection started with the sample selection and the data gathering methods. Most importantly, the second subsection of each section elaborated the primary empirical methodology (i.e., the multiple linear regression models), including the definitions of all variables and the estimation methods. All hypotheses, models and variables are summarised once again in Figure 5.3.

This study employs a four-year window of UK LSE Premium listing company data. Audit report data, audit committee profiles, and annual report characteristics were manually gathered from annual reports retrieved from either corporate websites or the Company House's website. Other data, such as company fundamentals and equity data, were downloaded from commercial databases. Textual data were processed using Excel and open-source Python applications.

This chapter began with Subsection 5.1, explaining multiple regression models which were employed to test the influence of audit firm specialisation (measured by *BigN* and *AudInd*), audit committee expertise (measured by *AComGov* and *AComAud*) and audit partner KAM experience (measured by *Aud_KAMExp*) on three KAM content properties (*Len_KAM*, *Risk_Total*, and *Specificity*) and two KAM linguistic features (*Readability* and *Uncertainty*). The KAM determinants models include an extensive list of control variables which may have systemic effects on KAM properties and, concomitantly, are correlated with the variables of interest. These control variables capture company fundamental characteristics, auditor engagement features, industry characteristics and time trends. Then, the first section further illustrated the use of propensity score matching regression models in robustness tests for the KAM determinants hypotheses.

The second section (Subsection 5.2) presented a research design to test the impacts of twelve KAM nature categories (*WIA*, *WIE*, *WCA*, *WCE*, *NIA*, *NIE*, *NCA*, *NCE*, *RIA*, *RIE*, *RCE* and *RCA*) and five KAM properties (*Len_KAM*, *Risk_Total*, *Specificity*, *Readability*, and *Uncertainty*) on sell-side analyst earnings forecast dispersion and magnitude of beginning-of-year analyst earnings forecast errors (*AnlDisp* and *AnlErr*, respectively) and investor reactions, as captured by stock returns, trading volume, and spreads (*AB_RET*, *AB_VOL* and *AB_BAS*, respectively). These findings will help answer whether KAM have an information asymmetry effect, contain incremental information, or improve user decisions. The impact models control for an extensive list of control variables. Each impact model was examined using two different pairs of fixed effects: (1) industry and year fixed effects and (2) firm and year fixed effects. The next chapter will present the results of the analyses produced by these models.

Figure 5.3 Summary of hypotheses, models, and variables for the whole study



Chapter 6: Empirical analyses and summary of results

6.0 Introduction

The previous chapter described the research design used to examine the hypotheses regarding the determinants of KAM properties (H1 to H3) and the impacts of the nature and properties of KAM (H4 to H9). The analyses employ linear regression models – models 1a and 1b for the determinants analyses and models 2a, 2b, and 3 for the impact analyses.

This chapter has two main sections, which will present and discuss the results of these two sets of empirical analyses: the determinants analyses (Section 6.1) and the impact analyses (Section 6.2). Each section will report univariate descriptive, correlation, regression, and sensitivity results.

6.1 The determinants of the KAM properties (H1 to H3)

First, the distribution of the observations and the descriptive statistics relating to the determinants analyses (Hypotheses H1 to H3) will be reported in Section 6.1.1. Second, Section 6.1.2 will report the pairwise correlation statistics among all variables. Third, Section 6.1.3 will present the results of the primary analyses, employing multiple linear regression models with industry fixed effects to test these determinants hypotheses. Fourth, Section 6.1.4 will provide the results of sensitivity tests, employing propensity-score matching to further address endogeneity problems arising from selection biases. Then, Section 6.1.5 will discuss the results from other sensitivity tests. Finally, Section 6.1.6 will offer conclusions.

6.1.1 Distribution and univariate descriptive results for the KAM determinants study (H1 to H3)

This subsection enhances the understanding of the sample by presenting the distribution and descriptive statistical results of the observations employed in testing the determinants hypotheses. Table 6.1 reports the year-by-year sample distribution of the 1,146 firm-year observations across industries in Panel A and shows the sample distribution of audit firm expertise in Panel B. Panel A of Table 6.1 shows that the sample is distributed across four calendar years and eight industries, with the top five being Manufacturing (33%), Services (22%), Transportation &

Public Utilities (13%), Mining (11%), and Retail trade (10%). The sample comprises 293, 292, 292, and 269 companies from the first-, second-, third-, and fourth-year post-ISA (UK and Ireland) 700 implementation. Panel B of Table 6.1 shows 93% of the observations were obtained from audit reports generated by Big N audit firms, in line with prior KAM determinant literature (Smith 2019, Velte 2018). Panel B also shows that audit firms with industry specialisation account for 32% of the sample and 34.2% of the Big N subsample. All the industry-specialised firms in the sample are also Big N firms because of the construction of market share based industry specialisation (see the construction of audit firm industry specialisation in Subsections 5.1.2.2 (I) and 5.1.2.4). Since including dummy variables for Big N (*BigN*) and industry specialisation (*AudInd_dm*) audit firms in the same model would cause multicollinearity, this determinants study tests the effects of Big N and audit firm industry specialisation using two separate models, a Big N model (Model 1a) and an industry specialisation model (Model 1b). Model 1a employs the *BigN* indicator to examine the effects of audit firm expertise on KAM properties across the whole sample. Model 2a employs an industry specialisation measure (*AudInd*) to test the impact of audit firm expertise within the Big N subsample.

Table 6.1 Distribution of the sample for the KAM determinants analyses

Panel A: Year-by-year sample distribution across industries

Industry	**Total**		**Year 1**		**Year 2**		**Year 3**		**Year 4**	
	N	***%***	***N***	***%***	***N***	***%***	***N***	***%***	***N***	***%***
Agriculture, Forestry & Fishing	8	1%	2	1%	2	1%	2	1%	2	1%
Mining	130	11%	33	11%	32	11%	33	11%	32	12%
Construction	58	5%	15	5%	15	5%	15	5%	13	5%
Manufacturing	377	33%	99	34%	97	33%	95	33%	86	32%
Transportation & Public Utilities	151	13%	38	13%	39	13%	39	13%	35	13%
Wholesale Trade	59	5%	14	5%	15	5%	15	5%	15	6%
Retail Trade	113	10%	29	10%	28	10%	29	10%	27	10%
Services	250	22%	63	22%	64	22%	64	22%	59	22%
Total	1,146	100%	293	100%	292	100%	292	100%	269	100%

Note: Panel A of this table shows the distribution of the firm-year observations by sector. Panel B shows the proportion of the observations audited by audit firms that have (do not have) industry specialisation and are regarded as Big N (non-Big N) firms. The columns labelled "N" stand for firm-year observations, and the columns labelled "%" show these observations as percentages of the totals or subtotals. Panel A presents the number of annual reports in the sample originating from a particular sector in a given year. The eight main sectors employed in this study are classified based on the SIC classification system, available at http://classification.codes/classifications/industry/sic/.

Table 6.1 Distribution of the sample for the KAM determinants analyses (continued)

Panel B: Distribution of firm-year observations by the audit firm expertise

Audit firm type	Total		Big N		Non-Big N	
	%	N	%	N	%	N
With industry specialisation	32%	365		365		-
Without industry specialisation	68%	781		701		80
Total	100%	1,146	93%	1,066	7%	80

Note: Panel B displays the sample along two dimensions of the audit firm expertise. Industry specialisation refers to audit firms with an audit fee share of more than 30% of the client industry, grouped by the eight main sectors. The Big N audit firms are one of the Big 4 audit firms, including Ernst & Young, PricewaterhouseCoopers, Deloitte, and KPMG.

Table 6.2 reports the univariate descriptive statistics regarding the variables in the tests of the KAM determinants hypotheses (H1 to H3). On average, each disclosure includes 315 words[58] (*Len_KAM*), which is comparable to the finding of Rousseau and Zehms (2020). On average, of the total words in the KAM section, 42% describe the risk (*Risk_Total*), meaning that 58% present audit procedures and findings (if any); 4.5% are classified by spaCy's NER as named entities, implying the presences of entity-specific information (*Specificity*); and 1.9% are terms expressing uncertainty (*Uncertainty*) according to the Loughran-McDonald Sentiment Word Lists (2018). The mean uncertain tone in KAM is comparable to what has been documented by Seebeck and Kaya (2022).

Consistent with Rousseau and Zehms (2020), who report an average Fog Index of 18.45 for the KAM, this determinants study shows a mean Gunning Fog value of 19.13 for the KAM sections studied (*FOG_KAM*), indicating that the KAM section is more complex than the overall annual report (*FOGAnnual* = 15.28). The readability variable (*Readability*) is the inverse of *FOG_KAM* and has a mean of 0.053.

Regarding audit firm industry specialisation, the mean value of audit firm client-industry market share (*AudInd*) is 0.26, suggesting that each audit firm shares 26% of the audit fees generated by all firms serving a given client industry. Regarding audit committee expertise, 27.2% of audit committee members also serve on the audit committees of other companies (*AComGov)*, and 29% of audit committee members have audit experience (*AComAud*). Each audit signing partner issues almost two KAM-year disclosures to each client (*Aud_KAMExp* = 1.88).

[58] Rousseau and Zehms (2020) show that, on average, each KAM disclosure of the UK-listed companies, comprises 290 words. However, the observations used in this determinants study exclude financial firms which usually have shorter KAM than firms in other sectors. Therefore, the average KAM length shown in this study is higher than Rousseau and Zehms (2020).

In terms of control variables included in the determinants regressions, 23% of audit committee members are female (*AComFem*). The mean of the audit firm-client economic bond (*AudFee)* is 2.7%, suggesting that audit firms typically earn 2.7% of their total audit fees from any one client. The companies included in the sample are 27.4 years old on average (*Age*). Mean ROA equals 4.7% and almost 18% of the observations present negative performance (*Loss*). Consistent with Smith (2019), slightly over half the sample incurred acquisition expenditures, which occurred during the given KAM-year (*Acq*). Almost 60% of the sample issued new common stock or reissued treasury stock within the same KAM-year (*EquityIssue*). Slightly over half the observations close their respective financial reports in December (*DecYE*). 1.7% of the audit reports in the sample include going-concern modified audit opinions (*GoingCon*). These descriptive statistics are also comparable to those of prior KAM studies employing samples from the UK (Gutierrez et al. 2018, Reid et al. 2015, Reid et al. 2019, Smith 2019, Velte 2018, 2019, Zhang and Shailer 2018).

Table 6.2 Univariate descriptive statistics for variables in the KAM determinants analyses

Variables	N	mean	sd	p5	p25	p50	p75	p95
Dependent variables								
- The content of KAM								
Len_KAM	1,146	315	138	111	223	304	390	567
Risk_Total	1,146	0.422	0.099	0.229	0.371	0.431	0.488	0.562
Specificity	1,146	0.045	0.022	0.012	0.030	0.044	0.059	0.084
- The linguistic features of KAM								
Readability	1,146	0.053	0.006	0.044	0.049	0.053	0.057	0.063
FOG_KAM	1,146	19.127	2.131	15.870	17.650	18.930	20.550	22.870
Uncertainty	1,146	0.019	0.007	0.008	0.014	0.018	0.023	0.031
Independent variables								
- Audit firm expertise								
BigN	1,146	0.930	0.255	0.000	1.000	1.000	1.000	1.000
AudInd	1,146	0.264	0.170	0.014	0.140	0.255	0.338	0.651
- Audit committee expertise								
AComGov	1,146	0.272	0.203	0.096	0.096	0.250	0.333	0.667
AComAud	1,146	0.290	0.225	0.000	0.000	0.333	0.400	0.667
- Audit signing partner experience								
Aud_KAMExp	1,146	1.880	0.959	1.000	1.000	2.000	3.000	4.000
Control variables								
Acq	1,146	0.523	0.500	0.000	0.000	1.000	1.000	1.000
AComFem	1,146	0.229	0.201	0.000	0.000	0.250	0.333	0.500
Age	1,146	27.392	19.501	5.000	11.000	21.000	42.000	67.000
AudFee	1,146	0.027	0.107	0.001	0.002	0.004	0.013	0.077
Curr	1,146	0.405	0.214	0.102	0.244	0.377	0.536	0.816
CrossList	1,146	0.682	0.466	0.000	0.000	1.000	1.000	1.000
DecYE	1,146	0.503	0.500	0.000	0.000	1.000	1.000	1.000
EquityIssue	1,146	0.594	0.491	0.000	0.000	1.000	1.000	1.000
FOGAnnual	1,139	15.276	3.186	6.816	15.717	16.262	16.802	17.594
GoingCon	1,146	0.017	0.128	0.000	0.000	0.000	0.000	0.000
Lev	1,146	0.568	0.214	0.230	0.408	0.571	0.719	0.902
LnSeg	1,146	1.432	0.561	0.693	1.099	1.609	1.792	2.303
LnSize	1,146	13.729	1.797	10.979	12.546	13.668	14.922	16.949
Loss	1,146	0.175	0.380	0.000	0.000	0.000	0.000	1.000
RD	1,146	0.015	0.035	0.000	0.000	0.000	0.010	0.094
RetVol	1,146	2.005	0.888	1.115	1.449	1.788	2.242	3.893
ROA	1,146	0.047	0.093	(0.098)	0.019	0.051	0.091	0.175
SP_Item	1,146	0.138	0.345	0.000	0.000	0.000	0.000	1.000
MB	1,146	3.353	3.501	0.384	1.243	2.371	4.118	10.384

Note: All variables are defined in Appendix A. This table includes the univariate descriptive results of FOG_KAM and FOGAnnual, which are not included in the analyses, to provide context regarding KAM readability.

6.1.2 Correlation results for the KAM determinants study (H1 to H3)

Table 6.3 presents the Pearson's correlation statistics between all variables employed in the primary regression analyses for the KAM determinants hypotheses.

This bivariate analysis shows that the variables regarding the KAM properties (*Len_KAM*, *Risk_Total*, *Specificity*, *Readability*, and *Uncertainty*) measure different dimensions of the KAM. Of ten pairwise correlations between these KAM properties, eight of the correlations are statistically

significant (*p<0.05*). Seven of these significant correlations have absolute values of more than 0.10 and range between -0.1769 (*Len_KAM* and *Uncertainty*) and 0.3761 (*Risk_Total* and *Specificity*), showing that the measurement of KAM properties is not highly correlated.

In addition, the correlation coefficients have directions which follow the theoretical predictions formulated in Section 5.1.3.2. Of 25 pairwise correlations between KAM properties and the outcome variables, 16 correlations are statistically significant (*p<0.05*) and in line with the predictions regarding the KAM determinants hypotheses. Audit firm expertise, as measured by *BigN,* is significantly and positively related to KAM specificity (*Specificity*). The KAM experience of the audit partners (*Aud_KAMExp*) is significantly and positively related to KAM content, as measured by *KAM_Len* and *Specificity*. Moreover, audit committee governance expertise is significantly and negatively correlated with the proportion of the KAM devoted to the risk description (r = -0.08), as anticipated. The positive correlation coefficient between *Aud_KAMExp* and *Readability* is the only result that is the opposite of what was expected.

Table 6.3 Pearson's correlation of firm-year observations for testing the KAM determinants hypotheses

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) **Len_KAM**	1													
(2) **Risk_Total**	0.2094*	1												
(3) **Specificity**	0.3640*	0.3761*	1											
(4) **Readability**	0.2601*	0.2692	0.3384	1										
(5) **Uncertainty**	-0.1769*	0.0204	-0.0939*	-0.0485	1									
(6) **BigN**	0.1570*	0.0661*	0.0852*	0.1286*	0.0602*	1								
(7) **AudInd**	0.1892*	0.0767*	0.0461	0.0782*	-0.0896*	0.3981*	1							
(8) **AComGov**	0.0788*	-0.0825*	-0.0482	0.0114	0.0206	0.1555*	0.0426	1						
(9) **AComAud**	0.045	0.029	0.0158	0.0447	0.0233	-0.0760*	-0.0256	0.1663*	1					
(10) **Aud_KAMExp**	0.3260*	0.1620*	0.2507*	0.2496*	-0.0582*	0.0087	-0.0283	0.0128	-0.0126	1				
(11) **Acq**	-0.0358	0.0105	0.0077	-0.0824*	0.2501*	0.1358*	0.0358	0.0624*	-0.0523	0.0212	1			
(12) **AComFem**	0.1160*	0.0433	0.0514	0.1013*	-0.007	0.2148*	0.1361*	0.1934*	-0.0637*	0.1047*	0.1214*	1		
(13) **AudFee**	-0.1449*	-0.0456	-0.0315	-0.0022	-0.0763*	-0.5400*	-0.2115*	-0.1210*	0.0222	0.0229	-0.0653*	-0.1074*	1	
(14) **Curr**	-0.0205	-0.0463	-0.1564*	0.0637*	-0.0276	-0.0860*	-0.0386	-0.0257	0.0223	0.01	-0.1412*	-0.0247	-0.0186	1
(15) **CrossList**	0.0447	0.0064	0.0346	-0.0446	-0.0277	0.2103*	0.0611*	0.0759*	-0.0247	0.0909*	0.1135*	0.2273*	-0.0636*	-0.1748*
(16) **DecYE**	-0.033	-0.0667*	0.0720*	-0.0445	0.1041*	0.0499	-0.0413	0.0823*	0.0506	0.0382	0.1342*	0.0332	-0.0314	-0.0219
(17) **EquityIssue**	0.0937*	0.0555	0.0766*	0.0196	0.0528	0.1084*	0.0551	0.0831*	-0.0064	0.0063	0.1745*	0.0274	-0.052	-0.0329
(18) **GoingCon**	0.0317	0.0055	0.1310*	0.0175	0.014	-0.1522*	-0.0484	-0.0046	0.0556	0.0162	-0.0948*	-0.0429	0.1197*	-0.0810*
(19) **Lev**	-0.0214	0.0209	0.0198	-0.0042	0.0671*	0.1232*	0.1205*	0.0443	-0.0173	0.0257	0.1240*	0.0999*	-0.0891*	0.0479
(20) **Age**	-0.0409	0.021	-0.0069	0.0801*	0.0008	0.0878*	0.0457	0.0369	-0.0308	-0.0677*	-0.0064	0.0572	0.0605*	-0.0003
(21) **LnSeg**	0.0086	-0.0095	0.0855*	-0.0936*	0.1725*	0.2231*	0.1154*	0.0119	-0.0207	0.004	0.2957*	0.0932*	-0.1193*	-0.1346*
(22) **LnSize**	0.0957*	0.024	0.1072*	-0.0916*	0.0402	0.3226*	0.2074*	0.0628*	-0.0911*	0.0403	0.2627*	0.2552*	-0.0852*	-0.3504*
(23) **Loss**	0.1251*	-0.0442	0.1357*	0.0009	-0.0656*	-0.0537	0.0067	-0.0248	-0.0363	0.0336	-0.1427*	-0.0745*	0.1068*	-0.0778*
(24) **RD**	0.0229	0.0005	-0.0474	-0.035	0.0574	0.0015	-0.0158	0.0115	-0.0903*	-0.0089	0.0503	-0.0367	-0.0489	0.0681*
(25) **RetVol**	0.0202	-0.0610*	0.0998*	0.0117	-0.0453	-0.2402*	-0.1582*	-0.0919*	0.0448	0.0043	-0.3184*	-0.1851*	0.2044*	0.0801*
(26) **ROA**	-0.1313*	-0.0119	-0.1680*	0.01	0.021	0.0669*	-0.0141	0.0074	0.0008	-0.0076	0.0781*	0.1229*	-0.1143*	0.1785*
(27) **SP_Item**	0.0648*	0.0229	0.0771*	0.0187	-0.1687*	0.0897*	0.1125*	0.0154	-0.0437	0.0314	0.0984*	0.1184*	-0.0543	-0.0824*
(28) **MB**	-0.0295	-0.0572	-0.0950*	-0.0614*	0.0097	0.1289*	0.0799*	0.0525	0.0217	0.0156	0.0590*	0.1304*	-0.0861*	0.1278*

Table 6.3 Pearson's correlation of firm-year observations for testing the KAM determinants hypotheses (continued)

Variables	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)
(1) **Len_KAM**														
(2) **Risk_Total**														
(3) **Specificity**														
(4) **Readability**														
(5) **Uncertainty**														
(6) **BigN**														
(7) **AudInd**														
(8) **AComGov**														
(9) **AComAud**														
(10) **Aud_KAMExp**														
(11) **Acq**														
(12) **AComFem**														
(13) **AudFee**														
(14) **Curr**														
(15) **CrossList**	1													
(16) **DecYE**	0.0797*	1												
(17) **EquityIssue**	0.0393	0.1568*	1											
(18) **GoingCon**	0.0005	0.0743*	-0.0597*	1										
(19) **Lev**	0.0261	-0.0424	-0.0689*	0.0623*	1									
(20) **Age**	-0.0939*	-0.015	-0.0684*	-0.0106	0.0379	1								
(21) **LnSeg**	0.0817*	0.1787*	0.1612*	-0.0461	-0.0036	-0.0124	1							
(22) **LnSize**	0.5254*	0.1402*	0.0944*	-0.0976*	0.1975*	-0.0041	0.2912*	1						
(23) **Loss**	-0.1240*	0.1092*	0.026	0.2276*	-0.0374	-0.0748*	0.0133	-0.0597*	1					
(24) **RD**	-0.1375*	0.0387	0.1103*	-0.055	-0.1826*	0.0421	0.1385*	-0.1689*	0.0206	1				
(25) **RetVol**	-0.2351*	0.0338	-0.0177	0.3254*	-0.0626*	-0.1819*	-0.1487*	-0.3482*	0.4093*	-0.01	1			
(26) **ROA**	0.1418*	-0.1147*	-0.0865*	-0.2975*	-0.0286	0.0673*	-0.0103	0.0106	-0.6883*	0.0111	-0.3809*	1		
(27) **SP_Item**	-0.0044	0.0023	0.0315	0.0075	0.1442*	0.0676*	0.0466	0.0447	0.1284*	-0.0659*	-0.0543	-0.1554*	1	
(28) **MB**	0.1380*	-0.0194	-0.0841*	-0.0835*	0.3064*	-0.0684*	-0.002	-0.0287	-0.2070*	0.0680*	-0.1708*	0.4274*	-0.0199	1

*Note: The table presents Pearson's correlations for variables included in the main tests of the determinants hypotheses. Variable definitions are presented in Appendix A. All continuous variables are winsorised at the 1% and 99% levels. Correlations with * are statistically significant at the 5% level.*

Following Gujarati, Porter and Gunasekar (2012), this study checks for signs of multicollinearity arising from the correlation coefficients of any two independent variables, whose sums are greater than or equal to 0.80 and finds no issues. As expected, return on assets (*ROA*) significantly correlates to the negative performance indicator (*Loss*) (r = -0.69), and the size of a company (*LnSize*) is significantly associated with a company's cross-listed status (*Cross_List*) (R = 0.53). Moreover, Table 6.4 shows that all variables in models 1a and 1b have VIF values below ten and tolerance values above 0.10, which are well within acceptable thresholds (Hair et al. 2010).

Table 6.4 VIF and tolerance values of variables in Model 1 (The KAM determinants hypotheses)

Model 1a: Determinants Hypotheses (Full Sample)			Model 1b: Determinants Hypotheses (Big N Sample)		
Variable	**VIF**	**1/VIF**	**Variable**	**VIF**	**1/VIF**
ROA	2.70	0.370	LnSize	2.83	0.353
LnSize	2.41	0.414	ROA	2.63	0.381
Loss	2.17	0.461	Loss	2.14	0.467
RetVol	1.86	0.538	RetVol	1.68	0.594
BigN	1.74	0.575	MB	1.67	0.598
Curr	1.64	0.610	Curr	1.64	0.610
Aud_KAMExp	1.64	0.611	Aud_KAMExp	1.64	0.610
MB	1.64	0.612	CrossList	1.61	0.622
CrossList	1.59	0.629	AudFee	1.59	0.627
Lev	1.52	0.658	Lev	1.52	0.658
AudFee	1.50	0.667	LnSeg	1.42	0.705
LnSeg	1.46	0.684	Acq	1.34	0.744
Acq	1.36	0.736	RD	1.28	0.783
RD	1.28	0.784	DecYE	1.27	0.788
GoingCon	1.27	0.787	AComFem	1.23	0.814
AComFem	1.26	0.792	Risk_Total	1.21	0.826
DecYE	1.25	0.802	EquityIssue	1.20	0.831
EquityIssue	1.20	0.831	AudInd	1.19	0.843
Age	1.18	0.847	Age	1.17	0.854
AComGov	1.18	0.850	AComGov	1.15	0.870
Risk_Total	1.17	0.853	GoingCon	1.15	0.872
AComAud	1.13	0.885	SP_Item	1.13	0.884
SP_Item	1.12	0.890	AComAud	1.12	0.890
Mean VIF	1.53		Mean VIF	1.51	

6.1.3 Regression results for the KAM determinants study (H1 to H3)

This subsection presents the results of the primary analyses for the determinants of KAM properties. Model 1a employs the whole sample to test the effect of audit firm expertise determined by firm size (*BigN*), audit committee expertise (*AComGov* and *AComAud*), and audit signing partner KAM experience (*Aud_KAMExp*) on the properties of KAM. Model 1b further tests whether the variations in audit firm client-industry market share (*AudInd*), audit committee expertise, and audit singing partner KAM experience within the Big N subsample have determining effects on the properties of KAM.

Table 6.5 presents the ordinary least squares regression results of estimating Models 1a and 1b. These models include both industry and year fixed effects. Panel A presents the regression results for the content of KAM, including (a) the volume (*Len_KAM*), (b) proportion of the KAM devoted to the risk description *(Risk_Total*), and (c) KAM specificity (*Specificity*). Panel B displays the results regarding the linguistic features of KAM – (d) readability (*Readability)* and (e) uncertain tone (*Uncertainty)*. Of each KAM property, the first column (labelled Model 1a) presents the results for the analyses performed on the whole sample (n=1,146 firm-year observations); the second column (labelled Model 1b) displays the results for the analyses performed on the Big N subsample (n=1,066 firm-year observations = 93% of the total sample). The columns labelled Model 1a present results of audit firm expertise as captured by *BigN*, while the columns labelled Model 1b present results of *AudInd*. All regressions employ robust standard errors clustered on client companies to address potential cross-sectional heteroscedasticity or within-panel serial correlations (Wooldridge 2010).

Table 6.5 Multiple linear regression results for the KAM determinants analyses

Panel A: the content of KAM		**(a) *Len_KAM***					**(b) *Risk_Total***					**(c) *Specificity***			
		(1)		(2)			(3)		(4)			(5)		(6)	
		Model 1a		Model 1b			Model 1a		Model 1b			Model 1a		Model 1b	
		Full sample		Big N subsample			Full sample		Big N subsample			Full sample		Big N subsample	
Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat
***H1*: Audit firm expertise**															
BigN	**?**	**53.5062*** **	(2.918)			**?**	0.0277	(1.149)			**+**	**0.0046***	(1.388)		
AudInd				**134.1857*** **	(5.051)				0.0222	(1.049)				-0.0004	(-0.079)
***H2*: Audit committee expertise**															
AComGov	**?**	34.0228	(1.551)	34.3055	(1.567)	**-**	**-0.0526*** **	(-2.657)	**-0.0516*** **	(-2.561)	**+**	-0.0027	(-0.804)	-0.0030	(-0.875)
AComAud	**?**	18.1630	(0.937)	25.2680	(1.280)	**-**	0.0204	(1.057)	0.0087	(0.453)	**+**	0.0011	(0.342)	-0.0006	(-0.172)
***H3*: Audit signing partner's KAM experience**															
Aud_KAMExp	**+**	4.2192	(0.815)	2.6638	(0.505)	**?**	0.0014	(0.398)	-0.0001	(-0.028)	**+**	**0.0012***	(1.391)	0.0008	(0.917)
Control variables															
Acq		-6.5965	(-0.694)	-4.2348	(-0.441)		0.0001	(0.018)	-0.0031	(-0.424)		0.0003	(0.207)	0.0002	(0.141)
AComFem		12.0684	(0.447)	-2.8477	(-0.103)		0.0229	(1.061)	0.0138	(0.643)		0.0020	(0.514)	0.0022	(0.554)
Age		-0.4417*	(-1.774)	-0.4405*	(-1.733)		0.0000	(0.006)	-0.0000	(-0.094)		0.0000	(0.284)	0.0000	(0.416)
AudFee		-137.4484***	(-3.550)	-375.1183**	(-2.386)		-0.0090	(-0.119)	-0.3863**	(-2.289)		-0.0060	(-0.700)	0.0309	(1.174)
Curr		-2.3009	(-0.078)	6.0847	(0.193)		-0.0127	(-0.538)	0.0135	(0.567)		-0.0076	(-1.506)	-0.0057	(-1.087)
CrossList		-20.1059*	(-1.701)	-13.8412	(-1.144)		-0.0050	(-0.481)	-0.0082	(-0.795)		-0.0016	(-0.780)	-0.0023	(-1.017)
DecYE		-28.9546***	(-2.902)	-25.6521**	(-2.478)		-0.0055	(-0.615)	-0.0009	(-0.094)		0.0008	(0.422)	0.0015	(0.808)
EquityIssue		22.0246***	(2.740)	17.8702**	(2.163)		0.0096	(1.331)	0.0071	(0.971)		0.0013	(0.864)	0.0008	(0.504)
GoingCon		30.5329	(0.788)	39.8772	(0.840)		0.0202	(0.823)	0.0348	(1.134)		0.0105	(1.272)	0.0094	(0.849)
Lev		-63.5294**	(-2.423)	-55.0656*	(-1.966)		0.0009	(0.038)	0.0103	(0.462)		0.0010	(0.212)	-0.0006	(-0.104)
LnSeg		-1.4559	(-0.165)	0.0246	(0.003)		-0.0010	(-0.118)	0.0046	(0.527)		0.0010	(0.680)	0.0002	(0.108)
LnSize		9.7702**	(2.406)	9.0962*	(1.913)		-0.0024	(-0.691)	0.0009	(0.257)		0.0007	(1.110)	0.0006	(0.758)
Loss		10.4396	(0.645)	14.4366	(0.897)		-0.0183	(-1.611)	-0.0153	(-1.297)		0.0013	(0.528)	0.0015	(0.626)
RD		106.4818	(0.832)	101.2300	(0.743)		0.0480	(0.363)	0.0521	(0.380)		-0.0209	(-0.864)	-0.0224	(-0.900)
RetVol		2.5607	(0.402)	4.8698	(0.680)		-0.0036	(-0.718)	-0.0051	(-0.908)		0.0019	(1.154)	0.0027	(1.394)
Risk_Total												0.0661***	(8.800)	0.0658***	(7.929)
ROA		-178.1992**	(-2.396)	-181.3985**	(-2.376)		-0.0346	(-0.681)	0.0027	(0.050)		-0.0049	(-0.344)	-0.0007	(-0.047)
SP_Item		12.9112	(0.880)	5.4992	(0.397)		-0.0035	(-0.346)	-0.0059	(-0.595)		0.0027	(1.336)	0.0029	(1.394)
MB		2.9595*	(1.858)	2.2218	(1.463)		-0.0020	(-1.463)	-0.0027*	(-1.924)		0.0000	(0.016)	-0.0000	(-0.205)
Constant		167.4233***	(2.780)	182.1864**	(2.438)		0.4544***	(8.676)	0.4248***	(8.160)		-0.0021	(-0.217)	0.0056	(0.512)
Fixed Effects		Industry & Year		Industry & Year			Industry & Year		Industry & Year			Industry & Year		Industry & Year	
Observations		1,146		1,066			1,146		1,066			1,146		1,066	
Adjusted R-squared		0.356		0.369			0.122		0.148			0.278		0.267	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on the client company. Client industries are classified into eight SIC sectors.*

Table 6.5 Multiple linear regression results for the KAM determinants analyses (continued)

Panel B: the linguistic features of KAM	**(d) *Readability***					**(e) *Uncertainty***				
		(1)		(2)			(3)		(4)	
		Model 1a		Model 1b			Model 1a		Model 1b	
		Full sample		Big N subsample			Full sample		Big N subsample	
Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat
***H1*: Audit firm expertise**										
BigN	**?**	**0.0060*** **	(5.663)			**?**	0.0004	(0.283)		
AudInd				0.0011	(0.837)				**-0.0059*** **	(-3.557)
***H2*: Audit committee expertise**										
AComGov	**?**	0.0000	(0.017)	0.0001	(0.105)	**?**	-0.0001	(-0.053)	0.0001	(0.078)
AComAud	**?**	0.0006	(0.562)	0.0001	(0.074)	**?**	0.0012	(0.760)	0.0008	(0.506)
***H3*: Audit signing partner's KAM experience**										
Aud_KAMExp	**-**	0.0001	(0.520)	0.0000	(0.185)	**?**	0.0002	(0.630)	0.0002	(0.583)
Control variables										
Acq		-0.0006	(-1.426)	-0.0005	(-1.098)		0.0030***	(5.391)	0.0025***	(4.437)
AComFem		0.0022**	(2.076)	0.0020*	(1.913)		-0.0007	(-0.473)	-0.0002	(-0.165)
Age		0.0000	(0.731)	0.0000	(0.705)		0.0000*	(1.766)	0.0000	(1.487)
AudFee		0.0068	(1.588)	-0.0001	(-0.015)		-0.0039	(-1.374)	0.0007	(0.062)
Curr		0.0004	(0.241)	0.0001	(0.041)		-0.0024	(-1.371)	-0.0030	(-1.546)
CrossList		-0.0005	(-0.859)	-0.0009	(-1.390)		-0.0002	(-0.284)	-0.0008	(-1.078)
DecYE		-0.0001	(-0.207)	-0.0001	(-0.126)		0.0006	(0.972)	0.0008	(1.163)
EquityIssue		0.0004	(1.181)	0.0004	(1.050)		-0.0000	(-0.066)	0.0001	(0.096)
GoingCon		0.0014	(0.680)	0.0025**	(1.978)		0.0014	(0.990)	0.0013	(0.729)
Lev		0.0002	(0.132)	-0.0003	(-0.172)		0.0038***	(2.838)	0.0038***	(2.673)
LnSeg		-0.0005	(-1.082)	-0.0008	(-1.425)		0.0010*	(1.773)	0.0014**	(2.311)
LnSize		-0.0005**	(-2.585)	-0.0004*	(-1.786)		-0.0002	(-1.070)	-0.0002	(-0.798)
Loss		0.0002	(0.277)	0.0005	(0.870)		-0.0007	(-0.851)	-0.0011	(-1.392)
RD		-0.0075	(-1.196)	-0.0076	(-1.154)		0.0009	(0.123)	0.0025	(0.331)
RetVol		-0.0002	(-0.365)	-0.0001	(-0.184)		0.0001	(0.336)	-0.0004	(-1.198)
ROA		0.0037	(0.927)	0.0063	(1.545)		-0.0010	(-0.253)	-0.0014	(-0.364)
SP_Item		-0.0002	(-0.325)	-0.0002	(-0.430)		-0.0042***	(-6.332)	-0.0038***	(-5.850)
MB		-0.0002***	(-2.861)	-0.0002***	(-2.681)		-0.0000	(-0.336)	0.0000	(0.013)
Constant		0.0549***	(20.386)	0.0605***	(17.692)		0.0165***	(5.224)	0.0194***	(5.077)
Fixed Effects		Industry & Year		Industry & Year			Industry & Year		Industry & Year	
Observations		1,146		1,066			1,146		1,066	
Adjusted R-squared		0.230		0.232			0.154		0.170	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on the client company. Client industries are classified into eight SIC sectors.*

Tests of H1: The effects of audit firm expertise on the properties of KAM

Hypotheses H1(a), H1(b), and H1(c) predict an association between audit firm expertise and KAM content. H1(a) and H1(b) predict that audit firm expertise is associated with the volume of discussion in the KAM and KAM information composition, respectively; H1(c) expects audit firm expertise to positively relate to KAM specificity.

This study uses three measures to capture KAM content: (1) the volume of discussion (*Len_KAM*), (2) information composition (*Risk_Total*), and (3) specificity (*Specificity*). Columns (1) and (2) of Panel A in Table 6.5 show that *BigN (β = 53.51, p<0.01) and AudInd (β = 134.19, p<0.01)* are positively associated with *Len_KAM*. Big N audit firms write an average of ~54 more words per disclosure than non-Big N firms. Moreover, among Big N firms, industry specialised audit firms (*AudInd*) also write more words per disclosure than non-specialised firms. The consistent results on both *BigN* and *AudInd* support H1(a) and further show that specialised audit firms have greater incentives and competencies in providing greater KAM volume. Interestingly, the result for *AudInd* is consistent with the result presented in Rousseau and Zehms (2020), who use portfolio share to define audit firm industry specialisation. However, in Rousseau and Zehms (2020), the coefficient for *BigN* is negative but insignificant. This may be because the Big N sample of this study and that of Rousseau and Zehems (2020) are quite different. Unlike this determinants study, their study includes observations from financial firms, and only 79% of their observations are audited by Big N firms.

However, there is no evidence audit firm expertise is associated with the proportion of the KAM devoted to the risk description (*Risk_Total*), as both the coefficients on *BigN* in Column (3) and *AudInd* in Column (4) of Panel A in Table 6.5 are insignificant (*p<0.10*). Therefore, Hypothesis H1(b) is rejected.

Column (5) of Panel A in Table 6.5 presents a positive and statistically significant coefficient for *BigN (β =* 0.0046*, p<0.10)* when *Specificity* is a dependent variable. However, as shown in Column (6) of Panel A in the aforementioned table, no significant association (*p<0.10*) between *Specificity* and *AudInd* was found. The result regarding *BigN* provides some evidence to support H1(c) and suggests that large audit firms may provide more company-specific information in the KAM than small audit firms do.

The results of these KAM content analyses support the belief that expert audit firms, which are more competent in providing high quality audits and have greater incentives to protect their reputations and reduce litigation costs than non-expert firms, may use KAM strategically to demonstrate their superior audit work and reduce their liabilities for KAM-related financial statement areas which may be

later found misstated. To build up and maintain their reputations, expert audit firms may increase information about audit procedures to present their greater efforts and superior work and include more company-specific information in the KAM section as demanded by regulators and financial statement users. Concomitantly, to protect themselves against future lawsuits and litigation costs related to financial statement areas, which may later be found to be misstated, expert audit firms may strategically increase information about risk and include more company-specific information in each disclosure to forewarn financial statement users about uncertainty regarding KAM-related issues. Moreover, the insignificant association between audit firm expertise and the proportion of the KAM devoted to the risk description may also suggest that audit firms do not find that the proportion of information in the KAM section matters to user audit quality perceptions or their own future litigation costs.

Hypotheses H1(d) and H1(e) are formed as null hypotheses, examining the associations between audit firm expertise and two KAM linguistic features, i.e., readability and uncertain tone, without predicting the direction of the associations. This study uses two measures to capture KAM linguistic features, KAM readability (*Readability*) and the use of uncertain tone (*Uncertainty*). The significant coefficient for *BigN* (β = 0.0060*, p<0.01*) in column (1) of Panel B in Table 6.5 provides some evidence to support H1(d). Audit firm expertise, as measured by firm size, increases the readability of KAM, which is comparable to findings of prior determinants studies (Rousseau and Zehms 2020, Seebeck and Kaya 2022, Smith 2019, Velte 2018, 2019). This result indicates that large audit firms with incentives and abilities to provide higher audit quality also support the production of easy-to-read KAM. However, the insignificant result (*p<0.10*) on *AudInd* in Column (2) of Panel B in Table 6.5 shows that the level of industry specialisation makes no difference on KAM readability. On the one hand, industry specialised audit firms have greater incentives to build their reputations via providing readable KAM than non-specialised firms. On the other hand, industry specialised audit firms may unintentionally utilise more industry jargon and terminology than non-specialised firms. Therefore, the effect of their word preferences can counteract the effect of their reputational incentives to make KAM readable, which could explain why the coefficient for *AudInd* is statistically insignificant when *Readability* is a dependent variable.

Regarding H1(e), the coefficient for *AudInd* in Column (4) of Panel B in Table 6.5 is negative and statistically significant *(β =* -0.0059*, p<0.01)*, suggesting among Big N firms, industry specialised audit firms utilise a lower proportion of uncertain-tone words in their KAM than non-specialised firms. This result provides some evidence to support Hypothesis H1(e) and the idea that, among Big N audit firms,

firms with higher reputation costs, such as industry-specialised audit firms, may see the use of excessive uncertain tone in KAM do more harm than good to their reputations. This is in line with prior studies which suggest that uncertain tone may degrade the informativeness of KAM (Lennox, Schmidt and Thompson 2021) and increase user perceived information risk (Ertugrul et al. 2017). However, the insignificant result (*p<0.10*) for *BigN* in Column (3) of Panel B in Table 6.5 shows that audit firm expertise measured by audit firm size makes no difference on the use of uncertain tone in KAM. Also Big N audit firms have more incentives to avoid reputation risk than non-Big N firms. So, Big N audit firms should minimise uncertain tone in their KAM. However, being exposed to higher litigation costs than non-Big N firms, Big N audit firms may need to reduce their legal responsibility by using an uncertain tone as a forewarning message of the uncertainty within the issues disclosed in KAM (Kachelmeier et al. 2019). Since Big N audit firms may need to balance the use of uncertain tone to reduce their future litigation risk with not endangering their reputations, the effect of being Big N audit firms on the uncertain tone in KAM is unclear, as seen from the insignificant coefficient for *BigN* in Column (3) of Panel B in Table 6.5.

Tests of H2: The effects of audit committee expertise on the properties of KAM

Hypotheses H2(a), H2(b), and H2(c) predict an association between audit firm expertise and KAM content. The coefficients for *AComGov* and *AComAud* in Panel A of Table 6.5 are the results of testing whether audit committee expertise (1) influences the volume of discussion in KAM (H2(a)); (2) is associated with a smaller proportion of the KAM devoted to the risk description (H2(b)), and (3) relates to increased KAM specificity (H2(c)).

With respect to Hypotheses H2(a) and H2(c), Panel A of Table 6.5 shows no evidence that audit committee expertise has an incremental effect on the volume of discussion in KAM and KAM specificity (i.e., the coefficients for *AComGov* and *AComAud* in columns (1), (2), (5), and (6) are statistically insignificant, *p<0.10*). Therefore, Hypotheses H2(a) and H2(c) are all rejected.

Columns (3) and (4) of Panel A in Table 6.5 report the results for Hypothesis H2(b). The coefficients for *AComAud*, for which *Risk_Total* is a dependent variable, are statistically insignificant. However, all coefficients for *AComGov* in these columns are negative and significant *(β = -0.05, p<0.01)*. These results suggest that governance experts on the audit committee view the risk description in their respective KAM as unfavourable information. Therefore, they would support the performance of more extensive audit work to address potential risks and present more information regarding the audit work in the KAM section. This result provides some evidence to support Hypothesis H2(b).

Panel B in Table 6.5 reports the results for two null hypotheses, H2(d) and H2(e), which assess whether audit committee expertise is associated with KAM readability and the use of uncertain tone. However, there is no significant evidence (*p<0.10*) of these associations. Collectively, both Hypotheses H2(d) and H2(e) are rejected.

Tests of H3: The effects of audit partner KAM experience on the properties of KAM

In Table 6.15, Column (5) of Panel A, which has *Specificity* as a dependent variable, is the only column in the table that presents a statistically significant coefficient for *Aud_KAMExp* (β = 0.0012*, p<0.10*). This is in line with the prediction regarding Hypothesis H3(c). This result demonstrates that experience in writing KAM for a client may give audit signing partners new insights into KAM-related circumstances, allowing them to include more specific information in KAM. However, there is no evidence supporting associations between a given audit signing partner's KAM experience and the other properties of KAM. Therefore, Hypotheses H3(a), H3(b), H3(d), and H3(e) are rejected.

Associations between other control variables and KAM properties

Concerning the association between client characteristics and the length of KAM, columns (1) and (2) of Panel A in Table 6.5 show that the variables *Lnsize* and *MB* have significant positive associations with *Len_KAM*, meaning that large and growth companies, which have complex operational and business environments, see higher volume KAM. Furthermore, the significant negative coefficients for *Age* indicate that, on average, auditors write more words per KAM disclosure for younger clients, which usually have more complex businesses, than for older clients. *EquityIssue*, which captures complicated issues in an audit engagement, also presents a significant positive association with *Len_KAM*. Collectively, these results are in line with the predictions that the complexity of client business transactions, and thereby audit engagements, requires auditors to use more words to communicate KAM. As expected, companies with good ROA performance have shorter KAM. Interestingly, auditors include fewer words in KAM for companies with cross-listed shares (*Cross_List*) and high leverage (*Lev*), which is inconsistent with expectations. The coefficients for audit-related control variables, i.e., *AudFee* and *DecYE*, are shown as expected. Consistent with the results of Rousseau and Zehms (2020), the audit firm reliance on client fees (*AudFee*) is significantly negatively associated with *Len_KAM*, meaning that KAM disclosure is shorter when economic ties between an audit firm and a client are stronger. Following the study's prediction, auditors write fewer words during the busy audit season, as seen from the significant negative coefficients for *DecYE* in columns (1) and (2) of Panel A in Table 6.5.

Column (4) of Panel A in Table 6.5 shows that *AudFee* and *MB* are the only two control variables which are significantly and negatively associated with *Risk_Total*. These results are as expected, suggesting the financial independence of a Big N audit firm has a negative association with *Risk_Total*, and the growth of companies, which captures client complexity, has a significant negative association with *Risk_Total*.

Columns (5) and (6) of Panel A in Table 6.5 show no significant relationship between *Specificity* and any client characteristics, indicating that client characteristics do not much influence the KAM specificity. However, the results show that the relationship between *Specificity* and *Risk_Total* is positive and significant in both models 1a and 1b, meaning that the specific information in KAM is more concentrated in the description of risk than that of audit procedures.

Client complexity, as captured by *LnSize* and *MB,* is negatively associated with KAM readability, as expected. Similarly, Seebeck and Kaya (2022) find that the readability of auditors' reports is lower for larger clients. Moreover, when audit reports include a modified going concern opinion (*GoingCon*) and when audit committees have a greater proportion of female members, KAM tend to be easier to read, consistent with the findings of prior KAM determinants studies (Velte 2018, 2019). This implies that female audit committee members are more conservative and contribute to stricter monitoring activities.

Regarding the effect of client complexity on the uncertain tone in KAM, columns (3) and (4) of Panel B in Table 6.5 display significant and positive coefficients for *Acq* and *LnSeg*, implying that auditors increase the proportion of uncertain tone in KAM for companies with more complex operations and business transactions. *SP_Item* has an inverse association with *Uncertainty*, suggesting that a KAM section with disclosures relating to special items includes a less uncertain tone than one without such. This counters the original expectation that special items, which capture unusual events, should be positively associated with the use of an uncertain tone. Therefore, this study goes through the observations that include KAM related to exceptional or special items. This study finds that this KAM type in the sample usually discusses management judgement regarding classifying income and expenditure as exceptional, which is comparatively less complicated than the other KAM types, such as impairment. Therefore, this KAM type is easier to audit and the audit outcome is less likely to be subject to uncertainty. Finally, as expected and in line with the finding of Christofferson and Grönberg (2018), the study finds that the riskiness of audited clients, as measured by *Lev,* is significantly and positively associated with uncertain tone, indicating that auditors use more uncertain-modal words when an audit engagement is more risky.

6.1.4 Sensitivity results from addressing endogeneity for the KAM determinants study (H1 to H3)

This study employs propensity score matching (PSM) to address endogenous selection bias by generating subsamples, including both treatment and control groups, which have comparable covariates. Then, multiple linear regression analyses are performed on these PSM subsamples.

In the matching process, all non-dichotomous variables of interest in Model 1a and 1b (*AudInd*, *AComGov*, *AComAud,* and *Aud_KAMExp)* are transformed into dummy variables (*AudInd_dm*, *AComGov_dm*, *AComAud_dm,* and *Aud_KAMExp_dm*) because the first-stage matching processes employ logistic regressions, which require a dummy dependent variable, to estimate the relationship between an observation's fundamental characteristics and the likelihood of the observation being treated. The study classifies audit firms as specialists within an industry (*AudInd_dm*) if they have a client-industry market share of at least 30 per cent, in accordance with prior studies (Neal and Riley Jr 2004). This study uses tercile ranks to transform the dependent variables related to audit committees (*AComGov* and *AComAud*). This transformation reduced the original sample of 1,146 observations by about one-third (*AComGov_dm* = 782 observations, *AComAud_dm* = 838 observations). The dummy variable for audit signing partner experience captures whether the partner has prior experience in writing KAM for a given client.

Table 6.6 shows the detailed distributions of these PSM subsamples and shows a test of overall differences in means for KAM properties between the treated and non-treated units in the subsamples. The first stage PSM matching process creates balanced matched subsamples[59]. Panel A of Table 6.6 shows that the number of PSM subsamples for testing the effect of Big N membership is very small (treated (Big N) N=51, untreated (non-Big N) N=50) compared to the original sample (N = 1,146). This is due to the use of a one-to-one matching method without replacement[60], the small number of non-Big N observations, and the limited overlap in propensity scores of Big N and non-Big N subsamples. Therefore, the study needs to interpret the results of the PSM regression analyses for a Big N effect with caution as the small PSM-matched sample may not be representative of the actual population.

[59] Detailed differences in means of covariates for the matched subsamples are presented in Appendix J.
[60] This study also tried one-to-one matching with replacement. However, this matching method created a poor balanced matched sample, suggesting that treated and non-treated units in this matched sample were incomparable. Therefore, this study only employs one-to-one without replacement, the common technique used in audit studies, also yielding a balanced matched sample.

Table 6.6 shows that the overall univariate *t*-tests of differences in means for KAM properties between treated and non-treated PSM observations are consistent with the results from the primary analyses shown in Table 6.5. Statistically significant differences in means *Len_KAM* between Big N and non-Big N treatment groups (per Panel A, diff in mean *Len_KAM* = 70.08, $p<0.01$ based on a two-tailed test) and between audit firms with and without industry specialisation (per Panel B, diff in mean *Len_KAM* = 52.102, $p<0.01$ based on a two-tailed test) were still observed, supporting Hypothesis H1(a). Moreover, KAM provided by Big N audit firms and audit signing partners with some experience in writing KAM for the given client include more specific information than KAM provided by non-Big N audit firms and partners without any prior experience, as evidenced from the statistically significant difference in means for *Specificity* per Panel A (diff in mean *Specificity* = 0.007, $p<0.10$ based on a one-tailed test) and Panel E (*Specificity* = 0.004, $p<0.05$ based on a one-tailed test). These results are in line with the primary findings for H1(c) and H3(c).

Moreover, a statistically significant difference in mean *Readability* between Big N and non-Big N treatment groups (per Panel A of Table 6.6, $p<0.01$ based on a two-tailed test) is consistent with the primary result of H1(d) per Column (1) of Panel B in Table 6.5. In line with the result from the primary test of H1(e) per Column (4) of Panel B in Table 6.5, the statistically significant difference in mean *Uncertainty* in Panel B of Table 6.6 suggests that the proportion of uncertain tone in KAM varies by Big N audit firm industry specialisation. Furthermore, Panel C of Table 6.6, which compares the means of KAM properties for firms governed by audit committees with and without governance expertise, shows a significant difference in the means of the proportion of the KAM devoted to describing risk between governance-specialised and non-governance-specialised audit committees. This result also provides evidence supporting the main result for H2(b). Taken together, these univariate *t*-tests of mean differences using the PSM subsamples support all the findings of the primary analyses.

Table 6.6 The descriptive statistics of the KAM properties for PSM-matched subsample

PSM matched subsample

Panel A: Big N (non-Big N) audit firms

	Non-Big N (*BigN* = 0)			Big N (*BigN* = 1)			Mean (*BigN* = 1) – Mean (*BigN* = 0)	
Variables	**N**	**Mean**	**Sd**	**N**	**Mean**	**Sd**	**+/?/-**	**Diff.**
Len_KAM	50	251.628	126.615	51	321.707	138.199	?	70.080***
Risk_Total	50	0.391	0.113	51	0.436	0.088	?	0.045**
Specificity	50	0.039	0.025	51	0.046	0.024	+	0.007*
Readability	50	0.049	0.004	51	0.053	0.005	?	0.004***
Uncertainty	50	0.017	0.006	51	0.018	0.007	?	0.002

Panel B: Industry-specialised (non-industry-specialised) audit firms

	Non-specialised (*AudInd_dm* = 0)			Specialised (*AudInd_dm* = 1)			Mean (*AudInd_dm* = 1) – Mean (*AudInd_dm* = 0)	
Variables	**N**	**Mean**	**Sd**	**N**	**Mean**	**Sd**	**+/?/-**	**Diff.**
Len_KAM	337	298.758	138.930	336	350.860	138.243	?	52.102 ***
Risk_Total	337	0.415	0.109	336	0.430	0.078	?	0.015 **
Specificity	337	0.047	0.023	336	0.046	0.019	+	(0.001)
Readability	337	0.053	0.006	336	0.053	0.005	?	0.000
Uncertainty	337	0.020	0.007	336	0.017	0.007	?	(0.002)***

Panel C: Governance-expertised (non-governance-expertised) audit committee

	Non-expertised (*AComGov_dm* = 0)			Expertised (*AComGov_dm* = 1)			Mean (*AComGov_dm* = 1) – Mean (*AComGov_dm* = 0)	
Variables	**N**	**Mean**	**Sd**	**N**	**Mean**	**Sd**	**+/?/-**	**Diff.**
Len_KAM	229	312.910	140.894	229	328.117	137.115	?	15.207
Risk_Total	229	0.427	0.102	229	0.401	0.103	-	(0.026)***
Specificity	229	0.045	0.022	229	0.044	0.019	+	(0.001)
Readability	229	0.053	0.006	229	0.053	0.006	?	0.002
Uncertainty	229	0.019	0.008	229	0.019	0.006	?	0.000

Panel D: Audit-expertised (non-audit-expertised) audit committee

	Non-expertised (*AComAud_dm* = 0)			Expertised (*AComAud_dm* = 1)			Mean (*AComAud_dm* = 1) – Mean (*AComAud_dm* = 0)	
Variables	**N**	**Mean**	**Sd**	**N**	**Mean**	**Sd**	**+/?/-**	**Diff.**
Len_KAM	264	314.334	134.881	264	321.933	147.348	?	7.599
Risk_Total	264	0.421	0.107	264	0.424	0.097	-	0.003
Specificity	264	0.045	0.023	264	0.047	0.022	+	0.002
Readability	264	0.054	0.006	264	0.053	0.006	?	(0.001)
Uncertainty	264	0.018	0.007	264	0.018	0.007	?	0.000

Panel E (Supplementary tests): KAM-experienced (Non-KAM-experienced) audit signing partners

	Non-experienced (*Aud_KAMExp_dm* = 0)			Experienced (*Aud_KAMExp_dm* = 1)			Mean (*Aud_KAMExp_dm* = 1) – Mean (*Aud_KAMExp_dm* = 0)	
Variables	**N**	**Mean**	**Sd**	**N**	**Mean**	**Sd**	**+/?/-**	**Diff.**
Len_KAM	219	352.970	123.988	218	360.963	124.190	+	7.993
Risk_Total	219	0.440	0.080	218	0.441	0.076	?	0.000
Specificity	219	0.048	0.020	218	0.053	0.023	+	0.004 **
Readability	219	0.054	0.005	218	0.054	0.005	-	0.001
Uncertainty	219	0.018	0.007	218	0.018	0.007	?	0.000

*Note: This table compares descriptive statistics of KAM properties between treated and untreated groups subsamples in terms of audit firm expertise, audit committee expertise, and experience of signing audit partners. Each variable is defined in Appendix A. *, **, and *** indicate p-value at the 0.10, 0.05 and 0.01 levels, respectively (based on one-tailed tests when a direction is predicted and two-tailed tests otherwise).*

Taken together, the univariate *t*-tests of mean differences using the PSM subsamples per Table 6.6 support all the findings of the primary analyses. Moreover, the differences between the directions of the results produced by the primary regression analyses in Table 6.5 and the two-sample t-tests in Table 6.6 signal that endogenous selection problems may exist and need to be addressed when testing the KAM determinants hypotheses. Therefore, this subsection further provides the results from the linear regression analyses using the PSM matched subsamples. These PSM regression analyses help to further control for unbalanced characteristics, if any, in the PSM subsamples. Tables 6.7, 6.8, and 6.9 report the results of the PSM regressions for testing Hypotheses H1, H2, and H3, respectively, and the results are presented as below.

Sensitivity tests of H1: The effects of audit firm expertise on the properties of KAM

The effects of audit firm expertise on the content and the linguistic features of KAM are reexamined via PSM using both the matched full sample and the matched Big N subsample. In Table 6.7, Columns (2), (4), (6), (8), (10), and (12) of Panel A and Columns (2), (4), (6), and (8) of Panel B display the regression results for the tests employing PSM. The same table presents the results from the main analyses in Columns (1), (3), (5), (7), (9), and (11) of Panel A and Columns (1), (3), (5), and (7) of Panel B.

Columns (2) and (4) of Table 6.7, for which the dependent variable is *Len_KAM*, reveal positive and significant coefficients for *BigN*[61] ($p<0.05$) and *AudInd_dm* ($p<0.01$), consistent with the results from the main multiple regression analysis in Columns (1) and (3). Collectively, the results of the main regressions and the PSM regressions support the prediction of Hypothesis H1(a).

Regarding the effect of audit firm expertise on the other KAM content, the results change after controlling for unbalanced characteristics of treated and untreated observations. The significant positive association between *BigN* and *Specificity* previously seen in the main regression result in Column (9) of Panel A in Table 6.7 becomes insignificant ($p<0.10$), as shown in Column (10) of the same panel. Thus, after addressing endogeneity with PSM regressions, there is no evidence that audit firm expertise influences the amount of specific information in the KAM section. Therefore, Hypothesis H1(c) is rejected. Instead, for the Big N subsample, the coefficient for *AudInd_dm* as shown in Column (8) of Panel

[61] The final PSM subsample used in the Big N effects is small at 101 observations. As previously mentioned, the PSM results from Big N analyses may need to be interpreted with caution, as the PSM subsample used in the PSM regression analyses includes less than 10 per cent of the original subsample. Therefore, results from PSM regression analyses may not be generalisable to the population.

A in Table 6.7 has a significant positive association with the proportion of the KAM devoted to the risk description, consistent with audit firms with industry specialisation having an incentive to disclose more risk information.

Regarding the linguistic features of KAM, the significant results of the tests employing PSM, per Columns (2) and (8) of Panel B in Table 6.7, are consistent with the primary results (per Columns (1) and (7) of the same Table). These PSM results further support Hypotheses H1(d) and H1(e).

Table 6.7 Propensity score matching regression results for the effects of audit firm expertise on the KAM properties (H1)

Panel A: the content of KAM

		(a) *Len_KAM*					**(b) *Risk_Total***					**(c) *Specificity***			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)		(9)	(10)	(11)	(12)
variables	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample
***H1*: Audit firm expertise**															
Big N	?	**53.5062*** **	**64.7600** **			?	0.0277	0.0142			+	**0.0046* **	0.0029		
		(2.918)	(2.139)				(1.149)	(0.514)				(1.388)	(0.765)		
Adjusted R-squared		0.356	0.423				0.122	0.205				0.278	0.516		
Controls		Yes	Yes				Yes	Yes				Yes	Yes		
Industry & Year FE		Yes	Yes				Yes	Yes				Yes	Yes		
Observations		1,146	101				1,146	101				1,146	101		
% of full sample			8.81%					8.81%					8.81%		
AudInd	?			**134.1857*** **		?			0.0222		+			-0.0004	
AudInd_dm	?				**48.8176*** **	?				**0.0129* **					-0.0016
				(5.051)	(5.541)				(1.049)	(1.813)				(-0.079)	(-0.958)
Adjusted R-squared				0.369	0.414				0.148	0.127				0.267	0.297
Controls				Yes	Yes				Yes	Yes				Yes	Yes
Industry & Year FE				Yes	Yes				Yes	Yes				Yes	Yes
Observations				1,066	673				1,066	673				1,066	673
% of full sample					63.13%					63.13%					63.13%

*Robust t-statistics in parentheses below the coefficients. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.). All primary equations are presented in Subsection 5.1.3.1, and all PSM equations are presented in Subsection 5.1.3.4.*

Table 6.7 Propensity score matching regression results for the effects of audit firm expertise on the KAM properties (H1) (continued)

Panel B: the linguistic features of KAM

		(d) *Readability*					**(e) *Uncertainty***			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
variables	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample
***H1*: Audit firm expertise**										
Big N	?	**0.0060*** **	**0.0049*** **			?	0.0004	0.0000		
		(5.663)	(3.518)				(0.283)	(0.042)		
Adjusted R-squared		0.230	0.285				0.154	0.257		
Controls		Yes	Yes				Yes	Yes		
Industry & Year FE		Yes	Yes				Yes	Yes		
Observations		1,146	101				1,146	101		
% of full sample			8.81%					8.81%		
AudInd	?			0.0011		?			**-0.0059*** **	
AudInd_dm	?				0.0000	?				**-0.0023*** **
				(0.837)	(0.037)				(-3.557)	(-4.270)
Adjusted R-squared				0.232	0.191				0.170	0.196
Controls				Yes	Yes				Yes	Yes
Industry & Year FE				Yes	Yes				Yes	Yes
Observations				1,066	673				1,066	673
% of full sample					63.13%					63.13%

*Robust t-statistics in parentheses below the coefficients. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.). All primary equations are presented in Subsection 5.1.3.1, and all PSM equations are presented in Subsection 5.1.3.4.*

Sensitivity tests of H2: The effects of audit committee expertise on the properties of KAM

The PSM regression results for the audit committee are reported in Table 6.8. Columns (6) and (8) of Panel A in Table 6.8 show consistent findings of governance expertise being significantly and negatively associated with the proportion of the KAM devoted to the risk description *(p<0.01 and 0.05)*, which confirms the results of the main analyses (see Columns (5) and (7) of the same Table). Collectively, these results support Hypothesis H2(b). Moreover, the PSM result in column (10) of Panel A in Table 6.8 indicates that audit committee audit expertise (*AComAud_dm*) is associated with KAM specificity (*p < 0.10*), consistent with the predictions for Hypothesis H2(c).

Regarding the linguistic features of KAM, all coefficients for *AComGov_dm* and *AComAud_dm* presented in Panel B of Table 6.8 are insignificant, in line with the main analyses' results. Collectively, the study only finds consistent evidence that audit committee governance expertise is statistically associated with the proportion the KAM devoted to the risk description, but not the other KAM properties.

Table 6.8 Propensity score matching regression results for the effects of audit committee expertise on the KAM properties (H2)

Panel A: the content of KAM

		(a) *Len_KAM*					**(b) *Risk_Total***					**(c) *Specificity***			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)		(9)	(10)	(11)	(12)
variables	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample
***H2*: Audit committee expertise**															
AComGov	?	34.0228		34.3055		-	**-0.0526*****		**-0.0516*****		+	-0.0027	-0.0002	-0.0030	-0.0009
AComGov_dm	?		4.6073		-9.5087	-		**-0.0286*****		**-0.0228****	+				
		(1.551)	(0.373)	(1.567)	(-0.778)		(-2.657)	(-2.640)	(-2.561)	(-1.991)		(-0.804)	(-0.115)	(-0.875)	(-0.449)
Adjusted R-squared		0.356	0.382	0.369	0.384		0.122	0.133	0.148	0.156		0.278	0.262	0.267	0.249
Controls		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Industry & Year FE		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Observations		1,146	458	1,066	422		1,146	458	1,066	422		1,146	458	1,066	422
% of full sample			39.97%		39.59%			39.97%		39.59%			39.97%		39.59%
AComAud	?	18.1630		25.2680		-	0.0204		0.0087		+	0.0011		-0.0006	
AComAud_dm	?		15.1506		11.4108	-		0.0112		0.0104	+		**0.0027***		-0.0008
		(0.937)	(1.337)	(1.280)	(0.966)		(1.057)	(1.102)	(0.453)	(0.932)		(0.342)	(1.375)	(-0.172)	(-0.341)
Adjusted R-squared		0.356	0.341	0.369	0.357		0.122	0.156	0.148	0.164		0.278	0.279	0.267	0.220
Controls		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Industry & Year FE		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Observations		1,146	528	1,066	464		1,146	528	1,066	464		1,146	528	1,066	464
% of full sample			46.07%		43.53%			46.07%		43.53%			46.07%		43.53%

*Robust t-statistics in parentheses below the coefficients. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.). All primary equations are presented in Subsection 5.1.3.1, and all PSM equations are presented in Subsection 5.1.3.4.*

Table 6.8 Propensity score matching regression results for the effects of audit committee expertise on the KAM properties (H2) (continued)

Panel B: the linguistic features of KAM

		(d) *Readability*					**(e) *Uncertainty***			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
variables	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample
***H2*: Audit committee expertise**										
AComGov	?	0.0000		0.0001		?	-0.0001		0.0001	
AComGov_dm	?		-0.0002		-0.0001	?		0.0002		0.0003
		(0.017)	(-0.279)	(0.105)	(-0.149)		(-0.053)	(0.268)	(0.078)	(0.367)
Adjusted R-squared		0.230	0.193	0.232	0.228		0.154	0.177	0.170	0.213
Controls		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Industry & Year FE		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Observations		1,146	458	1,066	422		1,146	458	1,066	422
% of full sample			39.97%		39.59%			39.97%		39.59%
AComAud	?	0.0006		0.0001		?	0.0012		0.0008	
AComAud_dm	?		-0.0001		0.0001	?		0.0000		0.0005
		(0.562)	(-0.088)	(0.074)	(0.218)		(0.760)	(0.022)	(0.506)	(0.640)
Adjusted R-squared		0.230	0.180	0.232	0.217		0.154	0.145	0.170	0.140
Controls		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Industry & Year FE		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Observations		1,146	528	1,066	464		1,146	528	1,066	464
% of full sample			46.07%		43.53%			46.07%		43.53%

*Robust t-statistics in parentheses below the coefficients. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.). All primary equations are presented in Subsection 5.1.3.1, and all PSM equations are presented in Subsection 5.1.3.4.*

Sensitivity tests of H3: The effects of audit signing partner expertise on the properties of KAM

Table 6.9 displays the PSM regression results for audit signing partner KAM experience. Columns (10) and (12) of Panel A in Table 6.9 show significant positive coefficients for *Aud_KAMExp_dm* when *Specificity* is a dependent variable, supporting the idea that audit signing partners with some experience in writing KAM for a given client include more specific information. This result is consistent with the finding from the primary analysis as shown in Column (9) of Panel A in Table 6.9. Moreover, the other PSM results of *Aud_KAMExp_dm* in Table 6.9 are all statistically insignificant ($p<0.10$), which is consistent with the primary results.

Table 6.9 Propensity score matching regression results for the effects of audit signing partner's KAM experience on the KAM properties (H3)

Panel A: the content of KAM

		(a) *Len_KAM*					(b) *Risk_Total*					(c) *Specificity*			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)		(9)	(10)	(11)	(12)
variables	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample
***H3*: Audit signing partners' KAM experience**															
Aud_KAMExp	+	4.2192		2.6638		?	0.0014		-0.0001		+	**0.0012***		0.0008	
Aud_KAMExp_dm	+		10.4139		2.0441	?		-0.0020		0.0108	+		**0.0040****		**0.0028***
		(0.815)	(1.095)	(0.505)	(0.205)		(0.398)	(-0.271)	(-0.028)	(1.459)		(1.391)	(2.280)	(0.917)	(1.560)
Adjusted R-squared		0.356	0.249	0.369	0.269		0.122	0.031	0.148	0.052		0.278	0.226	0.267	0.179
Controls		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Industry & Year FE		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Observations		1,146	437	1,066	402		1,146	437	1,066	402		1,146	437	1,066	402
% of full sample			38.13%		37.71%			38.13%		37.71%			38.13%		37.71%

Panel B: the linguistic features of KAM

		(d) *Readability*					(e) *Uncertainty*			
		(1)	(2)	(3)	(4)		(5)	(6)	(7)	(8)
variables	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample	+/?/-	Full sample	Matched full sample	Big N sample	Matched Big N sample
***H3*: Audit signing partners' KAM experience**										
Aud_KAMExp	-	0.0001		0.0000		?	0.0002		0.0002	
Aud_KAMExp_dm	-		0.0001		-0.0000	?		0.0001		0.0009
		(0.520)	(0.255)	(0.185)	(-0.014)		(0.630)	(0.130)	(0.583)	(1.587)
Adjusted R-squared		0.230	0.132	0.232	0.146		0.154	0.101	0.170	0.201
Controls		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Industry & Year FE		Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes
Observations		1,146	437	1,066	402		1,146	437	1,066	402
% of full sample			38.13%		37.71%			38.13%		37.71%

*Robust t-statistics in parentheses below the coefficients. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.). All primary equations are presented in Subsection 5.1.3.1, and all PSM equations are presented in Subsection 5.1.3.4.*

6.1.5 Results from other sensitivity analyses for the KAM determinants study

Industry classification

While the main models of the determinants analyses use the eight SIC industry classifications to determine industry fixed effects and configure *AudInd*, the study also analyses the effects of audit firm expertise, audit committee expertise, and audit signing partner KAM experience on KAM properties based on models using the two-digit SIC industry codes. The regression results are presented in Panel A and Panel B of Appendix H. Overall, the results from these additional analyses are in line with all significant results found in the main analyses (per Table 6.5). In addition to the similarities between the main analyses and these sensitivity tests, Column (6) of Panel A in Appendix H shows that the coefficient of *Aud_KAMExp* becomes statistically significant *(p<0.10)* when Model 1b employs two-digit SIC industry codes*,* supporting H3(c) which predicts that audit signing partner KAM experience positively affects KAM specificity. In addition, estimating Model 1b with two-digit SIC industry codes provides statistically significant and positive results for *AudInd (p<0.10)* when *Risk_Total* is a dependent variable. This sensitivity result provides additional evidence to support the PSM result (Column (8) of Panel A in Table 6.7), that audit firm industry specialisation may have a positive association with the proportion of the KAM devoted to the risk description. Moreover, using Model 1b to perform average length analysis with two-digit SIC industry codes (per Column (2) of Panel A in Appendix H) provides evidence that, for the Big N sample, both audit committee governance (*AComGov*) and audit expertise (*AComAud*) are associated with greater KAM volume (*Len_KAM*) (*p<0.10* and *0.05*), supporting the expectations set out in H2(a).

Audit firm fixed effects

In examining the effects of audit firm industry specialisation, audit committee expertise, and audit signing partner KAM experience on KAM properties, this study additionally employs audit firm fixed effects to control for time-invariant characteristics of audit firms. The regression results are presented in Panel C and Panel D of Appendix H. All significant results regarding *AudInd* and *AComGov* in these supplementary analyses are consistent with the primary results presented in Table 6.5. However, the supplementary analyses for *Specificity* (per columns (5) and (6) of Panel C in Appendix H) show that the coefficients for *Aud_KAMExp* become insignificant (*p<0.10*).

6.1.6 Summary of the results for the KAM determinants study

This section examines the determinants of KAM properties. The distribution of observations was presented at the beginning of the section according to KAM-year, industry, and audit firm expertise. This was followed by the presentation of univariate, correlation, main regression, PSM regression, and additional sensitivity results.

The hypothesis testing with the main full sample regressions analyses, the Big N subsample, and PSM matched subsamples investigated the associations between KAM properties and the competencies of KAM supply-side stakeholders, namely audit firms, audit signing partners, and client audit committees. In the endogeneity sensitivity tests, the univariate results of the PSM subsample show there are significant differences in the means of *Len_KAM* between audit firms with and without expertise in an audit field. Moreover, the mean KAM readability for the Big N audit firms is significantly higher than that of non-Big N firms, and the mean of the uncertain tone in KAM produced by industry specialised audit firms is significantly lower than that of non-industry specialised audit firms. Furthermore, audit committees with governance expertise have a significantly lower mean for *Risk_Total* than ones without governance expertise. These results are consistent with the results of the PSM regression analyses.

Overall, the findings from both the main and PSM-subsample analyses consistently support the view that the volume of discussion in KAM increases when KAM are produced by audit firms with expertise, and Big N audit firms produce more readable KAM than non-Big N firms. Moreover, Big N audit firms with industry specialisation use a less uncertain tone than Big N audit firms without industry specialisation. When audit committees with governance expertise are involved in the engagement, audit firms tend to increase the description of audit procedures. An audit signing partner that has some KAM experience with a given client also includes more specific information than one without any KAM experience.

6.2 The impacts of the nature and properties of KAM on analysts and investors (H4 to H9)

Section 6.2.1 will present the descriptive statistics and the distribution of KAM of the sample used to test the hypotheses related to the impacts of the KAM categories and properties on analyst and investor reactions (H4 to H9). Section 6.2.2 will show the pairwise correlation statistics among the variables used to test H4 to H9. Section 6.2.3 will report the results of the multiple linear regression analyses for the models with industry fixed effects. Section 6.2.4 will present the results of the sensitivity tests using firm fixed effects to address endogeneity. Section 6.2.5 will provide the results of supplementary analyses. Finally, Section 6.2.6 will explicate some conclusions based on the findings of the tests of the impact hypotheses.

6.2.1 Univariate descriptive results for the KAM impact study (H4 to H9)

This subsection reports the sample's univariate descriptive statistics, the year-to-year distribution of KAM across nature of KAM categories, and the yearly means of KAM content and linguistic features.

Table 6.10 presents the descriptive statistics for the variables in the KAM impact analyses, showing that the dispersion of the beginning-of-year analyst earnings forecasts (*AnlDisp*) has a mean of 0.004. Moreover, the magnitude of consensus analyst earnings forecast errors (*AnlErr*) is around 0.9% of a company's stock price 30 days prior to the consensus forecast date, with a standard deviation of 2.1%. The descriptive statistics of these analyst forecast properties are comparable to those shown in prior studies (Reid et al. 2015, Saleh and Roberts 2017). Furthermore, comparable to the descriptive statistics reported by Gutierrez et al. (2018), the average cumulative absolute abnormal returns (*AB_RET*) and abnormal trading volume (*AB_VOL*) around the annual report release date are 2.18 per cent and -0.031, respectively. Furthermore, the average abnormal bid-ask spread (*AB_BAS*) is -0.025, comparable to the descriptive statistics presented by Bens, Chang and Huang (2019).

Regarding the nature of KAM categories, Table 6.10 shows that KAM can be classified according to nine of the original 12 categories of KAM disclosure. This is because the observed sample contains no KAM having an entity-level impact which is also common across clients in the same industry, as evidenced from the zero mean values and standard deviations of *WIE*, *NIE*, and *RIE*. As a result, this study eliminated these categories from the analyses.

Table 6.10 Univariate descriptive statistics for variables in analyses of the impacts of KAM

Variables	N	mean	sd	p5	p25	p50	p75	p95
Dependent variables								
- Analyst reactions								
AnlDisp	954	0.004	0.006	0.000	0.001	0.002	0.004	0.010
AnlErr	952	0.009	0.021	0.000	0.001	0.003	0.009	0.027
- Investor reactions								
AB_RET	1,046	2.181	2.480	0.119	0.629	1.432	2.683	7.029
AB_VOL	1,046	(0.031)	0.811	(1.435)	(0.382)	0.000	0.388	1.278
AB_BAS	695	(0.025)	0.574	(0.835)	(0.075)	(0.009)	0.036	0.813
Independent variables								
- The nature of KAM categories								
WIA	1,046	0.071	0.251	0.000	0.000	0.000	0.000	0.750
WIE	1,046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
WCA	1,046	0.504	0.739	0.000	0.000	0.000	1.000	2.000
WCE	1,046	0.119	0.326	0.000	0.000	0.000	0.000	1.000
NIA	1,046	0.272	0.509	0.000	0.000	0.000	0.500	1.000
NIE	1,046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NCA	1,046	1.143	1.365	0.000	0.000	1.000	2.000	4.000
NCE	1,046	0.162	0.395	0.000	0.000	0.000	0.000	1.000
RIA	1,046	0.566	0.627	0.000	0.000	0.500	1.000	2.000
RIE	1,046	0.000	0.000	0.000	0.000	0.000	0.000	0.000
RCA	1,046	1.571	1.365	0.000	0.000	1.500	2.500	4.000
RCE	1,046	0.087	0.263	0.000	0.000	0.000	0.000	1.000
- The content of KAM								
Len_KAM	1,046	319.76	138.71	111.50	225.71	307.17	396.40	579.67
Risk_Total	1,046	0.421	0.098	0.229	0.371	0.430	0.486	0.560
Specificity	1,046	0.045	0.021	0.012	0.031	0.044	0.058	0.082
- The linguistic features of KAM								
Readability	1,046	0.053	0.006	0.044	0.049	0.053	0.057	0.063
FOG_KAM	1,046	19.114	2.101	15.930	17.650	18.900	20.530	22.770
Uncertainty	1,046	0.018	0.007	0.008	0.014	0.018	0.023	0.031

Table 6.10 Univariate descriptive statistics for variables in analyses of the impacts of KAM (continued)

Variables	N	mean	sd	p5	p25	p50	p75	p95
Control variables								
AB_RetEarn	1,046	4.298	4.028	0.179	1.389	3.028	6.030	12.574
AnlCoverage	1,046	2.264	0.710	0.934	1.735	2.413	2.823	3.212
BETA	1,046	0.746	0.466	0.006	0.402	0.755	1.026	1.557
BigN	1,046	0.952	0.213	1.000	1.000	1.000	1.000	1.000
Chg_NI	1,046	0.041	0.066	0.002	0.009	0.021	0.045	0.156
EarnVol	1,046	0.031	0.032	0.005	0.012	0.022	0.039	0.084
FindKAM	1,046	0.366	0.482	0.000	0.000	0.000	1.000	1.000
FOGAnnual	1,037	15.258	3.201	6.850	15.746	16.266	16.780	17.556
ForecastErr	1,046	0.008	0.026	0.000	0.001	0.002	0.005	0.023
GoingCon	1,046	0.011	0.102	0.000	0.000	0.000	0.000	0.000
Horizon	952	5.777	0.055	5.684	5.746	5.775	5.814	5.858
Lev	1,046	0.569	0.214	0.236	0.409	0.568	0.721	0.910
LnMarket	1,046	13.801	1.705	10.999	12.666	13.823	14.949	16.882
LnSeg	954	1.485	0.526	0.693	1.099	1.609	1.792	2.303
Loss	1,046	0.163	0.369	0.000	0.000	0.000	0.000	1.000
MatPerc	1,046	0.007	0.007	0.002	0.004	0.005	0.008	0.018
MB	1,046	3.476	3.518	0.461	1.315	2.489	4.225	10.658
Rep_Lag	1,046	26.755	14.152	1.000	19.000	27.000	34.000	50.000
ReturnVol	1,046	1.944	0.775	1.114	1.443	1.762	2.164	3.496
ROA	1,046	0.050	0.090	(0.090)	0.020	0.053	0.091	0.175
SizeAnnual	1,046	4.903	0.313	4.431	4.727	4.913	5.100	5.352
SizeAudit	1,046	7.942	0.448	7.301	7.698	7.935	8.251	8.570

Note: All variables are defined in Appendix A.

Table 6.11 displays the year-to-year distribution of KAM across nature of KAM categories. Panel A reports the distribution of KAM in the year *t-1* that had been withdrawn from the year *t* KAM section, and Panel B displays the distribution of year *t* KAM according to the nature of KAM variables. Consistent with Gutierrez et al. (2018), Lennox, Schmidt and Thompson (2021), Reid et al. (2019), Zhang and Shailer (2018), Panel B of Table 6.11 shows that, in the first four years after ISA (UK and Ireland) 700 implementation in the UK, companies presented 3.8 KAM disclosures per year on average, consisting of 1.58 non-repeated disclosures (*NIA*, *NCA*, and *NCE*) and 2.22 repeated disclosures (*RIA*, *RCA*, and *RCE*). Most commonly, KAM are client specific and relate to particular account(s) in the client's financial statements, averaging 1.571 such repeated disclosures (*RCA*) and 1.143 such non-repeated disclosures (*NCA*), as shown in Table 6.10.

Panel B of Table 6.11 illustrates that all KAM in Year 1 are classified as non-repeated (*NIA*, *NCA* and *NCE*) because Year 1 of the study is the first year of UK KAM implementation – therefore, there was no prior data with which to compare. By the same token, the number of prior-period KAM withdrawn from the current-period auditor's report is only non-zero from Year 2 onwards. The average number of withdrawn KAM (*WIA*, *WCA* and *WCE*) is highest in Year 2, with a mean of 1.16 withdrawn disclosures, dropping to an average of 0.78 withdrawn disclosures in the following years. Out of the total number of withdrawn KAM in the sample period, the highest number of withdrawn KAM is found at the company-specific account-level KAM (*WCA*), with an average of 0.504 disclosures withdrawn, as shown in Table 6.10. From Year 2 to Year 4, the most seen KAM categories in each year are *RCA*, *RIA* and *NCA*, listed in descending order of disclosure number. 74 per cent of the prior year KAM are repeated in the subsequent year, consistent with that observed by Lennox, Schmidt and Thompson (2019).

Table 6.10 further illustrates that, of the 1,046 observations, each disclosure within the KAM contains an average of 320 words (*Len_KAM*). Comparable to the KAM sample used in the study of KAM determinants, the KAM observations employed in the impact study observed that 42% of total words contained in the KAM were used to describe risk (*Risk_Total*), 4.5% contained specific information (*Specificity*), and 1.8% were considered to be uncertainty terms (*Uncertainty*), as found in the Loughran-McDonald Sentiment Word lists (2018). The average KAM Gunning's Fog index (*FOG_KAM*) is 19.114, which is indicative of greater complexity than that of the annual report (*FOGAnnual* = 15.258). The mean score of *Readability* is 0.053.

In addition, Table 6.12 presents the yearly mean of each KAM property, showing that the means of *Len_KAM*, *Risk _Total, Specificity,* and *Readability* increased during the sample period. The improved quality of *Specificity* and *Readability* over time is in line with previous findings documented by Seebeck and Kaya (2022). The KAM in Year 1 are described by a Fog index of 20.469 and an average length of 204 words, of which 36.7% of total KAM length was dedicated to the risk description and 3.2% to mentioning specific information. In comparison, the average KAM disclosure of Year 4 is 392 words long, with 44.7% of those words describing risk, 5.4% communicating specific information, and a Fog index of 18.085. However, the uncertain tone of Year 2 KAM decreased from the level seen in Year 1 and remained unchanged afterwards.

Overall, the KAM distributions and the changes in yearly means of KAM properties show that KAM disclosures are not static, as critics have claimed. The variation in KAM properties enables this study

to employ models with firm fixed effects to reduce endogeneity arising from omitted variables when examining the incremental effects of the nature of KAM categories and the KAM properties.

Regarding the firm-related control variables, Table 6.10 shows that the average company in the sample has a natural logarithmic market value of 13.81, natural logarithmic segments of 1.485, and a leverage ratio of 56.9%. Sample companies have an average return on assets of 5%. 16.3% of sample companies report loss on their income statements. 1.1% of the audit reports contain a modified going concern (*GoingCon*) paragraph. The average logarithm of the number of analysts covering a particular company is 2.264 (the standard deviation is 0.71). The average number of days between earnings announcement and annual report issuance (*Rep_Lag*) is ~27 days. In addition, 95.2% of the companies employ a Big 4 audit firm, which is a little higher than figures reported by prior KAM impact studies, in which Big 4 audit firms were seen to audit about 93% of sample companies (Gutierrez et al. 2018, Reid et al. 2019). On average, the logarithmic transformation of the number of pages in the annual report (*SizeAnnual*) is 4.903, and the logarithmic transformation of the number of words in an audit report (*SizeAudit*) is 7.942. An auditor's average overall materiality for an audit engagement is at 0.7% of the auditee's total assets. Overall, the descriptive statistics of these control variables are comparable to those seen in prior KAM studies (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2021, Reid et al. 2015, Reid et al. 2019, Smith 2019).

Table 6.11 The distributions of KAM in twelve categories by year

Panel A: Distribution of KAM of the year t-1 that are withdrawn from year t

Variables	KAM Categories			Total	Year 1	Year 2	Year 3	Year 4
	The Occurrence and the Existence	**The Industry Commonality**	**The pervasiveness of the effect on financial statements**	**Number of disclosures in the KAM section**				
WIA	Withdrawn (W)	Industry-common (I)	Account-level-related (A)	74	0	18	30	26
WIE	Withdrawn (W)	Industry-common (I)	Entity-level-related (E)	0	0	0	0	0
WCA	Withdrawn (W)	Company-specific (C)	Account-level-related (A)	527	0	208	158	161
WCE	Withdrawn (W)	Company-specific (C)	Entity-level-related (E)	126	0	91	16	19
Total number of KAM of *year t-1* that are withdrawn from *year t*				727	0	317	204	206
Average number of withdrawn KAM per firm-year observation				0.70	0.00	1.16	0.78	0.83
Number of firm-year observations				1,046	263	274	260	249

Panel B: Distribution of KAM of the year t

Variables	KAM Categories			Total	Year 1	Year 2	Year 3	Year 4
	The Occurrence and the Existence	**The Industry Commonality**	**The pervasiveness of the effect on financial statements**	**Number of disclosures in the KAM section**				
NIA	Non-Repeated (New) (N)	Industry-common (I)	Account-level-related (A)	285	196	46	25	18
NIE	Non-Repeated (New) (N)	Industry-common (I)	Entity-level-related (E)	0	0	0	0	0
NCA	Non-Repeated (New) (N)	Company-specific (C)	Account-level-related (A)	1,195	742	213	126	114
NCE	Non-Repeated (New) (N)	Company-specific (C)	Entity-level-related (E)	170	117	21	18	14
	Total non-repeated KAM			1,650	1,055	280	169	146
	Average number of non-repeated KAM per firm-year observation			1.58	4.01	1.02	0.65	0.59
RIA	Repeated (R)	Industry-common (I)	Account-level-related (A)	591	0	216	190	185
RIE	Repeated (R)	Industry-common (I)	Entity-level-related (E)	0	0	0	0	0
RCA	Repeated (R)	Company-specific (C)	Account-level-related (A)	1,644	0	535	596	513
RCE	Repeated (R)	Company-specific (C)	Entity-level-related (E)	91	0	31	31	29
	Total repeated KAM			2,326	0	782	817	727
	Average number of repeated KAM per firm-year observation			2.22	0.00	2.85	3.14	2.92
Total number of KAM disclosed in year t				3,976	1,055	1,062	986	873
Average number of KAM per firm-year observation				3.80	4.01	3.88	3.79	3.51
Number of firm-year observations				1,046	263	274	260	249

Note: This distribution is based on the subsample of the investor reaction analysis, the maximum subsample used in the impact analyses. See Appendix A for variable definitions.

Table 6.12 Means of the content and linguistic features of KAM by year

The properties of KAM	Total	1	2	3	4
The content of KAM					
Len_KAM	320	204	319	369	392
Risk_Total	0.421	0.367	0.435	0.435	0.447
Specificity	0.045	0.032	0.044	0.050	0.054
The linguistic features of KAM					
Readability	0.053	0.049	0.052	0.054	0.056
FOG_KAM	19.117	20.469	19.248	18.614	18.085
Uncertainty	0.018	0.020	0.018	0.018	0.018

Note: See Appendix A for variable definitions.

6.2.2 Correlation results for the KAM impact study (H4 to H9)

Table 6.13 contains the Pearson correlation coefficients among the variables employed in the tests of KAM impacts on analysts and investors. The table includes dependent variables that measure analyst and investor reactions, variables of interest which measure KAM according to each nature category, content, and linguistic features, and all control variables. The table reveals positive and significant correlations between repeated, company-specific, and entity-level KAM (*RCE*) and two outcome variables (*AnlDisp* and *AB_RET*). WIA and NIA are positively related to *AB_RET*. Moreover, the proportion of the KAM devoted to the risk description (*Risk_Total*) significantly and positively correlates with analyst earnings forecast dispersion (*AnlDisp*) and the readability of KAM (*Readability*) significantly and negatively correlates with *AB_VOL*. Collectively, these results provide initial evidence that analysts and investors may react to KAM.

Significant pairwise correlations between the nature of KAM categories range between r = -0.5389 (*NCA* and *RCA*) and r = 0.3513 (*NCA* and *NCE*). Like the correlation results of the determinants analyses, six out of ten pairwise correlations between the properties of KAM (*Len_KAM*, *Risk_Total*, *Specificity*, *Readability*, and *Uncertainty*) are statistically significant ($p<0.05$). These correlations range between r = -0.1729 (*Len_KAM* and *Uncertainty*) and r = 0.3985 (*Risk_Total* and *Specificity*), confirming the KAM measurements used in the impact analyses are not highly correlated. Consistent with Klevak et al. (2020), the KAM length (*Len_KAM*) is positively associated with firm market size (*LnMarket*) and analyst coverage (*AnlCoverage*).

Some pairs of control variables present high correlations. The correlation between *Beta* and *LnMarket* is significant and positive (r = 0.5366, *p< 0.05*), reasonably indicating that large companies are associated with higher systemic risk. *AnlCoverage* significantly and positively correlates with *LnMarket* (r = 0.8334), BETA (r = 0.6362), and *SizeAnnual* (r = 0.5876), suggesting that analysts tend to follow large firms, firms with higher systematic risk, and firms with better information environments. The high correlation between *AnlCoverage* and *LnMarket* may signal multicollinearity (Gujarati, Porter and Gunasekar 2012)[62]. To address this concern, the VIF values and the tolerance values (1/VIF) for all independent variables used to test the KAM impacts on each of the analyst and investor measures (H4 to H9) are checked against thresholds. Table 6.14 shows all VIF values are below ten and tolerance values above 0.1, implying that the risk of multicollinearity is low (Hair et al. 2010).

[62] To be prudent, in each main analysis of market reactions, the study checks if the results are robust with the exclusion of *AnlCoverage* from the model. The untabulated results are generally consistent with the results from main analyses.

Table 6.13 Pearson's correlation of firm-year observations for testing the impact hypotheses

	Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1)	AnlDisp	1												
(2)	AnlErr	0.6732*	1											
(3)	AB_RET	0.0746	0.1378*	1										
(4)	AB_VOL	0.0083	-0.0058	0.1743*	1									
(5)	AB_BAS	0.1022*	0.0297	-0.0049	-0.2314*	1								
(6)	WIA	-0.0076	0.0209	0.1431*	-0.036	0.0265	1							
(7)	WCA	0.0061	-0.0096	0.0146	-0.0118	-0.0027	0.1353*	1						
(8)	WCE	-0.0247	-0.0304	0.0509	-0.0029	0.0164	-0.0157	0.2871*	1					
(9)	NIA	0.0445	0.0617	0.0821*	0.0377	-0.0115	-0.0501	-0.1141*	-0.0395	1				
(10)	NCA	0.0008	0.0035	-0.0265	0.022	0.0191	-0.1018*	-0.1478*	0.0059	0.3307*	1			
(11)	NCE	0.0528	0.0489	0.0385	0.0196	0.0023	-0.0536	-0.0774*	-0.0634	0.2636*	0.3513*	1		
(12)	RIA	0.0333	-0.0228	0.0524	-0.0575	0.0305	0.0159	0.1493*	0.1403*	-0.3172*	-0.3814*	-0.1951*	1	
(13)	RCA	0.0326	-0.0483	-0.047	0.0119	-0.0268	0.0319	0.1485*	0.0593	-0.4259*	-0.5389*	-0.2793*	0.3044*	1
(14)	RCE	0.1400*	0.0625	0.0839*	-0.0146	0.014	0.1075*	0.1553*	0.0469	-0.1295*	-0.1281*	-0.057	0.0726	0.0841*
(15)	Len_KAM	-0.031	-0.0594	-0.0144	-0.0515	0.0188	0.0882*	0.2329*	0.1521*	-0.2628*	-0.3726*	-0.2686*	0.2557*	0.2159*
(16)	Risk_Total	0.0802*	0.0542	-0.0611	-0.008	-0.013	0.031	0.0497	0.0818*	-0.1630*	-0.2322*	-0.2159*	0.1545*	0.2480*
(17)	Specificity	0.0439	0.0079	0.0757*	0.0078	0.0226	0.1292*	0.1452*	0.1030*	-0.1923*	-0.2349*	-0.1270*	0.2038*	0.1994*
(18)	Readability	0.0661	0.0471	0.0708	-0.0371	0.0043	0.1250*	0.0960*	0.0194	-0.1709*	-0.3248*	-0.2068*	0.2504*	0.2207*
(19)	Uncertainty	-0.0155	-0.062	-0.0255	0.0087	-0.0056	-0.0576	-0.1106*	-0.1344*	0.1068*	0.0578	0.0848*	0.0245	-0.1071*
(20)	AB_RetEarn	0.1049*	0.0850*	0.1522*	0.0758*	0.0564	0.0864*	0.0268	0.0422	-0.1020*	-0.1511*	-0.0119	0.1630*	0.1097*
(21)	AnlCoverage	-0.1851*	-0.2687*	-0.0522	0.1216*	0.0485	-0.0358	-0.0207	-0.0334	0.0750*	0.0858*	0.0241	0.0589	0.1039*
(22)	BETA	-0.066	-0.1809*	0.0429	0.0879*	-0.0079	-0.005	-0.0139	-0.0463	0.0991*	0.0372	-0.0342	0.0383	0.0422
(23)	BigN	-0.0521	-0.0199	-0.0622	0.1482*	-0.0521	-0.0526	-0.0193	-0.0724	-0.0109	-0.0023	-0.0897*	-0.0187	0.0155
(24)	Chg_NI	0.1773*	0.1453*	0.2004*	-0.0948*	0.1055*	0.1687*	0.0505	0.1150*	0.0397	-0.0467	0.0008	0.1316*	-0.0366
(25)	EarnVol	-0.0244	0.0057	0.1752*	-0.0396	0.0226	0.1239*	-0.0153	0.0013	0.0748*	0.0219	0.0518	0.0364	-0.0455
(26)	FindKAM	-0.0707	-0.0822*	0.0533	-0.0116	0.0391	0.1253*	0.3287*	0.2660*	-0.2200*	-0.2463*	-0.1524*	0.2441*	0.3120*
(27)	ForecastErr	0.6202*	0.6424*	0.1420*	0.0318	0.0046	0.0391	0.0324	0.0939*	0.0298	0.0019	0.1170*	0.0302	-0.0477
(28)	GoingCon	0.3302*	0.2152*	0.1588*	-0.0543	0.1335*	0.0890*	0.046	0.0408	0.0624	-0.0219	0.1003*	0.0892*	-0.0273
(29)	Horizon	0.0609	0.0633	0.1671*	0.0985*	-0.0436	-0.0029	-0.0116	-0.0276	0.0707	0.0694	0.0769*	-0.0491	-0.0392
(30)	Lev	0.1077*	0.0898*	-0.0405	0.0879*	-0.0827*	-0.0001	0.1498*	0.0611	-0.0633	0.0881*	0.0611	0.0698	0.1391*
(31)	LnMarket	-0.2576*	-0.3101*	-0.1704*	0.1104*	0.0469	-0.1255*	0.011	-0.0228	-0.0004	0.0954*	-0.0097	0.0565	0.1622*
(32)	LnSeg	-0.0626	-0.0416	0.0098	-0.0571	0.0191	-0.0368	0.0247	0.0279	0.0505	0.019	-0.0187	0.0825*	0.0244
(33)	Loss	0.2437*	0.2033*	0.1762*	-0.0456	0.0845*	0.1126*	0.0245	0.0625	0.0672	-0.049	0.1309*	0.1730*	-0.0539
(34)	MatPerc	0.0018	0.0654	0.1701*	0.0161	0.0088	0.1622*	0.0151	0.0557	0.0912*	0.0085	0.0401	-0.0215	-0.1417*
(35)	MB	-0.1915*	-0.1478*	-0.0967*	0.0219	-0.008	-0.0614	0.0884*	0.0382	-0.0804*	0.0617	0.0583	-0.0656	-0.0048
(36)	Rep_Lag	-0.1008*	-0.0871*	-0.2234*	-0.1876*	0.0464	0.0058	-0.003	0.0044	-0.0202	-0.0048	-0.0224	0.0457	-0.0031
(37)	ReturnVol	0.2588*	0.2683*	0.2306*	-0.0923*	0.1021*	0.2119*	-0.0571	-0.0273	0.0689	-0.0343	0.0521	0.0467	-0.1261*
(38)	ROA	-0.3068*	-0.2359*	-0.1371*	0.1010*	-0.1022*	-0.1678*	-0.0423	-0.0820*	-0.1051*	0.0294	-0.0953*	-0.2143*	0.0347
(39)	SizeAnnual	-0.0863*	-0.1456*	-0.01	0.0942*	0.0729	-0.0354	0.0792*	0.0129	0.0081	0.0088	0.0309	0.1923*	0.1535*
(40)	SizeAudit	0.0363	-0.0054	-0.0299	-0.04	0.0273	0.0734	0.1511*	0.1561*	-0.1249*	-0.0905*	-0.0023	0.2147*	0.3109*

Table 6.13 Pearson's correlation of firm-year observations for testing the impact hypotheses (continued)

	Variables	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
(1)	AnlDisp													
(2)	AnlErr													
(3)	AB_RET													
(4)	AB_VOL													
(5)	AB_BAS													
(6)	WIA													
(7)	WCA													
(8)	WCE													
(9)	NIA													
(10)	NCA													
(11)	NCE													
(12)	RIA													
(13)	RCA													
(14)	RCE	1												
(15)	Len_KAM	0.061	1											
(16)	Risk_Total	-0.1109*	0.2416*	1										
(17)	Specificity	0.1360*	0.3496*	0.3985*	1									
(18)	Readability	0.0114	0.2929*	0.2822*	0.3372*	1								
(19)	Uncertainty	-0.0073	-0.1729*	-0.0004	-0.1258*	-0.0829*	1							
(20)	AB_RetEarn	0.0767*	0.1101*	0.0481	0.1322*	0.0956*	0.0017	1						
(21)	AnlCoverage	-0.0742	0.1377*	-0.0317	0.0488	-0.1022*	-0.0056	0.0568	1					
(22)	BETA	0.017	0.1343*	-0.0723	-0.0041	-0.0919*	-0.0284	0.0758*	0.6362*	1				
(23)	BigN	-0.1549*	0.1553*	0.046	0.0473	0.1212*	0.0311	0.0900*	0.3660*	0.2626*	1			
(24)	Chg_NI	0.1884*	0.0858*	-0.0343	0.1914*	0.0399	-0.0533	0.1318*	-0.0438	-0.0486	-0.0941*	1		
(25)	EarnVol	0.0661	-0.0175	-0.1192*	0.0451	0.0168	-0.1271*	0.1241*	0.0213	0.074	-0.1270*	0.2492*	1	
(26)	FindKAM	0.1358*	0.5365*	0.1058*	0.3020*	0.2088*	-0.2289*	0.0744	0.1556*	0.0759*	0.1485*	0.1217*	0.0171	1
(27)	ForecastErr	0.1770*	-0.0584	-0.0407	0.0406	-0.0092	-0.0101	0.0437	-0.2675*	-0.1901*	-0.1486*	0.2991*	0.0506	-0.041
(28)	GoingCon	0.2664*	0.036	-0.0234	0.1663*	0.0387	0.0335	0.1012*	-0.1008*	-0.0563	-0.1540*	0.2805*	0.1676*	0.0404
(29)	Horizon	0.0144	-0.0436	0.0098	0.0553	-0.0979*	-0.0039	0.0201	0.026	0.0473	-0.0165	0.0285	0.0422	0.0235
(30)	Lev	0.1423*	-0.0037	0.0359	0.0425	-0.0255	0.0909*	0.0091	0.0904*	0.0286	0.1188*	-0.0357	-0.2593*	0.0774*
(31)	LnMarket	-0.1009*	0.1073*	-0.0162	-0.0081	-0.1551*	0.0152	-0.0323	0.8334*	0.5366*	0.2988*	-0.1794*	-0.0940*	0.1324*
(32)	LnSeg	-0.011	-0.0427	-0.0607	0.0134	-0.1663*	0.2035*	-0.0469	0.1102*	0.1094*	0.0292	-0.0218	-0.0146	0.0723
(33)	Loss	0.2051*	0.0557	-0.0645	0.1336*	0.0529	-0.0637	0.1395*	-0.0930*	0.0207	-0.1033*	0.4368*	0.1821*	0.0448
(34)	MatPerc	0.2488*	-0.0895*	-0.0889*	0.0779*	0.0097	-0.0473	0.0734	-0.0652	-0.0838*	-0.2530*	0.2431*	0.4434*	0.0001
(35)	MB	0.0124	-0.0169	-0.0399	-0.0527	-0.0581	0.0117	-0.0282	0.2273*	0.0498	0.1021*	-0.0595	0.0635	0.062
(36)	Rep_Lag	-0.0534	0.0641	-0.0649	-0.0608	0.0408	-0.0222	-0.0145	0.047	-0.0279	0.0386	0.0332	-0.0155	-0.0281
(37)	ReturnVol	0.2679*	0.0137	-0.0981*	0.1037*	0.0317	-0.0583	0.0869*	-0.2304*	-0.032	-0.1131*	0.3518*	0.3552*	0.0113
(38)	ROA	-0.1690*	-0.1141*	-0.0014	-0.1963*	-0.0565	0.0082	-0.1372*	0.1182*	0.0319	0.1250*	-0.4469*	-0.0517	-0.0594
(39)	SizeAnnual	0.0163	0.1526*	0.0269	0.1778*	-0.1052*	0.0234	0.0345	0.5876*	0.4153*	0.2160*	0.0045	0.0127	0.1920*
(40)	SizeAudit	0.1613*	0.3605*	0.1023*	0.2061*	0.1228*	-0.1399*	0.0252	0.1481*	0.0901*	0.06	0.0841*	-0.037	0.5074*

Table 6.13 Pearson's correlation of firm-year observations for testing the impact hypotheses (continued)

	Variables	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(37)	(38)	(39)	(40)
(1)	AnlDisp														
(2)	AnlErr														
(3)	AB_RET														
(4)	AB_VOL														
(5)	AB_BAS														
(6)	WIA														
(7)	WCA														
(8)	WCE														
(9)	NIA														
(10)	NCA														
(11)	NCE														
(12)	RIA														
(13)	RCA														
(14)	RCE														
(15)	Len_KAM														
(16)	Risk_Total														
(17)	Specificity														
(18)	Readability														
(19)	Uncertainty														
(20)	AB_RetEarn														
(21)	AnlCoverage														
(22)	BETA														
(23)	BigN														
(24)	Chg_NI														
(25)	EarnVol														
(26)	FindKAM														
(27)	ForecastErr	1													
(28)	GoingCon	0.3352*	1												
(29)	Horizon	0.0429	0.0233	1											
(30)	Lev	0.1647*	0.043	0.0335	1										
(31)	LnMarket	-0.3264*	-0.2216*	0.0042	0.1019*	1									
(32)	LnSeg	-0.0828*	-0.0058	0.0265	-0.061	0.1708*	1								
(33)	Loss	0.3189*	0.2255*	0.0283	-0.0341	-0.2417*	0.0252	1							
(34)	MatPerc	0.2175*	0.3478*	0.1230*	-0.1221*	-0.1512*	-0.0287	0.1662*	1						
(35)	MB	-0.1267*	-0.1047*	0.0127	0.2483*	0.3018*	-0.016	-0.2136*	0.2297*	1					
(36)	Rep_Lag	-0.0969*	-0.0089	-0.7108*	-0.0318	0.0459	-0.0503	-0.0074	-0.1285*	-0.0254	1				
(37)	ReturnVol	0.3272*	0.3127*	0.0589	-0.1033*	-0.3911*	-0.0011	0.4254*	0.3050*	-0.2215*	-0.0326	1			
(38)	ROA	-0.3402*	-0.3699*	-0.0059	-0.0549	0.2988*	-0.0418	-0.6790*	0.0295	0.4738*	-0.0671	-0.4079*	1		
(39)	SizeAnnual	-0.1310*	-0.0038	0.0155	0.1622*	0.6095*	0.2539*	0.0091	-0.1617*	0.0899*	-0.0193	-0.0887*	-0.0722	1	
(40)	SizeAudit	0.0079	0.0744*	0.0889*	0.1219*	0.1292*	0.0002	0.0701	-0.0587	0.0209	-0.0664	0.0031	-0.0946*	0.1115*	1

*Note: The table present Pearson's correlations for variables included in main tests of the determinants hypotheses. Variable definitions are presented in Appendix A. All continuous variables are winsorised at the 1% and 99% levels. Numbers in bold and with * are the correlations with statistically significant at the 5% level.*

Table 6.14 VIF and tolerance values of variables in Model 2a, 2b, and Model 3 (the impact hypotheses)

(1)			(2)			(3)			(4)		
Model 2a: Impacts on analyst earnings forecast dispersion (*AnlDisp*)			**Model 2b: Impacts on magnitude of analyst earnings forecast errors (*AnlErr*)**			**Model 3: Impacts on the markets (*AB_RET* and *AB_VOL*)**			**Model 3: Impacts on the markets (*AB_BAS*)**		
Variable	**VIF**	**1/VIF**	**Variable**	**VIF**	**1/VIF**	**Variable**	**VIF**	**1/VIF**	**Variable**	**VIF**	**1/VIF**
LnMarket	4.06	0.246408	LnMarket	4.03	0.247899	LnMarket	5.11	0.195511	LnMarket	5.49	0.182036
AnlCoverage	3.19	0.313013	AnlCoverage	3.19	0.313709	AnlCoverage	4.51	0.221919	AnlCoverage	5.01	0.199708
RCA	2.92	0.342084	RCA	2.92	0.342081	ROA	3.27	0.305962	ROA	3.68	0.271993
NCA	2.81	0.356397	NCA	2.81	0.35526	RCA	2.82	0.354785	RCA	2.78	0.35935
ROA	2.71	0.369105	ROA	2.7	0.369745	NCA	2.71	0.368671	NCA	2.57	0.388769
FindKAM	2.13	0.468419	FindKAM	2.14	0.466774	Loss	2.23	0.448478	Loss	2.36	0.423075
Loss	2.1	0.475809	Loss	2.09	0.479273	MatPerc	2.19	0.456576	FindKAM	2.26	0.442844
RIA	2.02	0.496167	RIA	2.02	0.495285	FindKAM	2.16	0.461899	SizeAnnual	2.21	0.451669
Len_KAM	2.01	0.498072	Len_KAM	2.01	0.496804	Len_KAM	2.1	0.475429	MatPerc	2.17	0.461421
NIA	1.86	0.536292	NIA	1.86	0.536342	SizeAnnual	1.98	0.505718	Len_KAM	2.15	0.464452
SizeAnnual	1.79	0.557134	SizeAnnual	1.8	0.555334	EarnVol	1.96	0.509982	MB	1.97	0.506716
SizeAudit	1.74	0.574697	SizeAudit	1.75	0.572152	RIA	1.95	0.513897	RIA	1.95	0.512446
ReturnVol	1.64	0.608929	MatPerc	1.64	0.60845	ReturnVol	1.95	0.514019	BETA	1.95	0.513842
MatPerc	1.64	0.61049	ReturnVol	1.63	0.611656	SizeAudit	1.84	0.544362	ReturnVol	1.94	0.515984
Specificity	1.57	0.635496	Specificity	1.57	0.635562	MB	1.81	0.553079	EarnVol	1.81	0.552541
LnSeg	1.54	0.649579	LnSeg	1.54	0.64755	BETA	1.78	0.560448	NIA	1.81	0.552604
Readability	1.47	0.678272	Readability	1.48	0.677275	NIA	1.78	0.560786	SizeAudit	1.7	0.587913
WCA	1.42	0.705514	WCA	1.41	0.706968	Specificity	1.61	0.621516	Specificity	1.67	0.599133
WCE	1.42	0.70648	WCE	1.41	0.708418	ForecastErr	1.6	0.624552	Lev	1.62	0.618397
Risk_Total	1.39	0.721381	Risk_Total	1.39	0.721268	Chg_NI	1.55	0.647186	ForecastErr	1.61	0.620661
NCE	1.35	0.738784	NCE	1.35	0.740569	Lev	1.54	0.649646	Chg_NI	1.58	0.632318
ForecastErr	1.33	0.751121	ForecastErr	1.34	0.746601	Readability	1.49	0.672444	Readability	1.56	0.640425
Lev	1.3	0.768128	Lev	1.3	0.767525	WCE	1.47	0.682502	GoingCon	1.55	0.643378
Uncertainty	1.3	0.770361	Uncertainty	1.3	0.769863	Risk_Total	1.43	0.698944	BigN	1.54	0.647417
RCE	1.28	0.77847	RCE	1.28	0.778557	NCE	1.41	0.706756	WCE	1.5	0.665934
GoingCon	1.19	0.840784	GoingCon	1.19	0.840507	WCA	1.41	0.707549	Risk_Total	1.48	0.675052
BigN	1.15	0.866237	BigN	1.17	0.857123	RCE	1.37	0.732033	WCA	1.45	0.688645
WIA	1.12	0.891324	WIA	1.12	0.892592	GoingCon	1.35	0.738605	RCE	1.44	0.693962
						BigN	1.31	0.765076	NCE	1.43	0.699985
						Uncertainty	1.22	0.818368	WIA	1.23	0.811963
						AB_RetEarn	1.17	0.858134	Uncertainty	1.23	0.815847
						WIA	1.16	0.865416	AB_RetEarn	1.18	0.848206
						Rep_Lag	1.12	0.894559	Rep_Lag	1.16	0.859446
Mean VIF	1.84		Mean VIF	1.81		Mean VIF	1.95		Mean VIF	2.03	

6.2.3 Main regression results for the KAM impact study (H4 to H9)

The impact analyses test whether and how KAM categories and KAM properties influence user reactions. Such user reactions provide evidence to validate the informativeness of the nature of KAM categories and the properties of KAM. The impact study examines whether and/or how the nature of KAM categories and the properties of KAM are relevant to users, enhance their decisions, alter their risk perceptions, and reduce information asymmetry among them.

This study observes the reactions of analysts and investors via the models with industry fixed effects, which are commonly used to test the impacts of corporate disclosures. Table 6.15 presents the results for the analyst reaction analyses, as examined via analyst earnings forecast dispersion (*AnlDisp*) in Model 2a and the magnitude of analyst earnings forecast errors (*AnlErr*) in Model 2b, in columns (1) and (2) respectively. Table 6.16 reports the results for the investor reaction analyses, which employ Model 3 using three different outcome variables: cumulative absolute abnormal returns (*AB_RET*), abnormal trading volume (*AB_VOL*), and abnormal bid-ask spreads (*AB_BAS*), in columns (1) to (3). Each column includes two sub-columns presenting coefficient and t-statistic results.

The results of the impact analyses are organised into three subsections. The first subsection reports results for the impacts of the nature of KAM categories on both analyst and investor reactions (H4). The second subsection presents results related to the impacts of three different elements of KAM content – KAM volume (H5), information composition (H6), and specificity (H7). The last subsection presents findings related to the impacts of two KAM linguistic features: KAM readability (H8) and uncertain tone (H9).

Impacts of KAM categories (H4)

Tests of H4: Nature of KAM categories and their impacts on analysts and investors

Hypotheses H4(a) and H4(b) predict an unsigned association between nature of KAM categories and analyst reactions, as captured by *AnlDisp* in Column (1) and *AnlErr* in Column (2) of Table 6.15. The positive and statistically significant coefficients for *NCA* (β = 0.0006, $p<0.10$) *and RCA* (β = 0.0006, $p< 0.01$) in Column (1) of Table 6.15 show that the inclusion of company-specific and account-level KAM is associated with a divergence of analyst beliefs. Moreover, analyst earnings forecasts are more dispersed if auditors repeatedly disclose company-specific and entity-level KAM (*RCE*) (β = 0.0028, $p< 0.01$). In line with Klevak et al. (2020), these results suggest that KAM reveal more unknown risk factors and contingencies instead of providing more precise information to analysts. Therefore, analysts may need to

rely on their own private information, increasing the dispersion in their earnings forecasts. In other words, KAM relate to an increase in analyst perceptions of risk. These findings lend support to Hypothesis H4(a).

Column (2) of Table 6.16 presents evidence related to the investigation of Hypothesis H4(b), whether the particular nature of the information within KAM is associated with the accuracy of analyst earnings forecasts, as proxied by an inverse measure of forecast accuracy (*AnlErr*). Interestingly, the coefficient of *RIA* (Column (2) of Table 6.15) is negative and statistically significant (β = -0.0020*, p<0.10*), suggesting that a repeated industry-wide and account-level KAM disclosure is associated with more accurate analyst earnings forecasts. This is in line with the belief that some KAM nature categories provide precise information, enhancing user decisions. Overall, this result provides some evidence to support Hypothesis H4(b).

Columns (1) and (2) of Table 6.16 report evidence regarding Hypotheses H4(c) and H4(d), which examine whether particular nature of KAM categories have information content. If a given nature of KAM category is relevant to markets, the study should observe a positive association between that nature of KAM category and cumulative absolute abnormal return (*AB_RET*). If a particular nature of KAM category is useful to individual investors, the study should at least observe an association between that nature of KAM category and abnormal trading volume (*AB_VOL*).

Column (1) of Table 6.16 reports significant positive coefficients for *WIA* and *RIA* (*p<0.10*) when *AB_RET* is a dependent variable, suggesting that information about the withdrawal of prior-year industry-wide account-level disclosures and repeated industry-wide account-level disclosures relate to the overall market reaction. Column (2) of Table 6.16 shows that when *AB_VOL* is a dependent variable, the coefficient of *RCA*, repeated company-specific, account-level KAM, is positive and statistically significant (*p<0.10*), providing evidence that this nature of KAM category changes the belief of individual investors. Collectively, the results of the analyses of *AB_RET* and *AB_VOL* provide some evidence to support H4(c) and H4(d). The weak results for a few nature of KAM categories in terms of their relatedness to cumulative abnormal returns and abnormal volume analyses models using industry fixed effects reconcile with the results of Gutierrez et al. (2018), who could not find evidence that investors react to the total number of disclosures in the KAM section.

Column (3) of Table 6.16 further presents results from the regressions of abnormal bid-ask spreads (*AB_BAS*) on the nine variables of the nature of KAM categories, providing evidence for testing

the impacts of KAM categories on information asymmetry, as per Hypothesis H4(e). However, all coefficients of the nature of KAM categories are statistically insignificant ($p<0.10$). Therefore, H4(e) is rejected.

Taken together, using the model with industry fixed effects, this study lends support to all Hypotheses H4 except H4(e) and suggests the expectation that using KAM would improve the communicative value of auditors' reports is achieved when the KAM section includes disclosures with specific nature of KAM categories.

Table 6.15 Multiple linear regression results for the KAM impacts on analysts' reactions

		Dependent variables					
		(a) AnlDisp			***(b) AnlErr***		
			(1)			(2)	
	Variables	**+/?/-**	Coef.	t-stat	**+/?/-**	Coef.	t-stat
***H4*: Nature of KAM categories**							
	WIA	**?**	0.0003	(0.352)	**?**	0.0042	(1.209)
	WCA	**?**	0.0001	(0.483)	**?**	0.0006	(0.585)
	WCE	**?**	0.0003	(0.553)	**?**	-0.0010	(-0.545)
	NIA	**?**	0.0000	(0.062)	**?**	0.0009	(0.481)
	NCA	**?**	**0.0006***	(1.905)	**?**	0.0009	(0.967)
	NCE	**?**	0.0005	(1.354)	**?**	0.0002	(0.130)
	RIA	**?**	-0.0000	(-0.008)	**?**	**-0.0020***	(-1.712)
	RCA	**?**	**0.0006*****	(2.800)	**?**	0.0005	(0.788)
	RCE	**?**	**0.0028*****	(2.626)	**?**	0.0037	(1.054)
Content of KAM (*H5* - *H7*)							
***H5*:**	Len_KAM	**?**	0.0000	(1.044)	**?**	-0.0000	(-0.444)
***H6*:**	Risk_Total	**+**	**0.0037****	(2.200)	**+**	**0.0159*****	(2.556)
***H7*:**	Specificity	**-**	**-0.0161****	(-2.000)	**-**	**-0.0636****	(-1.992)
Linguistic features of KAM (*H8* - *H9*)							
***H8*:**	Readability	**?**	0.0377	(1.276)	**?**	0.0892	(0.865)
***H9*:**	Uncertainty	**?**	-0.0179	(-0.715)	**?**	**-0.2270*****	(-2.635)
Control variables							
	AnlCoverage		0.0004	(0.527)		-0.0012	(-0.565)
	BigN		0.0010	(0.945)		0.0009	(0.307)
	FindKAM		-0.0003	(-0.595)		-0.0021	(-1.387)
	ForecastErr		0.1698***	(5.271)		0.5676***	(5.588)
	GoingCon		0.0002	(0.041)		-0.0150	(-0.740)
	Horizon					0.0236**	(2.261)
	Lev		-0.0011	(-1.488)		0.0001	(0.042)
	LnMarket		-0.0003*	(-1.740)		-0.0010	(-1.278)
	LnSeg		0.0002	(0.441)		0.0023*	(1.758)
	Loss		-0.0004	(-0.465)		-0.0037	(-1.426)
	MatPerc		-0.0212	(-0.639)		0.0635	(0.537)
	ReturnVol		0.0005	(1.347)		0.0018	(1.343)
	ROA		-0.0073*	(-1.836)		-0.0237*	(-1.841)
	SizeAnnual		-0.0008	(-1.367)		-0.0018	(-1.070)
	SizeAudit		-0.0006	(-1.389)		-0.0016	(-0.735)
	Constant		0.0086*	(1.718)		-0.1026	(-1.517)
Fixed effects			Industry & Year			Industry & Year	
Observations			954			952	
Adjusted R-squared			0.424			0.348	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on the client company. Client industries are classified using the eight SIC sectors.*

Table 6.16 Multiple linear regression results for the KAM impacts on investors' reactions

		Dependent variables								
		(c) AB_RET			***(d) AB_VOL***			***(e) AB_BAS***		
			(1)			(2)			(3)	
	Variables	**+/?/-**	Coef.	t-stat	**+/?/-**	Coef.	t-stat	**+/?/-**	Coef.	t-stat
***H4*: Nature of KAM categories**										
	WIA	+	**0.5337***	(1.341)	?	-0.0811	(-0.617)	?	-0.0264	(-0.226)
	WCA	+	-0.0378	(-0.313)	?	0.0478	(1.248)	?	-0.0095	(-0.304)
	WCE	+	0.2958	(1.120)	?	-0.0643	(-0.681)	?	0.0568	(0.632)
	NIA	+	0.2291	(0.928)	?	0.0355	(0.544)	?	-0.0283	(-0.403)
	NCA	+	-0.0321	(-0.371)	?	0.0012	(0.040)	?	0.0355	(1.154)
	NCE	+	-0.0172	(-0.088)	?	-0.0350	(-0.480)	?	-0.0452	(-0.609)
	RIA	+	**0.2175***	(1.306)	?	-0.0334	(-0.692)	?	-0.0483	(-0.880)
	RCA	+	0.0234	(0.276)	?	**0.0498***	(1.702)	?	-0.0381	(-1.321)
	RCE	+	-0.2183	(-0.707)	?	-0.0094	(-0.080)	?	-0.1031	(-0.970)
Content of KAM (*H5* - *H7*)										
***H5*:**	Len_KAM	?	-0.0000	(-0.012)	?	-0.0001	(-0.199)	?	-0.0003	(-1.514)
***H6*:**	Risk_Total	-	-0.8196	(-0.899)	-	0.0075	(0.029)	+	0.0254	(0.087)
***H7*:**	Specificity	+	-4.5833	(-0.971)	+	1.4017	(0.962)	-	-1.0873	(-0.698)
Linguistic features of KAM (*H8* - *H9*)										
***H8*:**	Readability	+	**20.9281***	(1.487)	?	-2.6568	(-0.538)	?	2.0575	(0.323)
***H9*:**	Uncertainty	?	-14.0964	(-1.140)	?	-0.7814	(-0.195)	?	0.2740	(0.080)
Control variables										
	AB_RetEarn		0.0593***	(2.695)		0.0161**	(2.592)		0.0054	(1.296)
	AnlCoverage		0.4286*	(1.861)		0.0295	(0.379)		0.0153	(0.188)
	BETA		0.2965	(1.186)		0.0088	(0.136)		-0.1108	(-1.550)
	BigN		-0.4273	(-0.963)		0.2319	(1.548)		-0.1904	(-0.733)
	Chg_NI		3.2366*	(1.833)		-0.6150	(-1.021)		0.4015	(0.618)
	EarnVol		1.9593	(0.623)		-0.7209	(-0.763)		-1.2829	(-1.381)
	FindKAM		0.2319	(1.074)		0.0333	(0.410)		0.0038	(0.069)
	ForecastErr		6.8233	(1.423)		2.3830	(1.437)		-0.6623	(-0.366)
	GoingCon		1.7845	(1.230)		-0.4089	(-1.381)		0.7930	(1.379)
	Lev		0.4334	(1.049)		0.2404*	(1.792)		-0.2758*	(-1.894)
	LnMarket		-0.3145***	(-3.467)		0.0254	(0.734)		0.0601	(1.639)
	Loss		0.5415*	(1.718)		0.0493	(0.431)		0.0306	(0.244)
	MatPerc		-28.1127*	(-1.844)		16.3825***	(3.530)		-9.4916	(-1.031)
	MB		-0.0505**	(-2.156)		-0.0303***	(-3.153)		0.0129	(1.333)
	Rep_Lag		-0.0325***	(-5.089)		-0.0075***	(-3.994)		0.0003	(0.159)
	ReturnVol		0.1221	(0.674)		-0.0573	(-1.302)		0.0902*	(1.859)
	ROA		4.1225***	(2.736)		1.0919**	(2.166)		-0.3606	(-0.593)
	SizeAnnual		-0.0222	(-0.075)		0.1868*	(1.725)		0.0223	(0.208)
	SizeAudit		-0.4370**	(-2.065)		-0.0233	(-0.367)		-0.0021	(-0.050)
	Constant		8.6644***	(3.228)		-1.3232*	(-1.654)		-0.6285	(-0.834)
Fixed effects			Industry & Year			Industry & Year			Industry & Year	
Observations			1,046			1,046			695	
Adjusted R-squared			0.140			0.080			0.033	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on the client company. Client industries are classified using the eight SIC sectors.*

Impacts of KAM content (H5 – H7)

Regarding KAM content, this section explores how analysts and investors react to three different elements of KAM content:

1. The volume of discussion in KAM (*Len_KAM*) (H5)
2. The composition of information in KAM (*Risk_ Total)* (H6)
3. The KAM specificity (*Specificity*) (H7).

The results of the KAM content impacts on *AnlDisp* and *AnlErr* are presented in Column (1) and Column (2) of Table 6.15, respectively. Columns (1) to (3) of Table 6.16 present the results of regressing *AB_RET, AB_VOL*, and *AB_BAS*, respectively.

Tests of H5: The volume of discussion in KAM and its impacts on analysts and investors

Hypotheses H5(a) to H5(e) predict unsigned associations between the volume of discussion in KAM and analyst and investor reactions. Tables 6.15 and 6.16 show that all coefficients for *Len_KAM* are statistically insignificant ($p<0.10$) [63]. The results from the industry fixed effects models show no evidence that the length of KAM is associated with analyst or investor reactions. Therefore, this study rejects Hypotheses H5(a) to H5(e).

Tests of H6: The composition of information in KAM and its impacts on analysts and investors

Hypotheses H6(a) and H6(b) predict that the proportion of the KAM devoted to describing risk is positively associated with the dispersion of analyst earnings forecasts and the magnitude of analyst earnings forecast errors. Both columns of Table 6.15 report significant positive coefficients[64] for *Risk_Total* (β = 0.0037, $p<0.05$ and 0.0159, $p<0.01$) when *AnlDisp* and *AnlErr* are the respective dependent variables. These results are consistent with this study's predictions and the notion that devoting a higher proportion of the KAM to describing risks increases analyst risk perceptions and reduces the accuracy of analyst earnings forecasts. Perhaps analysts may become less certain about firms whose KAM are more devoted to describing risk, while an increase in the proportion of the KAM

[63] The results are consistent with the results from sensitivity tests (see Appendix I) that employ two-digit SIC industry codes as industry fixed effects.
[64] The results are consistent with the results from sensitivity tests (see Appendix I) that employ two-digit SIC industry codes as industry fixed effects.

dedicated to the description of audit procedures can reduce analyst perceptions of risk. Overall, these results support both Hypotheses H6(a) and H6(b).

Hypotheses H6(c) and H6(d) predict that the proportion of the KAM devoted to describing risk is negatively associated with the magnitude of cumulative absolute abnormal returns and abnormal trading volume; Hypothesis H6(e) predicts a positive association between the proportion of the KAM devoted to the risk description and abnormal bid-ask spreads. However, Table 6.16 shows no signification association ($p<0.10$) between *Risk_Total* and any of these market measures. Therefore, this study rejects Hypotheses H6(c), H6(d), and H6(e).

Tests of H7: The specificity in KAM and its impacts on analysts and investors

Hypotheses H7(a) and H7(b) predict that KAM specificity is negatively associated with the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors. Column (1) of Table 6.15 shows the coefficient for *Specificity* is negative and statistically significant (β = -0.0161, $p<0.05$) when *AnlDisp* is *a* dependent variable, providing evidence to support H7(a). The accuracy of analyst earnings forecasts is also positively associated with the proportion of specific information in KAM, as evidenced by the significant negative coefficient of *Specificity* (β = -0.0636, $p<0.05$) in Column (2) of Table 6.15 when *AnlErr* is a dependent variable. This result suggests that analyst forecasts are more accurate when KAM contains more specific information, supporting the prediction for H7(b). Overall, these findings suggest that as the proportion of specific information in the KAM increases, the dispersion of analyst earnings forecasts and the magnitude of analyst forecast errors decrease, which is consistent with specific information in KAM improving the precision of shared information among analysts.

Hypotheses H7(c) and H7(d) predict that the specificity in KAM is positively associated with the magnitude of cumulative absolute abnormal returns and abnormal trading volume, while Hypothesis H7(e) predicts a negative association between KAM specificity and abnormal bid-ask spreads. However, using Model 3, with industry fixed effects, to examine the associations between KAM specificity and these market measures, all coefficients for *Specificity* in Table 6.16 are statistically insignificant ($p<0.10$). In other words, the study finds no evidence of the overall market and individual investors reacting to specific information in KAM nor does the specificity of the KAM affect information asymmetry. Thus Hypotheses H7(c) to H7(e) are rejected.

Impacts of KAM linguistic features (H8 – H9)

In this subsection, the study validates the impacts of two linguistic features of KAM on analysts and investors by examining the coefficients for *Readability* and *Uncertainty* in all columns of Tables 6.15 and 6.16.

Tests of H8: The readability of KAM and its impacts on analysts and investors

All hypotheses H8 predict unsigned associations between the readability of KAM and the reactions of analysts and investors; except Hypothesis H8(c), which predicts a positive association between the readability of KAM and the magnitude of cumulative absolute abnormal returns. Tables 6.15 and 6.16 reveal statistically insignificant coefficients for *Readability* in all columns except for Column (1) of Table 6.16 (β = 20.9281, $p<0.10$) which has *AB_RET* as a dependent variable. The insignificant results in Table 6.15 and in Column (3) of Table 6.16 provide evidence that KAM readability has no effect on analyst reaction and information asymmetry, prompting the rejection of Hypotheses H8(a), H8(b), and H8(e). However, the significant results in Column (1) of Table 6.16 provide evidence that investors may find easy-to-read KAM informative, which partially supports Hypothesis H8(c). Since the strength of this result is low and the results on *Readability* in the other columns of Table 6.16 are insignificant, it may be too early to conclude that KAM readability is useful to investors.

Tests of H9: The uncertain tone in KAM and its impacts on analysts and investors

This study predicts unsigned associations between the uncertain tone in KAM and all measures of analyst and investor reactions, as shown in Hypotheses H9(a) to H9(e). Tables 6.15 and 6.16 show no significant coefficients for *Uncertainty*, except in Column (2) of Table 6.15 which has *AnlErr* as a dependent variable. The negative and statistically significant coefficient of *Uncertainty* (β = -0.2270, $p<0.01$) in Column (2) of Table 6.15 suggests that an increase in the proportion of words which reflect uncertainty in KAM may enhance the accuracy of analyst earnings forecasts. Perhaps the use of uncertain tone in KAM provides useful content, improving the communicative value of KAM by reducing the amount of boilerplate language used in auditors' reports, which also supports the claim of Smith (2019). This result may also indirectly suggest that using an uncertain tone in KAM reduces the amount boilerplate language used in auditors' reports by informing readers about an auditor's attitude towards a given KAM. Overall, this study finds only evidence to support the prediction of Hypothesis H9(b). Therefore, Hypotheses H9(a), H9(c), H9(d), and H9(e) are rejected.

Associations between other control variables and test variables

Regarding the control variables related to the analyst reaction analyses, both columns in Table 6.15 show statistically significant positive coefficients for *ForecastErr,* indicating that higher uncertainty in earnings is associated with a higher level of disagreement among analysts and greater magnitude of earnings forecast errors. Moreover, the significant and negative coefficients for *LnMarket* in Column (1) and *ROA* in Columns (1) and (2) of Table 6.15 suggest that the quality of analyst earnings forecasts improves when companies are large in size and have good performance. Perhaps large high-performing companies are more willing to provide information to the public than companies that are small and faced with losses, improving analyst decision making. Furthermore, the statistically significant and positive coefficients for *Horizon* and *LnSeg* in Column (2) of Table 6.15 suggest that the magnitude of analyst earnings forecast errors increases when the horizon period of forecast is longer and when companies have more segments, suggesting that long-horizon uncertainty and client complexity reduce an analyst forecast ability.

Regarding market reactions, most of the control variable results in Table 6.16 line up with those reported in prior KAM literature (Bens, Chang and Huang 2019, Gutierrez et al. 2018, Liao et al. 2019, Reid et al. 2015). Columns (1) and (2) of Table 6.16 report significant positive coefficients for *AB_RetEarn* and *ROA*, suggesting that markets still react to earnings news around the annual report issuance dates and investors increase reactions when companies perform better. Moreover, the statistically significant and negative coefficients for *Rep_Lag* in Columns (1) and (2) indicate annual reports that are issued earlier provide more relevant information to investors.

Consistent with Bens, Chang and Huang (2019), Gutierrez et al. (2018), Reid et al. (2019), Column (1) of Table 6.16 reports that *LnMarket* is negatively associated with *AB_RET*. In addition, Columns (1) and (2) of Table 6.16 show that *MB* is negatively associated with *AB_RET* and *AB_VOL*. Moreover, the significant and positive coefficients for *Chg_NI* and *Loss* in Column (1) and *Lev* and *SizeAnnual* in Column (2) in Table 6.16 suggest that investor reactions increase when the company has a greater change in performance, makes a loss, is faced with greater financial risk, or provides more information in the annual report. Column (1) of Table 6.16 reports a negative association between *MatPerc* and *AB_RET*. In contrast, Column (2), which has *AB_VOL* as a dependent variable, shows a statistically significant and positive coefficient for *MatPerc*. Collectively, these results only suggest that investors react to the level of audit quality. However, the direction of the reactions is unclear. Column (3) of Table 6.16 shows a significant negative coefficient for *Lev* but a positive coefficient of *ReturnVol*, suggesting that information

asymmetry, as measured by *AB_BAS,* increases when companies rely more on equity financing and when company stock returns are more volatile.

6.2.4 Sensitivity results from addressing endogeneity for the KAM impact study (H4 to H9)

This subsection presents the results of the impact study employing multiple linear regressions with firm fixed effects to mitigate the effect of unobserved time-invariant firm characteristics, a potential source of endogeneity in panel-data analysis. This approach is consistent with prior studies (Gutierrez et al. 2018, Huynh 2016, Seebeck and Kaya 2022). Regarding the analyses of analyst earnings forecast dispersion and errors (*AnlDisp* and *AnlErr*), Table 6.17 presents the result of Models 2a and 2b with firm fixed effects in Columns (1) and (2), respectively. In terms of the investor reaction analyses, Columns (1) to (3) of Table 6.18 report the results of Model 3 with three different outcome variables, *AB_RET*, *AB_VOL*, and *AB_BAS*, respectively. Each column in Tables 6.17 and 6.18 includes two sub-columns presenting coefficient and t-statistic results.

As in the subsection reporting the primary results, this subsection presents the endogeneity sensitivity results in three subsections, discussing the results for the impacts of: the nature of KAM categories (H4), the three elements of KAM content (H5 to H7), and the two KAM linguistic features (H8 and H9), respectively, on both analyst and investor reactions.

Impacts of KAM categories (H4)

Sensitivity tests of H4: Nature of KAM categories and their impacts on analysts and investors

Column (1) of Table 6.17 reports the sensitivity results for the impacts of the nature of KAM categories on analyst earnings forecast dispersion [H4(a)]. Unlike the result of the industry fixed effects model, the positive coefficients for *RCA* and *RCE* in the firm fixed effects model (per Column (1) of Table 6.17) become statistically insignificant ($p<0.10$). Therefore, based on the firm fixed effects model, there is only evidence that new company-specific, account-level KAM disclosure (*NCA*) is associated with increased analyst earnings forecast dispersion, partially supporting H4(a).

With respect to Hypothesis H4(b), Column (2) of Table 6.17 reports that *AnlErr* has statistically significant and negative associations with both *WCE* (β = -0.0060, $p<0.01$) and *RIA* (β = -0.0047, $p<0.05$), indicating that particular nature of KAM categories improve the accuracy of analyst earnings forecasts. However, the significant coefficient for *RIA* is the only result which is consistent with the results of the industry fixed effects models. The negative significant coefficient for *WCE* in this analyst error model together with the positive significant coefficient for *RCE* in the main analyst dispersion model (per Column (1) of Table 6.15) consistently suggests that company-specific entity-level risk factors complicate analyst forecasting and increase the magnitude of analyst earnings forecast errors. The significant

coefficient for *WCE* provides further evidence that, perhaps, analysts consider the reduction of the risk factors previously disclosed in the Year *t-1* KAM section. Interestingly, the positive coefficient for *NCA* also becomes statistically significant in the firm fixed effects model ($p<0.10$). This indicates that a new company-specific, account-level KAM disclosure is associated with increased magnitude of analyst earnings forecast errors. Perhaps, this nature of KAM category reveals uncertainties or contingencies for which analysts have not yet accounted, and the KAM disclosure itself may not provide much precise information. As uncertainties and contingencies are usually complex and their actual outcomes are difficult to predict, analyst forecasts may be less accurate.

Regarding the results for the market impact analyses, many statistically insignificant coefficients of variables related to the nature of KAM categories in the industry fixed effects models become statistically significant when Model 3 includes firm fixed effects. The changes in results suggest that the industry fixed effects models for the market impact analyses may suffer from omitted variable bias.

Columns (1) and (2) of Table 6.18 report the results of the sensitivity test for Hypotheses H4(c) and H4(d), testing whether the nature of KAM categories are relevant to overall markets and individual investors. Column (1) of Table 6.18 reveals statistically significant and positive coefficients for *WIA*, *NIA*, and *RIA* when *AB_RET* is a dependent variable. Both results on *WIA* and *RIA* are consistent with the results of the main analysis presented in Column (1) of Table 6.16. Collectively, the results of both the main and the sensitivity tests suggest that the overall market finds industry-wide and account-level disclosures informative, thereby changing share price estimations. It is possible that industry-wide information enables investors to benchmark company performance against the overall industry.

Although the abnormal volume analysis using industry fixed effects only shows a statistically significant and positive coefficient for *RCA* (per Column (2) of Table 6.16), Column (2) of Table 6.18 further shows statistically significant (*p*-values between 0.05 and 0.10) and positive coefficients for *WCE*, *NCE*, and *RCE,* when the abnormal volume analysis employs the model with firm fixed effects. These results suggest that all company-specific, entity-level KAM are associated with a change in individual investor beliefs. Again, the significant result of *WCE* further shows that individual investors also find relevant information from a reduction in Year *t-1* KAM. Interestingly, unlike the results of the cumulative abnormal return analysis with firm fixed effects, the abnormal volume analysis does not show that individual investors react to any industry-wide disclosures. This suggests that industry-wide disclosures affect only price, not trading volume. Likewise, company-specific disclosures only impact trading volume, not the overall price.

Finally, Column (3) of Table 6.18 presents the results of the firm fixed effects models for the test of Hypothesis H4(e), the analyses of the effects of the nature of KAM categories on information asymmetry as measured by *AB_BAS*. The sensitivity tests yield statistically significant and negative coefficients for both *NCE* (β = -0.1892, $p<0.05$) and *RCE* (β = -0.3349, $p<0.05$), indicating that increases in both new and repeated company-specific, entity-level disclosures are associated with a reduction in abnormal bid-ask spreads and the effect is greater for disclosures carried over from the prior period. These results are consistent with the positive coefficients of *NCE* and *RCE* in the analysis of the individual investor reactions (per Column (2) of Table 6.18), showing that perhaps only unsophisticated investors find these KAM categories informative, whereas sophisticated investors may find out about these risk factors before the KAM is released. Therefore, the inclusion of *NCE* and *RCE* reduces the information gap among investors.

The results of these market reaction analyses help explain why prior studies (Gutierrez et al. 2018, Lennox, Schmidt and Thompson 2019, Liao et al. 2019, Seebeck and Kaya 2022) examining investor reactions by using the total number of disclosures in the KAM section or dividing the KAM into only two nature of KAM categories did not find KAM useful to investors. It seems it is the type, rather than the number of KAM, that investors consider when making trading decisions. Overall, the sensitivity tests provide strong evidence to support Hypotheses H4(a) to H4(e).

Impacts of KAM content (H5 – H7)

In this subsection, the study validates the impacts of three different elements of KAM content on analysts and investors by examining the coefficients of *Len_KAM* (H5), *Risk_Total* (H6), and *Specificity* (H7) in Tables 6.17 and 6.18, respectively.

Sensitivity tests of H5: The volume of discussion in KAM and its impacts on analysts and investors

In line with the main analyses, all the coefficients for *Len_KAM* in Tables 6.17 and 6.18 are statistically insignificant. Therefore, this impact study rejects H5(a) to H5(e).

Sensitivity tests of H6: The composition of information in KAM and its impacts on analysts and investors

Consistent with the main analyses, the coefficient of *Risk_Total* in Column (1) of Table 6.17 is statistically significant, supporting the predictions for H6(a). However, unlike the industry fixed effects

model, the result of *Risk_Total* in the analyst earnings forecast error analysis, using the firm fixed effects model (per Column (2) of the same table), becomes insignificant (*p<0.10*), rejecting H6(b).

Moreover, the negative coefficient of *Risk_Total* in Column (1) of Table 6.18, which presents the results of Model 3 with *AB_RET* as a dependent variable and firm fixed effects, becomes statistically significant. This provides evidence to support H6(c). The results for *Risk_Total* reveal that user reactions are negatively associated with the proportion of words used to describe risk factors. In other words, users react positively to an increase in the proportion the KAM devoted to describing audit procedures, suggesting that the description of the auditor's work is relevant to both analysts and investors.

Sensitivity tests of H7: The specificity in KAM and its impacts on analysts and investors

All the coefficients for *Specificity* in Tables 6.17 and 6.18 are statistically insignificant except for Column (2) of Table 6.18 (β = 3.6721, *p<0.05*), which presents the results from Model 3 with *AB_VOL* as a dependent variable and firm fixed effects, providing evidence to support H7(d). This result is consistent with the findings of Seebeck and Kaya (2022), indicating that individual investor trading increases with an increase in the specificity of the KAM section. This result supports regulators' calls for more granular KAM information. However, unlike Seebeck and Kaya (2022), the cumulative abnormal return analysis does not show that KAM specificity changes the price reaction. This difference may be because this study measures KAM specificity in a unique way. While Seebeck and Kaya (2022) define KAM specificity by using the number of types of named entities included in KAM, this study follows Hope (2003) by measuring specificity with the percentage of words coded as named entities, without considering variations within the types of named entities.

Concerning the effects of KAM specificity on analyst reactions, all significant results for *Specificity* in the primary analyses (per Table 6.15) become statistically insignificant.

Impacts of KAM linguistic features (H8 – H9)

In this subsection, the study provides sensitivity results for validating the impacts of two linguistic features of KAM on analysts and investors by examining the coefficients for *Readability* and *Uncertainty* in Tables 6.17 and 6.18, respectively.

Sensitivity tests of H8: The readability of KAM and its impacts on analysts and investors

The insignificant results for *Readability* in both columns of Table 6.17 and Column (3) of Table 6.18 are consistent with the results from the primary analyses (*p<0.10*). However, the coefficient for

Readability in the cumulative abnormal return analysis using the firm fixed effects model (per Column (1) of Table 6.18) becomes statistically insignificant ($p<0.10$), which is comparable to Seebeck and Kaya (2022), who also examine investor reactions to KAM readability. Instead, the coefficient for *Readability* in Column (2) of Table 6.18 becomes statistically significant ($p<0.10$) but has a negative sign, which contrasts with the sign of the other significant coefficients for KAM categories. This is counterintuitive because it implies that investors halt their investing if readability of KAM increases. To explain this exception, this study further investigates using information environment analyses (see Subsection 6.2.5).

Overall, the results of the analyst and investor reaction analyses are against the belief that the readability of disclosures benefits users. In short, the study rejects the Hypotheses H8(a) to H8(e).

Sensitivity tests of H9: The uncertain tone in KAM and its impacts on analysts and investors

The coefficient for *Uncertainty* in Column (2) of Table 6.17 is statistically significant and consistent with the main analysis (per Column (2) of Table 6.15), supporting Hypothesis H9(b). Moreover, the coefficient for *Uncertainty* in Column (3) of Table 6.18 becomes statistically significant and positive (β = 10.6485, $p<0.05$), as the bid-ask spread analysis using the firm fixed effects provides some evidence to support H9(e). This result shows that the level of uncertain tone in KAM is positively associated with information asymmetry, suggesting that uncertain tone captures content related to auditor attitudes toward the KAM that may be not have been previously known to either sophisticated or unsophisticated investors. Since sophisticated users possess superior abilities to process this information, they may take a greater benefit from the uncertain tone in KAM than unsophisticated investors, thereby increasing information asymmetry. This information asymmetry cost is then priced into the spreads by market makers. However, all other coefficients for *Uncertainty* in Tables 6.17 and Table 6.18 are statistically insignificant. Therefore, this study rejects H9(a), H9(c), and H9(d).

Table 6.17 Results using multiple linear regressions with firm fixed effects: the KAM impacts on analyst reactions

		Dependent variables					
		(a) AnlDisp			***(b) AnlErr***		
		(1)			(2)		
	Variables	**+/?/-**	Coef.	t-stat	**+/?/-**	Coef.	t-stat
***H4*: Nature of KAM categories**							
	WIA	**?**	0.0005	(0.988)	**?**	0.0020	(0.824)
	WCA	**?**	-0.0001	(-0.265)	**?**	0.0015	(1.396)
	WCE	**?**	-0.0010	(-1.533)	**?**	**-0.0060*** **	(-2.628)
	NIA	**?**	0.0006	(1.422)	**?**	-0.0001	(-0.063)
	NCA	**?**	**0.0004***	(1.656)	**?**	**0.0016***	(1.744)
	NCE	**?**	0.0006	(1.405)	**?**	-0.0006	(-0.302)
	RIA	**?**	0.0003	(0.765)	**?**	**-0.0047** **	(-2.205)
	RCA	**?**	0.0002	(0.640)	**?**	0.0015	(1.121)
	RCE	**?**	0.0015	(1.534)	**?**	-0.0005	(-0.143)
Content of KAM (*H5* - *H7*)							
***H5*:**	Len_KAM	**?**	0.0000	(1.392)	**?**	-0.0000	(-0.428)
***H6*:**	Risk_Total	**+**	**0.0024***	(1.558)	**+**	0.0084	(1.279)
***H7*:**	Specificity	**-**	0.0055	(0.625)	**-**	0.0501	(1.136)
Linguistic features of KAM (*H8* - *H9*)							
***H8*:**	Readability	**?**	0.0392	(1.120)	**?**	0.0362	(0.278)
***H9*:**	Uncertainty	**?**	-0.0039	(-0.130)	**?**	**-0.2224***	(-1.701)
Control variables							
	AnlCoverage		-0.0001	(-0.050)		0.0035	(0.791)
	BigN		0.0007	(0.831)		-0.0029	(-0.659)
	FindKAM		-0.0003	(-0.538)		-0.0018	(-0.803)
	ForecastErr		-0.0267	(-0.686)		-0.0684	(-0.645)
	GoingCon		0.0072	(1.307)		0.0008	(0.042)
	Horizon					0.0203*	(1.760)
	Lev		-0.0005	(-0.242)		-0.0052	(-0.537)
	LnMarket		-0.0030***	(-4.750)		-0.0079***	(-2.996)
	LnSeg		0.0019**	(2.561)		0.0004	(0.158)
	Loss		-0.0001	(-0.227)		-0.0055**	(-2.359)
	MatPerc		0.0848**	(2.438)		0.0892	(0.512)
	ReturnVol		-0.0005	(-1.440)		-0.0008	(-0.515)
	ROA		-0.0031	(-0.977)		-0.0026	(-0.226)
	SizeAnnual		-0.0003	(-0.359)		-0.0005	(-0.176)
	SizeAudit		-0.0002	(-0.516)		-0.0022	(-0.912)
	Constant		0.0423***	(3.813)		0.0193	(0.219)
Fixed effects			Firm & Year			Firm & Year	
Observations			954			952	
Adjusted R-squared			0.717			0.588	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on the client company.*

Table 6.18 Results using multiple linear regressions with firm fixed effects: the KAM impacts on investor reactions

		Dependent variables								
		(c) AB_RET			***(d) AB_VOL***			***(e) AB_BAS***		
			(1)			(2)			(3)	
	Variables	**+/?/-**	Coef.	t-stat	**+/?/-**	Coef.	t-stat	**+/?/-**	Coef.	t-stat
***H4*: Nature of KAM categories**										
	WIA	**+**	**0.6292***	(1.286)	**?**	-0.0447	(-0.345)	**?**	-0.0735	(-0.732)
	WCA	**+**	-0.0763	(-0.468)	**?**	0.0681	(1.488)	**?**	0.0095	(0.244)
	WCE	**+**	0.4307	(1.276)	**?**	**0.2322****	(2.010)	**?**	-0.0792	(-0.827)
	NIA	**+**	**0.5745****	(2.112)	**?**	0.0882	(1.073)	**?**	-0.0225	(-0.272)
	NCA	**+**	-0.0732	(-0.583)	**?**	0.0203	(0.467)	**?**	0.0475	(1.241)
	NCE	**+**	0.1049	(0.376)	**?**	**0.2134****	(1.977)	**?**	**-0.1892****	(-2.525)
	RIA	**+**	**0.6796****	(2.129)	**?**	0.0314	(0.386)	**?**	-0.0490	(-0.741)
	RCA	**+**	0.0371	(0.196)	**?**	0.0873	(1.489)	**?**	-0.0067	(-0.151)
	RCE	**+**	0.2737	(0.551)	**?**	**0.3294***	(1.797)	**?**	**-0.3349****	(-2.432)
Content of KAM (*H5* - *H7*)										
***H5*:**	Len_KAM	**?**	-0.0011	(-0.956)	**?**	-0.0000	(-0.002)	**?**	-0.0002	(-0.889)
***H6*:**	Risk_Total	**-**	**-2.1976***	(-1.631)	**-**	-0.2813	(-0.749)	**+**	-0.0603	(-0.180)
***H7*:**	Specificity	**+**	6.7489	(1.031)	**+**	**3.6721****	(1.780)	**-**	-1.0718	(-0.401)
Linguistic features of KAM (*H8* - *H9*)										
***H8*:**	Readability	**+**	-1.9340	(-0.089)	**?**	**-13.9568***	(-1.707)	**?**	-2.7258	(-0.320)
***H9*:**	Uncertainty	**?**	1.1106	(0.058)	**?**	5.1554	(0.847)	**?**	**10.6485****	(2.010)
Control variables										
	AB_RetEarn		0.0481*	(1.831)		0.0144**	(2.083)		0.0033	(0.602)
	AnlCoverage		1.0579*	(1.679)		-0.1479	(-0.702)		-0.0140	(-0.075)
	BETA		0.1552	(0.479)		-0.1179	(-1.344)		-0.1681**	(-2.098)
	BigN		-0.3577	(-0.238)		0.0149	(0.050)		0.3650	(0.819)
	Chg_NI		4.4706**	(2.252)		-0.5040	(-0.840)		0.6913	(1.127)
	EarnVol		15.4442***	(2.700)		2.1031	(0.908)		1.0505	(0.515)
	FindKAM		0.2780	(1.033)		-0.0126	(-0.132)		0.0340	(0.482)
	ForecastErr		5.2226	(0.782)		0.6474	(0.313)		-0.6742	(-0.349)
	GoingCon		2.6558*	(1.672)		-0.1397	(-0.314)		0.3049	(0.454)
	Lev		4.2300***	(3.038)		0.0836	(0.161)		-0.7186	(-1.450)
	LnMarket		-0.7597**	(-2.259)		0.1320	(1.453)		-0.1364	(-1.130)
	Loss		0.2905	(0.776)		0.1574	(1.098)		-0.0873	(-0.626)
	MatPerc		-8.4862	(-0.323)		19.1899**	(2.334)		-14.5329	(-1.030)
	MB		0.0057	(0.197)		-0.0345**	(-2.190)		0.0245	(1.508)
	Rep_Lag		-0.0303***	(-2.611)		-0.0072**	(-2.053)		0.0003	(0.105)
	ReturnVol		-0.5535**	(-2.276)		0.0062	(0.085)		0.0458	(0.835)
	ROA		5.9850**	(2.091)		0.4771	(0.612)		-0.6212	(-0.836)
	SizeAnnual		0.1719	(0.346)		-0.0420	(-0.225)		0.2994	(1.263)
	SizeAudit		-0.5720**	(-2.209)		-0.0725	(-0.817)		0.0453	(0.812)
	Constant		12.7741*	(1.911)		-0.4309	(-0.223)		0.2591	(0.134)
Fixed effects			Firm & Year			Firm & Year			Firm & Year	
Observations			1,046			1,046			695	
Adjusted R-squared			0.151			0.160			0.140	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on the client company.*

6.2.5 Results from other sensitivity and supplementary analyses for the KAM impact study

Industry classification

While the main models of the impact analyses employ the eight industry SIC classifications to determine industry fixed effects, this subsection provides results from sensitivity analyses by using the two-digit SIC industry codes. The regression results are presented in Appendix I. The sensitivity analyses show that all significant results previously found in the main analyses (per Table 6.15) are held except that the coefficient for *Readability* in the cumulative abnormal return analysis is statistically insignificant (*p<0.10*) (per Column (3) of Appendix I). Overall, the results of the impact analyses with the two-digit SIC industry code fixed effects conforms to the primary results.

Information environment analyses

These supplementary studies are motivated by a statement included in the key findings of FRC (2016b, p. 4), noting that the new KAM inclusive auditors' reports will be incrementally informative, especially for auditees with fewer sources of information. Although Reid et al. (2015) have already proved this FRC statement using pre- and post- ISA (UK and Ireland) 700, no study has tested the effect of the numbers of sources of information on the usefulness of KAM. Therefore, this subsection provides further understanding of whether the effects of the nature of KAM categories and the properties of KAM on investor reactions are conditioned on the information environment. These supplementary analyses use the median analyst coverage (*AnlCoverage*), a common measure of the amount of information about a company available to investors (Botosan 1997, Miller 2010), to partition the full sample into subsamples of firms with strong and weak information environments. If investors already have received company information from analysts throughout the period, these investors would perceive less new information from other subsequent disclosures. As a result, market reactions to the KAM of high and low analyst-coverage firms should be different. Following Reid et al. 2015, the study predicts that KAM would be more relevant to financial statement users in weaker information environments, as captured by fewer analysts following a given company. In verifying this belief, Model 3 with firm fixed effects is estimated on the subsamples of high and low analyst coverage. The untabulated VIF results for all independent variables of these subsample analyses are less than five, suggesting a low risk of multicollinearity.

Table 6.19 presents the results of these subsample analyses of the market impacts of KAM as measured by *AB_RET* and *AB_VOL* (per Panel A) and *AB_BAS* (per Panel A). For brevity, the results for the control variables are not tabulated. Columns (1) and (4) of Panel A and Column (1) of Panel B show the

results of the estimations on the subsample with high analyst coverage. The subsequent columns present the results estimated on the subsample with low analyst coverage and the comparative results of the full sample analyses using the firm fixed effects models.

Comparing the coefficients of the measurements of KAM between these subsamples, the study finds the impacts of KAM on the price reaction, the volume reaction, and the bid-ask spreads are quite different between companies with high and low analyst coverage. Interestingly, the primary analyses' significant coefficients on the nature of KAM categories and the properties of KAM (Per Columns (3) and (6) of Panel A and Column (3) of Panel B in Table 6.19) are highly consistent with the results of the low analyst coverage subsample (per Columns (2) and (5) of Panel A and Column (2) of Panel B of the same table). Moreover, the significant coefficients for *NIA* and *RIA* in Column (2) of Panel A (β = 1.3135 and 1.0535, p<0.01 and 0.05) are also greater than those in Column (1) of Panel A (β = 0.4694 and 0.6656, p< 0.05). Overall, these results support the prediction that investors react more to the KAM of companies with weak information environments.

Furthermore, the information environment analyses show a greater number of statistically significant coefficients for KAM variables than do the firm fixed effects analyses using the full sample. Specifically, in the abnormal bid-ask spread analysis using the high analyst coverage subsample, the coefficients for *WCA* and *WCE* become statistically significant. In addition, column (1) of Panel B of Table 6.19 shows the coefficient for *RCE* turns positive while that of the analyses using the full sample or the low analyst coverage subsample are significant but negative.

Consistent with results of the firm fixed effects analyses using the full sample, most of the significant coefficients for the nature of KAM categories in Panel B of Table 6.19 are negative, indicating that some nature of KAM categories reduce information asymmetry among investors by revealing useful information to unsophisticated investors. However, the significantly positive coefficients of *WCE* and *RCE* in Column (1) and *NCA* in Column (2) of Panel B in Table 6.19 show that some nature of KAM categories are also associated with greater information asymmetry. Perhaps, the information related to these risk factors provide new information to both sophisticated and unsophisticated investors. Therefore, information asymmetry increases because sophisticated investors take more advantage of the information conveyed in these KAM categories than do unsophisticated investors. These findings provide evidence that KAM benefit both sophisticated and unsophisticated investors, while most experimental studies only find that KAM are useful to unsophisticated investors (Dennis, Griffin and Zehms 2019, Elliott, Fanning and Peecher 2019, Rapley, Robertson and Smith 2018).

In the cumulative abnormal return and abnormal bid-ask spread analyses, the coefficients for *Specificity* become statistically significant for the high analyst coverage subsamples. For such companies the coefficients of *Specificity* are positive when *AB_RET* (β = 13.2136, p<0.05) and *AB_VOL* (β = 3.0644, p<0.05) are dependent variables and negative when *AB_BAS* (β = -0.8696, p<0.10) is a dependent variable, suggesting that the specificity of KAM has effects mainly on the investors of companies with strong information environments by increasing their price and volume reactions and reducing information asymmetry. More interestingly, Table 6.19 also shows that the coefficients of *Specificity* are much greater than the significant coefficients for the other KAM variables, confirming KAM specificity is very relevant to investors. These findings align with the study's predictions (H7(c), H7(d), and H7(e)), which are comparable to the findings of Seebeck and Kaya (2022); and support regulators' belief that granular KAM benefit users.

In terms of the impact of *Readability* on *AB_VOL*, Column (4) of Panel A in Table 6.19 is the only column that shows a negative coefficient for *Readability*, confirming the result of the firm fixed effects analyses using the full sample (per Column (6) of the same table). This suggests that, in strong information environments, readability leads to unintended behavior. It is possible that some individual investors following companies with strong information environments perceive KAM as bad news or warning about risks and uncertainties and react by halting trading. This is in line with previous findings documented by Christensen, Glover and Wolfe (2014), who show that unsophisticated investors tend to stop investing when they read KAM. Rennekamp (2012) finds that readability of disclosures increases investor reactions to both good and bad news. Therefore, when KAM are more readable, investors responses to KAM become stronger, which is evinced by the significantly negative coefficient of *Readability* (per Columns (4) and (6) of Panel A in Table 6.19).

Regarding the impacts of KAM linguistic features on companies with weak information environments, Column (2) of Panel B in Table 6.19 shows that a greater level of uncertain tone dramatically increases abnormal bid-ask spreads, as seen through the *Uncertainty* coefficient of 21.6181 (p<0.05). This result is consistent with the main result presented in Column (3) of the same Panel and indicates that in low information environments sophisticated investors may take greater benefit from the inclusion of uncertain tone in KAM than do unsophisticated ones. This finding supports Smith (2019), who claims that the use of tone in KAM provides readers with specific information.

Altogether, the findings related to KAM content and linguistic features align with standard setters' expectations that specific information included in KAM enhances the level of usefulness of KAM

and reduces information asymmetry. These findings are obvious, especially for companies with high analyst coverage. However, this study fails to find that the readability of KAM enhances investor decision-making but, instead, reduces investor willingness to trade on shares of companies with strong information environments.

Table 6.19 Analyses of market reactions by corporate information environment (high vs low analyst coverage)

Panel A The information content analyses

			AB_RET						***AB_VOL***						
			(1)		(2)		(3)			(4)		(5)		(6)	
			High analyst coverage		Low analyst coverage		Full sample			High analyst coverage		Low analyst coverage		Full sample	
	Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
***H4*: Nature of KAM categories**															
	WIA	**+**	**0.9301***	(1.513)	0.6967	(1.043)	**0.6292***	(1.286)	**?**	0.0898	(0.988)	-0.1555	(-0.613)	-0.0447	(-0.345)
	WCA	**+**	-0.2134	(-1.374)	0.0168	(0.059)	-0.0763	(-0.468)	**?**	0.0317	(0.874)	0.1257	(1.394)	0.0681	(1.488)
	WCE	**+**	0.4121	(1.137)	0.0583	(0.105)	0.4307	(1.276)	**?**	-0.0382	(-0.449)	**0.5325****	(2.254)	**0.2322****	(2.010)
	NIA	**+**	**0.4694****	**(1.897)**	**1.3135*****	**(2.540)**	**0.5745****	(2.112)	**?**	0.0367	(0.549)	0.2475	(1.250)	0.0882	(1.073)
	NCA	**+**	-0.0086	(-0.076)	-0.1543	(-0.746)	-0.0732	(-0.583)	**?**	0.0178	(0.537)	0.0189	(0.224)	0.0203	(0.467)
	NCE	**+**	0.0295	(0.103)	-0.4706	(-0.976)	0.1049	(0.376)	**?**	0.0102	(0.143)	0.3525	(1.497)	**0.2134****	(1.977)
	RIA	**+**	**0.6656****	**(2.206)**	**1.0535****	**(1.712)**	**0.6796****	(2.129)	**?**	0.0271	(0.336)	0.0866	(0.496)	0.0314	(0.386)
	RCA	**+**	0.0929	(0.552)	-0.0134	(-0.040)	0.0371	(0.196)	**?**	0.0071	(0.177)	0.1555	(1.390)	0.0873	(1.489)
	RCE	**+**	0.4263	(0.731)	-0.4784	(-0.715)	0.2737	(0.551)	**?**	-0.0586	(-0.389)	**0.6911****	(2.014)	**0.3294***	(1.797)
Content of KAM (*H5* - *H7*)															
***H5*:**	Len_KAM	**?**	-0.0004	(-0.319)	-0.0023	(-1.278)	-0.0011	(-0.956)	**?**	0.0004	(0.981)	-0.0006	(-0.858)	-0.0000	(-0.002)
***H6*:**	Risk_Total	**-**	**-2.0059***	**(-1.474)**	**-4.1774****	**(-1.667)**	**-2.1976***	(-1.631)	**-**	-0.1339	(-0.400)	-0.4106	(-0.523)	-0.2813	(-0.749)
***H7*:**	Specificity	**+**	**13.2136****	(1.853)	12.4146	(1.079)	6.7489	(1.031)	**+**	**3.0644****	**(1.835)**	**5.5087***	**(1.485)**	**3.6721****	(1.780)
Linguistic features of KAM (*H8* - *H9*)															
***H8*:**	Readability	**+**	4.1991	(0.147)	-26.8813	(-0.789)	-1.9340	(-0.089)	**?**	**-10.0057***	(-1.665)	-17.7750	(-1.137)	**-13.9568***	(-1.707)
***H9*:**	Uncertainty	**?**	37.3871	(1.562)	-29.6535	(-1.007)	1.1106	(0.058)	**?**	-0.2175	(-0.041)	6.4218	(0.604)	5.1554	(0.847)
Control variables			Yes		Yes		Yes			Yes		Yes		Yes	
Fixed effects			Firm & Year		Firm & Year		Firm & Year			Firm & Year		Firm & Year		Firm & Year	
Observations			514		513		1,046			514		513		1,046	
Adjusted R-squared			0.292		0.081		0.151			0.125		0.136		0.160	

Table 6.19 Analyses of market reactions by corporate information environment (high vs low analyst coverage) (continued)

Panel B The information asymmetry analyses

			AB_BAS					
			(1)		(2)		(3)	
			High analyst coverage		Low analyst coverage		Full sample	
	Variables	**+/?/ -**	Coef.	t-stat	Coef.	t-stat	Coef.	t-stat
***H4*: Nature of KAM categories**								
	WIA	**?**	-0.0682	(-1.184)	-0.1074	(-0.592)	-0.0735	(-0.732)
	WCA	**?**	**-0.0205***	(-1.722)	0.0565	(0.662)	0.0095	(0.244)
	WCE	**?**	**0.0685*****	(2.839)	-0.2428	(-1.223)	-0.0792	(-0.827)
	NIA	**?**	-0.0041	(-0.361)	-0.0243	(-0.140)	-0.0225	(-0.272)
	NCA	**?**	0.0029	(0.496)	**0.1703****	(2.091)	0.0475	(1.241)
	NCE	**?**	0.0133	(0.787)	**-0.3418****	(-2.177)	**-0.1892****	(-2.525)
	RIA	**?**	0.0007	(0.042)	0.0889	(0.533)	-0.0490	(-0.741)
	RCA	**?**	-0.0009	(-0.100)	0.0763	(0.815)	-0.0067	(-0.151)
	RCE	**?**	**0.0753***	(1.871)	**-0.6690*****	(-2.797)	**-0.3349****	(-2.432)
Content of KAM (*H5* - *H7*)								
***H5*:**	Len_KAM	**?**	0.0000	(0.544)	-0.0005	(-0.869)	-0.0002	(-0.889)
***H6*:**	Risk_Total	**+**	0.0325	(0.417)	-1.1002	(-1.629)	-0.0603	(-0.180)
***H7*:**	Specificity	**-**	**-0.8696***	(-1.516)	-1.0918	(-0.216)	-1.0718	(-0.401)
Linguistic features of KAM (*H8* - *H9*)								
***H8*:**	Readability	**?**	0.9187	(0.719)	-7.5923	(-0.466)	-2.7258	(-0.320)
***H9*:**	Uncertainty	**?**	-1.7669	(-1.228)	**21.6181****	(2.352)	**10.6485****	(2.010)
Control variables			Yes		Yes		Yes	
Fixed effects			Firm & Year		Firm & Year		Firm & Year	
Observations			336		341		695	
Adjusted R-squared			0.317		0.178		0.140	

*Note: Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed). See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on client company.*

6.2.6 Summary of the results for the KAM impact study (H4 to H9)

This section validated the impacts of the nature of KAM categories and KAM properties on analysts and investors, starting with the univariate results of all variables, the distribution of KAM according to the nature of KAM variables, and the yearly means of KAM content and linguistic features. Then the correlation results were presented together with the results from the multicollinearity tests. This study presented the regression results in three subsections: (i) the primary analyses using industry fixed effects models, (ii) the endogeneity sensitivity tests using firm fixed effects models, and (iii) the supplementary analyses, i.e. the analyses using the two-digit SIC industry codes as industry fixed effects and the information environment tests.

The distributions of the prior-period KAM withdrawn from the current-period KAM section and the current-period KAM by nature of KAM categories show that KAM included in the sample can be classified into nine nature of KAM categories (*WIA*, *WCA*, *WCE*, *NIA*, *NCA*, *NCE*, *RIA*, *RCA*, and *RCE*), as described in Section 6.2.1. All KAM in Year 1 (the first year of KAM implementation) are classified as non-repeated (new) KAM and the majority are company-specific account-level KAM (*NCA*). Between Years 2 and 4, more than half of KAM are repeated and most of them are company-specific, account-level KAM (*RCA*), suggesting that auditors repeated most KAM from the prior period. The second and the third-most-seen KAM categories are *RIA* and *NCA*, respectively. The most withdrawn prior-year KAM are company-specific, account-level KAM (*WCA*). These distribution results show that there are changes in KAM over time. The variations in KAM enable this study to employ firm fixed effects in the sensitivity analyses to address endogeneity arising from unobservable time-invariant firm characteristics. The correlation and VIF results confirm that multicollinearity is not a concern for these impact analyses.

The main and endogeneity sensitivity results sections were organised into three main subsections to answer whether and how (i) KAM categories (H4), (ii) KAM content (H5 to H7), and (iii) KAM linguistic features (H8 to H9) influenced analysts and investors. Each subsection was supported by evidence related to analyst and investor reactions.

Some significant results hold across the main and endogeneity sensitivity analyses. Overall, the study finds that some nature of KAM categories influence analyst earnings forecast characteristics and investor reactions. The findings from both industry and firm fixed effects models consistently support that the proportion of the KAM devoted to describing audit procedures reduces analyst earnings forecast dispersion; and repeated industry-wide, account-level KAM (*RIA*) and the use of uncertain tone in KAM (*Uncertainty*) improve analyst earnings forecast accuracy. These KAM properties provide analysts with more precise information. Moreover, new company-specific and account-level KAM seem to increase analyst risk perception, as observed via the divergence of analyst earnings forecasts. Regarding investor reactions, both

industry and firm fixed effects models reveal that withdrawn and repeated industry-wide, account-level KAM (*RIA* and *WIA*) increase overall market reactions and that repeated company-specific, account-level KAM (*RCA*) change individual investor beliefs. Collectively, these results suggest that industry-wide account-level KAM are relevant to the market and company-specific, account-level KAM are useful to individual investors.

However, the other results of the analyst and investor reaction analyses are still inconclusive as they are subject to the types of fixed effects included in the models. Specifically, the main analyst reaction analyses, employing industry fixed effects, reveal more statistically significant results than the endogeneity tests for analyst reactions, which use firm fixed effects. For example, the main analyst reaction analyses further show that *RCA* and *RCE* are associated with an increase in analyst earnings forecast dispersions, that *Risk_Total* significantly increases both analyst earnings forecast dispersions and the magnitude of analyst earnings forecast errors, and that *Specificity* significantly decreases both analyst earnings forecast dispersions and the magnitude of analyst earnings forecast errors.

On the contrary, the endogeneity tests for investor reactions, which include firm fixed effects, show more significant findings than the main analyses for investor reactions, which employ industry fixed effects. This explains why most prior cross-sectional studies which used an industry fixed effects models did not find significant evidence that investors react to KAM.

Regarding the effect of KAM properties on investors, the results from the firm fixed effects models using the full sample and the subsamples of high and low analyst coverage also provide consistent additional evidence that investors do consider particular KAM properties (*Risk_Total*, *Specificity*, and *Uncertainty*) and that the granularity of KAM benefits investors, especially for companies with strong information environments.

The firm fixed effects analyses for *AB_BAS* using the full sample or subsamples of companies with either strong or weak environments show that company-specific, entity-level KAM (*NCE* and *RCE*) also help reduce information asymmetry for investors of companies with weak information environments. In contrast, company-specific, entity-wide KAM (*WCE* and *RCE*) and the use of uncertain tone in KAM increase information asymmetry, which suggest that KAM can sometimes be more beneficial to sophisticated investors than unsophisticated ones. The other significant results of the supplementary tests strongly support that KAM mostly benefits investors in companies with weak information environments.

The next chapter will summarise the objectives, the literature and the results. Moreover, it will outline the study's limitations and suggests potential future research.

Chapter 7: Conclusion

7.0 Introduction

Since the UK enacted ISA (UK and Ireland) 700 in 2013, many archival studies have investigated KAM effects and examined whether the inclusion of KAM in auditors' reports helps reduce the expectation-performance gap between auditors and users of financial statements, as intended by standard setters. Nevertheless, the findings are still unclear and inconclusive. This thesis empirically investigates the determinants of KAM properties and the impacts of the nature and properties of KAM in more detail than ever before by employing textual analysis to quantify the information in KAM in terms of the nature of the disclosures, content, and linguistic features. This chapter summarises the findings of this thesis and discusses contributions, implications, limitations, and future study opportunities.

7.1 Summary of findings

Analysing UK KAM data within the four-year post-adoption period beginning in 2013, the determinants analyses of this study examine how audit firm expertise (H1), audit committee expertise (H2), and audit signing partner KAM experience (H3) influence the KAM properties regarding content and linguistic features. Overall, the results show that the expertise and experience of supply-side KAM agents significantly affect some KAM properties. Consistent with previous determinants studies, this thesis demonstrates that audit firm expertise, as measured either by firm size or client-industry specialisation, is positively associated with KAM volume and big audit firms are associated with an increase in KAM readability (Rousseau and Zehms 2020, Seebeck and Kaya 2022, Smith 2019, Velte 2018, 2019). These results support the idea that the competencies and incentives of audit firms in providing high audit quality contribute to KAM content and linguistic features. Furthermore, this thesis documents that audit firm industry specialisation is associated with a higher proportion of KAM devoted to describing risk (or a lower proportion devoted to describing audit procedures) while using less uncertain tone in the KAM. These findings suggest that audit firms with in-depth knowledge and experience within the client industry are more efficient and effective in auditing a client than ones without such specialisation. Large audit firms with industry specialisation may use the same number of (or fewer) audit procedures but gain more understanding of the client business, collect more audit evidence, and provide higher assurance in KAM issues than ones without industry specialisation. As a result, they use a greater

proportion of words dedicated to the risk and relatively fewer words devoted to the audit work, while using less uncertain tone.

In line with the predictions presented, audit committee governance expertise is associated with a lower proportion of KAM devoted to describing risk. This finding indicates that audit committees with more experience in monitoring auditors may prefer KAM with more information about audit procedures than risks and influence how auditors write KAM. Unlike Velte (2019), this thesis finds no evidence that audit committee expertise affects the other KAM properties. There is also strong evidence showing that company-specific information in the KAM section increases when KAM disclosures are written by audit signing partners with prior KAM experience.

Next, this thesis investigates the effects of the nature of KAM categories (H4) and five KAM properties (H5-H9) on analyst and investor reactions. The impact analyses consistently show that some nature of KAM categories significantly affect analyst risk perception, analyst forecast quality, information content, and information asymmetry. Consistent with Klevak et al. (2020), who document that KAM increases user risk perceptions, these impact analyses further show that only company-specific, account-level KAM, which compose around 70 per cent of the KAM section on average, increase analyst earnings forecast dispersion. In contrast, the withdrawal of industry-wide, account-level KAM and the recurrence of industry-wide, account-level KAM, representing 20 per cent of KAM on average, are incrementally informative to overall markets and enhance the accuracy of analyst decision-making.

The analyst and investor reactions to the other nature of KAM categories are insignificant when the impact studies employ industry fixed effects models. However, the firm fixed effects analyses reveal that overall markets react to non-repeated industry-wide, account-level KAM. Moreover, company-specific, entity-level KAM are associated with an increase in individual investor reactions and a decrease in information asymmetry for companies operating in weak information environments, suggesting that these nature of KAM categories are beneficial only to unsophisticated investors. Sophisticated investors may already know and take information related to these nature of KAM categories into account ahead of the report release date.

Consistent with Seebeck and Kaya (2022), these impact analyses show that KAM specificity benefits overall markets and individual investors. Moreover, this thesis demonstrates that unsophisticated investors benefit more from KAM specificity than sophisticated ones and the effect of KAM specificity on information asymmetry is only significant for companies with strong information environments. This thesis also documents that the proportion of KAM devoted to describing audit procedures is incrementally informative. This finding is in line with the fact that audit procedure descriptions in KAM increase audit transparency to the public, enabling investors to reevaluate audit and financial reporting quality. Interestingly, there is no evidence that KAM users respond to KAM volume. Surprisingly, the study shows that KAM readability is negatively associated

with individual investor reactions to companies with weak information environments. However, an uncertain tone in KAM is positively associated with the accuracy of analyst earnings forecasts and information asymmetry. This evidence supports the belief that sophisticated investors take more advantage of an uncertain tone in KAM than unsophisticated ones.

7.2 Contribution and implications

The overall findings of the determinants and impact analyses present new expectation-performance gaps created by the KAM section. KAM properties, which expert audit firms have supplied, go unutilised; instead, KAM properties that investors have perceived as a sign of high audit quality may relate to low audit quality. For example, the findings reveal that higher audit quality, as captured by audit firm industry specialisation, is associated with a lower proportion of KAM devoted to the description of audit procedure, but investors increase their reactions and analyst earnings forecasts are more accurate when there is a higher proportion of KAM devoted to audit procedure description, suggesting that audit procedure description may benefit users and increase perceived audit quality. These findings inform standard setters and regulators that the inclusion of KAM in auditors' reports may not entirely reduce the expectation-performance gap (as they might expect) and, perhaps, introduce a new kind of expectation-performance gap. Moreover, this thesis notes that informative KAM may not necessarily reduce information asymmetry (against standard-setters' expectation) because users have different information processing abilities. For example, the positive association between uncertain tone and the abnormal bid-ask spreads of companies operating in weak information environments suggests that the uncertain tone in KAM is informative to most sophisticated and unsophisticated users. Therefore, sophisticated users, who have better resources and greater ability to process data, will benefit from the uncertain tone in KAM more than unsophisticated ones, leading to an increase in information asymmetry (Amiram, Owens and Rozenbaum 2016, Gregoriou 2013, Gregoriou, Ioannidis and Skerratt 2005). Overall, the results suggest regulators engage auditors, audit committees, and financial statement users in KAM implementation to reduce the expectation-performance gap and information asymmetry. Moreover, the impact study results support the idea that regulators should encourage auditors to increase KAM specificity, but the study does not find an advantage regarding KAM readability, as expected by regulators. Moreover, this study would also benefit other KAM stakeholders, especially investors and companies, by increasing their understanding of KAM usage and effects on market reactions.

Besides contributions made to the work of regulators and the other KAM stakeholders mentioned above, this thesis further contributes to the recent KAM literature. First, this study extends the measures of KAM to cover a more comprehensive list of nature of KAM categories, content, and linguistic features. Including all KAM measures in the same analysis allows this thesis to examine their incremental effects on

financial statement user reactions. Unlike prior studies, which usually employ aggregate KAM measures and a model with industry fixed effects in a KAM impact analysis, this study suggests using a more comprehensive list of KAM measures and a model with firm fixed effects provides a better understanding of the impacts of KAM and their properties; helps separate the effects of the different dimensions of KAM information; and enables this thesis to control for the effects of time-invariant company characteristics. Third, this study extends the risk disclosure literature by revealing the impacts of third-party risk disclosures. Unlike corporate risk disclosures, KAM disclosures not only discuss risks but also provide the resolution of issues.

7.3 Limitations and future study opportunities

This thesis has several limitations. First, this thesis covered only the four years after UK KAM adoption because of the high cost and time-consuming manual work required to gather and extract KAM and audit committee information. Covering more KAM years in future analyses may increase the variation of the data related to the determinants of KAM and KAM characteristics. Moreover, KAM stakeholders may develop a deeper understanding of KAM over time. Therefore, future studies could extend the examination to cover more recent data, enabling them to glean more insights relating to the determinants of KAM properties and user reactions to KAM.

Second, this thesis uses UK data from a period when only companies with the premium listing are required to adopt KAM. These companies usually have strong information environments. It is more likely that most information contained in KAM may be known via other channels. Therefore, the effects of KAM on investor reactions may not be as obvious. As documented in the supplementary information environment analyses, most of the effects of nature of KAM categories and properties of KAM on investor reactions are greater for companies with weaker information environments than such with stronger environments. Therefore, future research may need to extend the examination to cover non-premium listing companies with weaker information environments, such as companies listed in the LSE's market for small- and medium-size growth companies, to potentially provide more insights into markets with weaker information environments that have yet to adopt KAM.

Third, the results of the sensitivity tests relating to the Big N firm effects should be interpreted with caution, as mentioned in the PSM section. The PSM subsample for testing Big N effects accounts for only 10 per cent of the original sample, suggesting that most of the sample has been left out and the PSM results may not be generalisable. Fourth, there is the potential for endogeneity issues inherent in archival studies. The thesis makes an attempt to address them using both PSM and firm fixed effects model specifications; however, the possibility endogeneity still remains.

Finally, this study employs many measures of textual information from prior corporate disclosure literature and notes that some measures may not perfectly capture KAM properties, such as readability. On the one hand, using established measures enables the results of this thesis to be easily compared to those of prior KAM studies. However, directly applying the Gunning Fog index to KAM may be problematic since the index neglects the writing styles and the business and financial background of the readers of financial disclosures (Loughran and McDonald 2014). Half of *Fog*'s value is the proportion of complex words identified simply from words with three or more syllables (Loughran and McDonald 2016). This means that common three-syllable business words, such as "company", "customers", and "financial", would lead to significantly less readable Fog index measures (Loughran and McDonald 2014). These flaws in applying the Fog index to the KAM context may partially explain why this impact study hardly finds that readability effects user reactions. Therefore, possible avenues for future research could be tailoring the measures of textual quality to fit the context of audit report studies, which may enable future studies to more readily see the effects of readability on users.

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Appendices

Appendix A: Variable descriptions

Variable	Definition	Source
Variables of Interest:		
Nature of KAM Categories		
Repeated vs. Non-Repeated KAM disclosure	All KAM in 31 KAM categories will be put into groups of repeated or non-repeated KAM. Those KAM in categories that never exist for Company *i* in year *t-1* will be put into non-repeated KAM. Those in the categories that already existed in year *t-1* will be put into repeated KAM only for the number of KAM that does not exceed the number of year *t-1's* KAM in the same categories. The excess number will be grouped into non-repeated KAM.	Annual report
Industry-Common vs. Company-Specific KAM disclosure	Each KAM category that exists in year *t* of Company *i* is defined as Industry-Common KAM if, in that year, more than half of auditors' reports issued to companies in the same SIC one-digit industry as Company *i* disclose KAM(s) in that category. Otherwise, it is defined as a Company-Specific KAM category. (Lennox, Schmidt and Thompson 2019)	Annual report
Account-Level vs. Entity-Level Related KAM disclosure	Entity-Level-Related KAM are those classified in one of the following categories: Control, Going Concern, IT Related and Management Override of Control. The other KAM categories are Account-Level-Related KAM.	Annual report
WithdrawnKAM	The sum of the number of year *t-1* KAM that are withdrawn from the *year t* in each of 31 KAM categories. The dropped numbers are the difference between the KAM numbers in *year t* and *year t-1* of categories, of which the number of KAM in *year* t is greater than the number of *year t-1*.	Annual report
WIA	Total number of withdrawn prior-year KAM which used to be classified as industry-common and account-level-related KAM in *year t-1*.	Annual report
WIE	Total number of withdrawn prior-year KAM which used to be classified as industry-common and entity-level-related KAM in *year t-1*.	Annual report
WCA	Total number of withdrawn prior-year KAM which used to be classified as company-specific and account-level-related KAM in year t-1.	Annual report

WCE	Total number of withdrawn prior-year KAM which used to be classified as company-specific and entity-level-related KAM in year t-1.	Annual report
NIA	Total number of Company *i*'s KAM disclosures that are non-repeated, industry-common and account-level-related.	Annual report
NCA	Total number of Company i's KAM disclosures that are non-repeated, company-specific and account-level-related.	Annual report
Variable	**Definition**	**Source**
Variables of Interest:		
Nature of KAM Categories (continued)		
NIE	Total number of Company i's KAM disclosures that are non-repeated, industry-common and entity-level-related.	Annual report
NCE	Total number of Company i's KAM disclosures that are non-repeated, company-specific and entity -level-related.	Annual report
RIA	Total number of Company i's KAM disclosures that are repeated, industry-common and account-level-related.	Annual report
RIE	Total number of Company i's KAM disclosures that are repeated, industry-common and entity-level-related.	Annual report
RCA	Total number of Company i's KAM disclosures that are repeated, company-specific and account-level-related.	Annual report
RCE	Total number of Company i's KAM disclosures that are repeated, company-specific and entity-level-related.	Annual report
KAM Properties		
Len_KAM	Calculated by dividing the total word counts of KAM disclosures by total number of KAM. (Rousseau and Zehms 2020)	Annual report
Risk_Total	Calculated by dividing the total word counts of the risk description by total word counts in the KAM section (an inverse measurement of $Procedure_Total_{it}$).	Annual report
Specificity	Calculated by dividing the total number of specific entity names, such as specific names, date, number etc., in the KAM section, identified by NER (a built-in module in spaCy) by the number of total words in the KAM section. (Hope, Hu and Lu 2016)	Annual report
Readability	The readability of the KAM disclosures as measured by the inverse of Gunning fog index. (1/*FOG_KAM*)	Annual report
FOG_KAM	Calculated from multiplying the sum of words per sentence and percent of complex words by 0.4. A complex word is defined as a word with more than two syllables. The higher value of the fog index, the less readability of the KAM disclosures.	Annual report
Uncertainty	Calculated by dividing the total word counts of uncertainty terms by the total word counts in KAM section of company *i*'s audit report in the year *t*. Uncertainty terms are those listed in Loughran-McDonald Sentiment Word Lists (2018) as published on <https://sraf.nd.edu/textual-analysis/resources/>. (Lennox, Schmidt and Thompson 2019)	Annual report
Auditor's Expertise & Experience		
BigN	The dummy variable which equals one if an audit firm is one of the Big 4: PwC, Deloitte, EY or KPMG.	Annual report

AudInd	This measure estimates the ratio of the audit fees earned by audit firm I in industry k relative to the total audit fees in industry k earned by all audit firms. (Gramling 2001) The study employs one-digit Standard Industrial Classification (SIC) to represent the client's industry.	Compustat via WRDS

Variable	Definition	Source
Variables of Interest:		
Auditor's Expertise & Experience (continued)		
AudInd_dm	The dummy variable which equals one if an audit firm has been specialised in auditing a customer industry, using 30 per cents market share (Audit fee, as measured by square root of total asset, received from a particular industry by an audit firm/ Total audit fee from that particular industry by all audit firms) on a specific industry of that year. In other word, *AudInd_dm* equals 1 for industries where the auditor's market share exceeds or equal to 30 percent, and 0 for the remaining industries. Industry specialisation is classified along 11 categories of one-digit SIC codes.	Compustat via WRDS
Aud_KAMExp	The number of new audit reports with KAM disclosures that an audit partner has issued to a particular audited company.	Annual report
Aud_KAMExp_dm	The dummy variable which equals to one if *Aud_KAMExp* is greater than one and equals to zero if *Aud_KAMExp is one*.	Annual report
Audit Committee Expertise		
AComAud	Percentage of audit committee members who have audit expertise, as defined by an audit committee member whose profile includes experiences such as audit partner, auditor, chartered (certified) accountant(s), certified public accountant(s) or working experiences in audit firms.	Annual report
AComAud_dm	The dummy variable which equals to one if *AComAud* is ranked in the last tercile group and equals to zero if *AComAud* is ranked in the first tercile group.	Annual report
AComGov	Percentage of governance-experienced audit committee members as defined by those members who also serve as a member of audit committee in other premium listed companies in the year *t*.	Annual report
AComGov_dm	The dummy variable which equals to one if $AComGov_{it}$ is ranked in the last tercile group and equals to zero if $AComGov_{it}$ is ranked in the first tercile group.	Annual report
Analysts' and Investors' Properties		
AB_RET	The absolute value of three-day cumulative abnormal returns in the period surrounding the filing date of the annual report. Abnormal returns are the difference between the daily return of the company and the expected return predicted from the same-day the London Stock Exchange (LSE) market index. The company return equals to the difference between the close price of the day and the prior day, scaled by the close price of the prior day. (Gutierrez et al. 2018). Company security data is obtained from WRDS Capital IQ. Returns = (((prccd/ajexdi*trfd)/(lag_prccd/lag_ajexdi*lag_trfd))-1)*100	Compustat via WRDS and Daily WRDS World Indices (Beta)

AB_VOL	The nautral logarithm of the ratio of the company's mean event-period volume divided by its mean estimation-period volume. Event-period volume is the daily volume in the three-day event window beginning on the day before the report filing date scaled by shares outstanding. Estimation-period volume is measured over the trading period beginning 61 days before the earnings announcement date and ending 40 days later (i.e., 21 days before the earnings announcement date) (Gutierrez et al. 2018)	Compustat via WRDS
Variable	**Definition**	**Source**
Variables of Interest:		
Analysts' and Investors' Properties (continued)		
AB_BAS	Abnormal Bid-ask spread is derived from the difference between average daily bid-ask spread over the three-day event window beginning on the trading day before the filing date of the annual report (event-period volume) and the average daily bid-ask spread over the trading period beginning 61 days before the earnings announcement date and ending 40 days later. The daily bid-ask spread is a percentage calculated by dividing the gap between the ask and the bid price by the mid-point of them.	Datastream via Refinitiv
AnlDisp	The standard deviation of the individual analyst earnings per share forecasts in the first analyst consensus forecast (annual) after audit report issuance, scaled by the share price at 30 days prior to the consensus forecast date (Lang and Lundholm 1996, Lehavy, Li and Merkley 2011). Obtained analyst forecast data from I/B/E/S on WRDS.	Compustat and I/B/E/S via WRDS
AnlErr	Analysts' beginning-of-year absolute forecast errors (an inverse function of forecast accuracy), measured as the absolute value of the difference between actual I/B/E/S earnings per share and the mean of the first analysts' annual earnings per share forecasts issued right after the issuance of the current year's auditor report, deflated by the share price 30 days prior to the consensus forecast date (Wu and Wilson 2016).	Compustat and I/B/E/S via WRDS
Control Variables: (for H1 to H9)		
FOGAnnual	The fog Index of the annual report, excluding an auditor report section, calculated as (average words per sentence + percent of complex words) x 0.4 (Hope, Hu and Lu 2016, Lehavy, Li and Merkley 2011).	Annual report
GoingCon	The dummy variable which is equal to one if the company *i*'s auditor's report includes a modified going concern audit opinion, otherwise zero. (Velte 2019)	Annual report & Audit Analytics
Lev	The total debt at the end of year t divided by the total asset at the end of year *t*.	Compustat via WRDS
LnSeg	The natural logarithm of one plus the number of business segments included in Thomson Reuter Datastream at the end of year *t-1*. (Hope, Hu and Lu 2016)	Datastream via Refinitiv
Loss	A dummy variable which is equal to one if the net income, obtained from WRDS Compustat, for the period is less than zero, and otherwise zero. (Lennox, Schmidt and Thompson 2019, Gutierrez et al. 2018, Wu and Wilson 2016, Reid 2015)	Compustat via WRDS

MB	The market value at the end of the fiscal year end divided by the book value at the end of the fiscal year end. (Gutierrez et al. 2018, Li 2008, Liao et al. 2019, Zhang and Shailer 2018)	Compustat via WRDS
ReturnVol	The standard deviation of daily stock returns in year t-1 (Lehavy, Li and Merkley 2011).	Compustat via WRDS
ROA	Net income before extraordinary items/total assets. ROA_NI = Net Income (Compustat item NICON)/ average "Total Assets" (Compustat item AT) (Gutierrez et al. 2018, Velte 2018)	Compustat via WRDS
Variable	**Definition**	**Source**
Control Variables: (for H1 to H9) (continued)		
Year fixed effects	Fixed effects for the second, third, forth and fifth years	Annual report
Industry fixed effects	Fixed effects for eight business sectors (as identified from the first two digits of the SIC): (1) 01 - 09 agriculture, forestry, & fishing, (2) 10 - 14 mining, (3) 15 - 17 construction, (4) 20 - 39 manufacturing, (5) 40 - 49 transportation & public utilities, (6) 50 - 51 wholesale trade, (7) 52 - 59 retail trade, and (8) 70 - 79 services.	Compustat via WRDS
Control Variables: (for H1 to H3 only)		
Acq	The dummy variable equal to one if the company has some acquisition expenditures in the year *t* (Smith 2019). AQC is not equal to zero.	Compustat via WRDS
AComFem	Proportion of female members in the audit committee board. (Velte 2018)	Annual report
Age	The number of years that a company has been listed in the LSE.	The LSE
AudFee	The ratio of audit fee received from a particular client to total audit fee that audit firms earn from all clients in the year *t*.	Audit Analytics
Curr	Current assets divided by total assets (Velte 2019)	Compustat via WRDS
Cross_List	The dummy variable is equal to 1 if company's shares are traded in several stock exchanges in the year.	
DecYE	The dummy variable which equals to 1 if the company has a December fiscal year-end. (Rousseau and Zehms 2020)	Annual report
EquityIssue	The dummy variable equal to one if the company is listed in the Thomson One Equity Issuance Database as issuing an equity offering in year t (Smith 2019).	Refinitiv
LnSize	The natural logarithmic transformation of the book value of the total assets (unit: thousand) at the end of year *t*. (Gutierrez et al 2018, Bens, Chang and Huang 2019, Smith 2019)	Compustat via WRDS
RD	The research and development expenditures (Compustat item XRD) divided by average total asset at year *t-1* (Compustat item AT) (Hope, Hu and Lu 2016).	Compustat via WRDS
SP_Item	The dummy variable equal to one if the audit report includes KAM related to exceptional or special items.	Compustat via WRDS
Control Variables: (for H4 to H9 only)		
AB_RetEarn	The absolute value of the sum of the three-day absolute abnormal returns in the period surrounding the earnings release date. Abnormal return is calculated as the company daily returns minus same-day returns for the LSE value-weighted portfolio.	Compustat via WRDS

AnlCoverage	The natural logarithm of one plus the average number of analysts issuing forecasts for the firm's current fiscal period. Obtained from I/B/E/S on WRDS.	I/B/E/S via WRDS
BETA	slope coefficient obtained by regressing the company daily return on daily returns of the LSE value-weighed portfolio over a 200-day period (-260, -61) relative to the filing date	Compustat via WRDS
BigN	The dummy variable which equals one if an audit firm is one of the Big 4: PwC, Deloitte, EY or KPMG.	Annual report
Variable	**Definition**	**Source**
Control Variables: (for H4 to H9 only) (continued)		
Chg_NI	The absolute value of change in net income in year *t* scaled by average total assets. (Gutierrez et al. 2018)	Compustat via WRDS
EarnVol	The standard deviation of return on assets computed over year *t* to year *t-6*. (Gutierrez et al. 2018)) ROA = Net Income (Compustat item OIBDP)/ average "Total Assets" (Compustat item AT)	Compustat via WRDS
FindKAM	A dummy variable which equals to 1 if an auditor also includes findings in each KAM issue.	Annual report
ForecastErr	Analysts' end-of-year absolute forecast errors, measured as the absolute value of difference between the most recent forecast earnings per share issued before the current-period earnings announcement and its corresponding actual I/B/E/S earnings per share, deflated by the share price 30 days prior to the consensus forecast date. (Blankespoor, Miller and White 2014, Hope, Hu and Lu 2016, Wu and Wilson 2016, Reid 2015)	Compustat and I/B/E/S via WRDS
Horizon	The natural logarithm of the number of days between mean forecast estimation date and subsequent actual earnings reporting date (Wu and Wilson 2016).	I/B/E/S via WRDS
LnMarket	The natural logarithmic transformation of the market value (unit: thousand) at the end of year *t* (Lennox, Schmidt and Thompson 2019))	Compustat via WRDS
MatPerc	The ratio of total materiality disclosed in the audit report divided by total assets. (Sierra-Garcia et al. 2019, Gutierrez et al 2018)	Annual report and Compustat via WRDS
Rep_Lag	The number of calendar days between the earnings announcement date and the subsequent annual report release date. Earnings announcement dates are obtained from I/B/E/S on WRDS. Annual report release dates are collected from Eikon Datastream. (Gutierrez et al. 2018)	I/B/E/S via WRDS and Datastream via Refinitiv
SizeAnnual	The logarithmic transformation of the number of pages of the annual report without the audit report.	Annual report
SizeAudit	The logarithmic transformation of the word count of the audit report.	Annual report
Firm fixed effects	Fixed effects for companies	

Appendix B: An examples of the traditional and new auditor's reports

I. The traditional auditor's report extracted from Severfield Plc annual report & accounts 2013

Severfield–Rowen Plc
Annual Report and Accounts for the 15 month period ended 31 March 2013

Independent Auditor's Report

to the Members of Severfield–Rowen Plc

We have audited the Group financial statements of Severfield–Rowen Plc for the 15 month period ended 31 March 2013 which comprise the consolidated income statement, the consolidated statement of comprehensive income, the consolidated balance sheet, the consolidated cash flow statement, the consolidated statement of changes in equity and the related notes 1 to 33. The financial reporting framework that has been applied in their preparation is applicable law and International Financial Reporting Standards (IFRSs) as adopted by the European Union.

This report is made solely to the Company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the Company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and the Company's members, as a body, for our audit work, for this report, or for the opinions we have formed.

Respective responsibilities of directors and auditor
As explained more fully in the Directors' Responsibilities Statement, the directors are responsible for the preparation of the Group financial statements and for being satisfied that they give a true and fair view. Our responsibility is to audit and express an opinion on the Group financial statements in accordance with applicable law and International Standards on Auditing (UK and Ireland). Those standards require us to comply with the Auditing Practices Board's Ethical Standards for Auditors.

Scope of the audit of the financial statements

An audit involves obtaining evidence about the amounts and disclosures in the financial statements sufficient to give reasonable assurance that the financial statements are free from material misstatement, whether caused by fraud or error. This includes an assessment of: whether the accounting policies are appropriate to the Group's circumstances and have been consistently applied and adequately disclosed; the reasonableness of significant accounting estimates made by the directors; and the overall presentation of the financial statements.

In addition, we read all the financial and non-financial information in the annual report to identify material inconsistencies with the audited financial statements. If we become aware of any apparent material misstatements or inconsistencies we consider the implications for our report.

Opinion on financial statements
In our opinion the Group financial statements:

- give a true and fair view of the state of the Group's affairs as at 31 March 2013 and of its loss for the period then ended;
- have been properly prepared in accordance with IFRSs as adopted by the European Union; and
- have been prepared in accordance with the requirements of the Companies Act 2006 and Article 4 of the IAS Regulation.

Opinion on other matter prescribed by the Companies Act 2006
In our opinion:

- the part of the Directors' Remuneration Report to be audited has been properly prepared in accordance with the Companies Act 2006; and
- the information given in the Directors' Report for the financial period for which the financial statements are prepared is consistent with the Group financial statements.

Matters on which we are required to report by exception
We have nothing to report in respect of the following:

Under the Companies Act 2006 we are required to report to you if, in our opinion:

- certain disclosures of directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

Under the Listing Rules we are required to review:

- the directors' statement contained within the Directors' Report in relation to going concern;
- the part of the corporate governance statement relating to the Company's compliance with the nine provisions of the UK Corporate Governance Code specified for our review; and
- certain elements of the report to shareholders by the Board on directors' remuneration.

Other matter
We have reported separately on the parent company financial statements of Severfield–Rowen Plc for the 15 month period ended 31 March 2013.

David M Johnson
(Senior Statutory Auditor)
for and on behalf of Deloitte LLP
Chartered Accountants and Statutory Auditor
Leeds, United Kingdom
19 July 2013

II. The new auditor's report with the KAM section extracted from Severfield Plc annual report & accounts 2018

Independent auditor's report

to the members of Severfield plc only

1. Our opinion is unmodified

We have audited the financial statements of Severfield plc ("the Company") for the year ended 31 March 2018 which comprise the Consolidated income statement, Consolidated statement of comprehensive income, Consolidated balance sheet, Consolidated statement of changes in equity, Consolidated cash flow statement, Company balance sheet, Company statement of changes in equity and the related notes, including the accounting policies in note 1.

In our opinion:

- the financial statements give a true and fair view of the state of the Group's and of the parent Company's affairs as at 31 March 2018 and of the Group's profit for the year then ended;
- the Group financial statements have been properly prepared in accordance with International Financial Reporting Standards as adopted by the European Union;
- the parent Company financial statements have been properly prepared in accordance with UK accounting standards, including FRS 101 *Reduced Disclosure Framework*; and
- the financial statements have been prepared in accordance with the requirements of the Companies Act 2006 and, as regards the Group financial statements, Article 4 of the IAS Regulation.

Basis for opinion

We conducted our audit in accordance with International Standards on Auditing (UK) ("ISAs (UK)") and applicable law. Our responsibilities are described below. We believe that the audit evidence we have obtained is a sufficient and appropriate basis for our opinion. Our audit opinion is consistent with our report to the audit committee.

We were appointed as auditor by the shareholders on 2 September 2015. The period of total uninterrupted engagement is for the three financial years ended 31 March 2018. We have fulfilled our ethical responsibilities under, and we remain independent of the Group in accordance with, UK ethical requirements including the FRC Ethical Standard as applied to listed public interest entities. No non-audit services prohibited by that standard were provided.

Overview		
Materiality: Group financial statements as a whole	£1,100,000 (2017: £900,000) 5.0% (2017: 5.0%) of total Group profit before tax	
Coverage	98% (2017: 98%) of total Group profit before tax	
Risks of material misstatement		**vs 2017**
Recurring risks	Carrying value of construction contracts balance, and revenue and profit recognition in relation to construction contracts	←→
	Carrying value of Indian joint venture investment (Group and parent)	←→
	Carrying value of parent Company's investments in subsidiaries	←→

2. Key audit matters: our assessment of risks of material misstatement

Key audit matters are those matters that, in our professional judgment, were of most significance in the audit of the financial statements and include the most significant assessed risks of material misstatement (whether or not due to fraud) identified by us, including those which had the greatest effect on: the overall audit strategy; the allocation of resources in the audit; and directing the efforts of the engagement team. We summarise below the key audit matters, in decreasing order of audit significance, in arriving at our audit opinion above, together with our key audit procedures to address those matters and, as required for public interest entities, our results from those procedures. These matters were addressed, and our results are based on procedures undertaken, in the context of, and solely for the purpose of, our audit of the financial statements as a whole, and in forming our opinion thereon, and consequently are incidental to that opinion, and we do not provide a separate opinion on these matters.

	The risk	Our response
Carrying value of construction contracts balance and revenue and profit recognition in relation to construction contracts Revenue: £274.2m (2017: £262.2m) Construction contracts: £45.6m (2017: £59.1m) *Refer to page 88 (audit committee report), pages 134 and 139 (accounting policies) and note 16 (financial disclosure).*	**Subjective estimate** The Group's activities are undertaken via long-term construction contracts. The carrying value of the construction contract balance as well as the revenue and profit recognised are based on estimates of costs to complete and a level of unagreed variations and judgement as to the recoverability of those variations. Estimated contract costs, and as a result revenues, can be affected by a variety of uncertainties, including associated customer claims, that depend on the outcome of future events resulting in revisions throughout the contract period.	Our procedures included: • **Test of details:** Identifying contracts with risk indicators including: low margin or loss making contracts, high values of unagreed variations and large carrying value of amounts receivable on contracts. For these contracts we agreed the year-end construction contract balance to the cash recovered post period end or the work certified to date; • **Test of details:** Challenging the Group in respect of construction contract balances in the sample identified, where cash has not been received or work has not been certified post year-end, by obtaining correspondence with the clients to corroborate the position; • **Historical comparisons:** Assessing the forecasted cost to complete in the sample identified by understanding contract performance and costs incurred post year-end along with discussions and challenge of management; • **Test of details:** Verifying the existence of customer claims to external correspondence and challenging management's assessment of these; • **Historical comparisons:** Assessing the forecasting accuracy of contract margins by evaluating initial forecasted margins for a sample of contracts across the portfolio against actual margins achieved; • **Assessing transparency:** Assessing the adequacy of the Group's disclosures on revenue recognition and the degree of estimation involved in arriving at the construction contract balance and associated revenue and profit recognition. **Our results** • We found the carrying value of construction contracts, and the level of revenue and profit recognition in relation to construction contracts to be acceptable (2017: acceptable).

Independent auditor's report

to the members of Severfield plc only

2. Key audit matters: our assessment of risks of material misstatement continued

	The risk	Our response
Carrying value of Indian joint venture investment (Group and parent) Investment in Indian joint venture (Group): £10.7m (2017: £4.6m) Investment in Indian joint venture (parent): £18.9m (2017: £13.3m) *Refer to page 88 (audit committee report), pages 133 and 139 (accounting policies) and note 14 (financial disclosure)*	**Forecast-based valuation** The carrying value of the investment in the joint venture is at risk of impairment due to its recent performance. The estimated recoverable amount is subjective due to the inherent uncertainty involved in forecasting and discounting future cash flows. Significant areas of judgement include sales growth rates, operating margins and the discount rate applied to future cash flows.	Our procedures included: • **Benchmarking assumptions:** We compared the Group's assumptions to externally derived data as well as our own assessments in relation to key inputs such as projected growth and discount rates; • **Sensitivity analysis:** Performing sensitivity analysis on key assumptions to understand their impact on headroom; • **Historical comparisons:** Assessed actual performed against budget to understand historical budgeting accuracy; • **Assessing transparency:** We also assessed whether the Group's disclosures about the sensitivity of the outcome of the impairment assessment to changes in key assumptions reflected the risks inherent in the valuation of the investment in the joint venture. **Our results** • We found the Group's assessment of the carrying value of the investment in the Indian joint venture to be acceptable (2017: acceptable).
Carrying value of parent Company's investments in subsidiaries £73.6m; (2017: £73.7m) *Refer to page 166 (accounting policy) and page 168 (financial disclosures).*	**Low risk, high value:** The carrying amount of the parent Company's investments in subsidiaries represents 34% (2017: 35%) of the Company's total assets. Their recoverability is not at a high risk of significant misstatement or subject to significant judgement. However, due to their materiality in the context of the parent Company financial statements, this is considered to be the area that had the greatest effect on our overall parent Company audit.	Our procedures included: • **Tests of detail:** Comparing the carrying amount of 100% of investments balance with the relevant subsidiaries' draft balance sheet to identify whether their net assets, being an approximation of their minimum recoverable amount, were in excess of their carrying amount and assessing whether those subsidiaries have historically been profit-making; • **Assessing subsidiary audits:** Assessing the work performed by the subsidiary audit team on all of those subsidiaries and considering the results of that work, on those subsidiaries' profits and net assets; • **Our sector experience:** For the investments where the carrying amount exceeded the net asset value, comparing the carrying amount of the investment with the expected value of the business based on a suitable multiple of the subsidiaries' profit. **Our results** • We found the Group's assessment of the recoverability of the investment in subsidiaries to be acceptable.

We continue to perform procedures over the carrying value of goodwill. However, following a continued improvement in the profitability of the entities to which the goodwill relates, we have not assessed this as one of the most significant risks in our current year audit and, therefore, it is not separately identified in our report this year.

3. Our application of materiality and an overview of the scope of our audit

Materiality for the Group financial statements as a whole was set at £1,100,000 (2017: £900,000), determined with reference to a benchmark of total Group profit before tax, of which it represents 5.0% (2017: 5.0% of total Group profit before tax).

Materiality for the parent Company financial statements as a whole was set at £900,000 (2017: £675,000), determined with reference to a benchmark of Company total assets, of which it represents 0.4% (2017: 0.3%).

We reported to the audit committee any corrected or uncorrected identified misstatements exceeding £55,000 (2017: £45,000), in addition to other identified misstatements that warranted reporting on qualitative grounds.

Of the Group's seven (2017: seven) reporting components, we subjected six (2017: six) to full scope audits for Group purposes. For the residual component, we performed analysis at a Group level to re-examine our assessment that there were no significant risks of material misstatement within that component.

The components within the scope of our work accounted for the percentages illustrated opposite.

The Group audit team instructed component auditors as to the significant areas to be covered, including the relevant risks detailed above and the information to be reported back. The Group audit team also approved the component materialities ranging from £250,000 to £900,000 (2017: £320,000 to £675,000) having regard to the mix of size and risk profile of the Group across the components. The work on one of the seven components (2017: one of the seven components) was performed by component auditors and the rest, including the audit of the parent Company, was performed by the Group team.

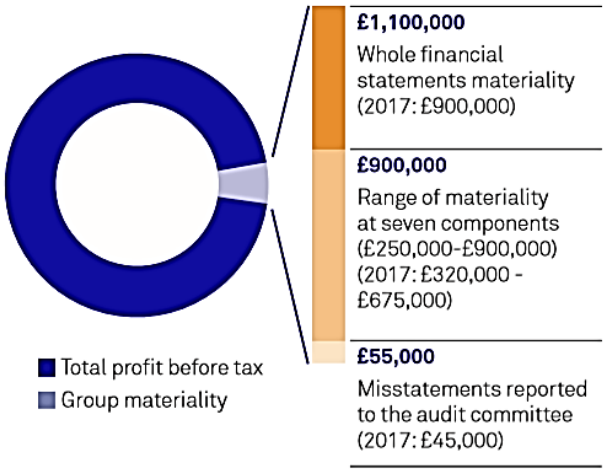
The Group team visited one (2017: one) component location in India (2017: India) to assess audit risk and strategy. Telephone conference meetings were also held with the component audit team. At these meetings, the findings reported to the Group team were discussed in more detail, and any further work required by the Group team was then performed by the component auditor.

Total profit before tax

£22,179,000
(2017: £18,055,000)

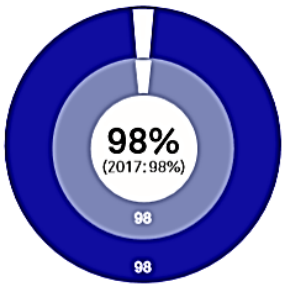
Group materiality

£1,100,000 (2017: £900,000)

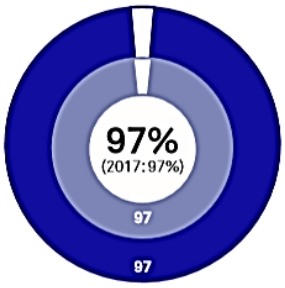


Group revenue

Total Group profit before tax



Group total assets



- Full scope for Group audit purposes 2018
- Full scope for Group audit purposes 2017
- Residual components

Independent auditor's report

to the members of Severfield plc only

4. We have nothing to report on going concern

We are required to report to you if:

- we have anything material to add or draw attention to in relation to the directors' statement in note 1 to the financial statements on the use of the going concern basis of accounting with no material uncertainties that may cast significant doubt over the Group and Company's use of that basis for a period of at least twelve months from the date of approval of the financial statements; or
- if the related statement under the Listing Rules set out on pages 45 and 95 is materially inconsistent with our audit knowledge.

We have nothing to report in these respects.

5. We have nothing to report on the other information in the annual report

The directors are responsible for the other information presented in the annual report together with the financial statements. Our opinion on the financial statements does not cover the other information and, accordingly, we do not express an audit opinion or, except as explicitly stated below, any form of assurance conclusion thereon.

Our responsibility is to read the other information and, in doing so, consider whether, based on our financial statements audit work, the information therein is materially misstated or inconsistent with the financial statements or our audit knowledge. Based solely on that work we have not identified material misstatements in the other information.

Strategic report and directors' report

Based solely on our work on the other information:

- we have not identified material misstatements in the strategic report and the directors' report;
- in our opinion the information given in those reports for the financial year is consistent with the financial statements; and
- in our opinion those reports have been prepared in accordance with the Companies Act 2006.

Directors' remuneration report

In our opinion the part of the directors' remuneration report to be audited has been properly prepared in accordance with the Companies Act 2006.

Disclosures of principal risks and longer-term viability

Based on the knowledge we acquired during our financial statements audit, we have nothing material to add or draw attention to in relation to:

- the directors' confirmation within page 45 that they have carried out a robust assessment of the principal risks facing the Group, including those that would threaten its business model, future performance, solvency and liquidity;
- the principal risks disclosures describing these risks and explaining how they are being managed and mitigated; and
- the directors' explanation in the viability statement of how they have assessed the prospects of the Group, over what period they have done so and why they considered that period to be appropriate, and their statement as to whether they have a reasonable expectation that the Group will be able to continue in operation and meet its liabilities as they fall due over the period of their assessment, including any related disclosures drawing attention to any necessary qualifications or assumptions.

Under the Listing Rules we are required to review the viability statement. We have nothing to report in this respect.

Corporate governance disclosures

We are required to report to you if:

- we have identified material inconsistencies between the knowledge we acquired during our financial statements audit and the directors' statement that they consider that the annual report and financial statements taken as a whole is fair, balanced and understandable and provides the information necessary for shareholders to assess the Group's position and performance, business model and strategy; or
- the section of the annual report describing the work of the Audit Committee does not appropriately address matters communicated by us to the Audit Committee.

We are required to report to you if the Corporate Governance Statement does not properly disclose a departure from the 11 provisions of the UK Corporate Governance Code specified by the Listing Rules for our review.

We have nothing to report in these respects.

6. We have nothing to report on the other matters on which we are required to report by exception

Under the Companies Act 2006, we are required to report to you if, in our opinion:

- adequate accounting records have not been kept by the parent Company, or returns adequate for our audit have not been received from branches not visited by us; or
- the parent Company financial statements and the part of the directors' remuneration report to be audited are not in agreement with the accounting records and returns; or
- certain disclosures of directors' remuneration specified by law are not made; or
- we have not received all the information and explanations we require for our audit.

We have nothing to report in these respects.

7. Respective responsibilities

Directors' responsibilities

As explained more fully in their statement set out on page 117, the directors are responsible for: the preparation of the financial statements including being satisfied that they give a true and fair view; such internal control as they determine is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error; assessing the Group and parent Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern; and using the going concern basis of accounting unless they either intend to liquidate the Group or the parent Company or to cease operations, or have no realistic alternative but to do so.

Auditor's responsibilities

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or other irregularities (see below), or error, and to issue our opinion in an auditor's report. Reasonable assurance is a high level of assurance, but does not guarantee that an audit conducted in accordance with ISAs (UK) will always detect a material misstatement when it exists. Misstatements can arise from fraud, other irregularities or error and are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

A fuller description of our responsibilities is provided on the FRC's website at www.frc.org.uk/auditorsresponsibilities.

Irregularities – ability to detect

We identified areas of laws and regulations that could reasonably be expected to have a material effect on the financial statements from our sector experience and through discussion with the other management (as required by auditing standards).

We had regard to laws and regulations in areas that directly affect the financial statements including financial reporting (including related company legislation) and taxation legislation. We considered the extent of compliance with those laws and regulations as part of our procedures on the related financial statement items.

In addition, we considered the impact of laws and regulations in the specific area of health and safety recognising the nature of the Group's activities. With the exception of any known or possible non-compliance, and as required by auditing standards, our work in respect of these was limited to enquiry of the directors and inspection of regulatory and legal correspondence.

We communicated identified laws and regulations throughout our team and remained alert to any indications of non-compliance throughout the audit. This included communication from the Group to component audit teams of relevant laws and regulations identified at Group level, with a request to report on any indications of potential existence of non-compliance with relevant laws and regulations (irregularities) in these areas, or other areas directly identified by the component team.

As with any audit, there remained a higher risk of non-detection of irregularities, as these may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal controls.

8. The purpose of our audit work and to whom we owe our responsibilities

This report is made solely to the Company's members, as a body, in accordance with Chapter 3 of Part 16 of the Companies Act 2006. Our audit work has been undertaken so that we might state to the Company's members those matters we are required to state to them in an auditor's report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than the Company and the Company's members, as a body, for our audit work, for this report, or for the opinions we have formed.

Adrian Stone (Senior statutory auditor)
for and on behalf of KPMG LLP, Statutory Auditor
Chartered Accountants
One Sovereign Square, Sovereign Street
Leeds, LS1 4DA
20 June 2018

Appendix C: An example of KAM-related management risk disclosure extracted from Severfield Plc annual report & accounts 2018

3 Commercial and market environment

Description

Changes in government and client spending or other external factors could lead to programme and contract delays or cancellations, or changes in market growth. Whilst Brexit has still not had a significant impact on the UK construction market, outcomes following the decision to leave the EU remain difficult to predict and could affect investor confidence.

Lower than anticipated demand could result in increased competition, tighter margins and the transfer of commercial, technical and financial risk down the supply chain, through more demanding contract terms and longer payment cycles.

Impact

A significant fall in construction activity could adversely impact revenues, profits, ability to recover overheads and cash generation.

Mitigation

- Regular reviews of market trends performed (as part of the Group's annual strategic planning and market review process) to ensure actual and anticipated impacts from macroeconomic risks are minimised and managed effectively.
- Regular monitoring and reporting of financial performance, orders secured, prospects and the conversion rate of the pipeline of opportunities and marshalling of market opportunities is undertaken on a co-ordinated Group-wide basis.
- Selection of opportunities that will provide sustainable margins and repeat business.
- Strategic planning is undertaken to identify and focus on the addressable market (including new overseas and domestic opportunities).
- Development of new organic revenue streams including in Europe, residential and Severfield (Products & Processing) which fit the Group's risk appetite.
- Close management of capital investment and focus on maximising asset utilisation to ensure alignment of our capacity and volume demand from clients.
- Close engagement with both customers and suppliers and monitoring of payment cycles.
- Ongoing assessment of financial solvency and strength of counterparties throughout the life of contracts.
- Continuing use of credit insurance to minimise impact of customer failure.
- Strong balance sheet (the Group has net funds in excess of £30m) supports the business through fluctuations in the economic conditions of the sector.

4 Mispricing a contract (at tender)

Description

Failure to accurately estimate and evaluate the contract risks, costs to complete, contract duration and the impact of price increases could result in a contract being mispriced. Execution failure on a high-profile contract could result in reputational damage.

Impact

If a contract is incorrectly priced, particularly on complex contracts, this could lead to loss of profitability, adverse business performance and missed performance targets.

This could also damage relationships with clients and the supply chain.

Mitigation

- Improved contract selectivity (those that are right for the business and which match our risk appetite) has de-risked the order book and reduced the probability of poor contract execution.
- Estimating processes are in place with approvals by appropriate levels of management.
- Tender settlement processes are in place to give senior management regular visibility of major tenders.
- Use of the tender review process to mitigate the impact of rising supply chain costs.
- Work performed under minimum standard terms (to mitigate onerous contract terms) where possible.
- Use of Group authorisation policy to ensure appropriate contract tendering and acceptance.
- Professional indemnity cover is in place to provide further safeguards.

7 Indian joint venture

Description

The growth, management and performance of the business is a key element of the Group's overall performance. Effective management of the joint venture is therefore important to the Group's continuing success.

Crucial to the long-term success of the joint venture is the development of the market for steel (rather than concrete) construction.

Impact

Failure to effectively manage operations in India could lead to financial loss, reputational damage and a drain on cash resources to fund the operations.

Mitigation

- Robust joint venture agreement and strong governance structure is in place.
- Two members of the Group's board of directors are members of the joint venture board.
- Regular formal and informal meetings held with both joint venture management and joint venture partners.
- Contract risk assessment, engagement and execution process now embedded in the joint venture.
- Market and operational plan now implemented; overhead reduction and operational improvement programmes remain ongoing.
- Close monitoring of cash flow and debt repayments.
- Repayment of term debt has eased cash flow.

8 People

Description

The ability to identify, attract, develop and retain talent is crucial to satisfy the current and future needs of the business. Skills shortages in the construction industry are likely to remain an issue for the foreseeable future and it can become increasingly difficult to recruit capable people and retain key employees, especially those targeted by competitors.

Impact

Loss of key people could adversely impact the Group's existing market position and reputation. Insufficient growth and development of its people and skill sets could adversely affect its ability to deliver its strategic objectives.

A high level of staff turnover or low employee engagement could result in a drop in confidence in the business within the market, customer relationships being lost and an inability to focus on business improvements.

Mitigation

- Remuneration arrangements are regularly reviewed (and benchmarked where possible) to ensure that they are competitive and strike the appropriate balance between short and long-term rewards and incentives.
- Skills gaps are continually identified and actions put in place to bridge these by training, development or external recruitment.
- In 2018 we continued to focus on emerging talent, succession planning and career opportunity and concluded the first phase of our Severfield development programme which is helping us build sustainable leadership capability within our next generation of leaders. Other ongoing leadership and management development plans are also in place.
- We undertook a Group-wide employee engagement survey to measure engagement, with the results being analysed and improvements identified and implemented.
- Annual appraisal process provides 360 degree feedback on performance for certain employees.
- Graduate, trainee and apprenticeship schemes are in place to safeguard an inflow of new talent.
- We have made a series of improvements in internal communications across the Group.

Appendix D: The list of audit firms used to determine the audit expertise of audit committee members

['PWC', 'KPMG', 'EY', 'Deloitte', 'BDO', 'Grant Thornton', 'Coopers and Lybrand llp', 'Arthur Anderson', 'Baker Tilly', 'Begbies', 'BSG Valentine', 'Chantrey Vellacott', 'Chaturvedi', 'Rajendra', 'Crowe Clark Whitehill', 'Clement Keys', 'Crowe Horwath', 'French Duncan', 'Hazlewoods', 'James Cowper Kreston', 'mazars', 'Larking Gowen', 'RSM ', 'Welbeck', 'Moore Stephens', 'SRG', 'PKF', 'UHY Hacker Young', 'Walker Chandiok', 'Rosexpertiza', Shipleys']

Appendix E: The classes of named entities defined by spaCy's NER and examples

Type	Description	Example
1. PERSON	People, including fictional.	Fred Flintstone
2. NORP	Nationalities or religious or political groups.	The Republican party
3. FAC	Buildings, airports, highways, bridges, etc.	Logan International Airport, The Golden Gate
4. ORG	Companies, agencies, institutions, etc.	Microsoft, FBI, MIT
5. GPE	Countries, cities, states.	France, UAR, Chicago, Idaho
6. LOC	Non-GPE locations, mountain ranges, bodies of water.	Europe, Nile River, Midwest
7. PRODUCT	Objects, vehicles, foods, etc. (Not services.)	Formula 1
8. EVENT	Named hurricanes, battles, wars, sports events, etc.	Olympic Games
9. WORK_OF_ART	Titles of books, songs, etc.	The Mona Lisa
10. LAW	Named documents made into laws.	Roe v. Wade
11. LANGUAGE	Any named language.	English
12. DATE	Absolute or relative dates or periods.	20 July 1969
13. TIME	Times smaller than a day.	Four hours
14. PERCENT	Percentage, including %.	Eighty percent
15. MONEY	Monetary values, including unit.	Twenty Cents
16. QUANTITY	Measurements, as of weight or distance.	Several kilometers, 55kg
17. ORDINAL	first, second, etc.	9th, Ninth
18. CARDINAL	Numerals that do not fall under another type.	2, Two, Fifty-two

Source: https://towardsdatascience.com/named-entity-recognition-ner-using-spacy-nlp-part-4-28da2ece57c6

Appendix F: KAM example processed by spaCy's NER

The following screen captions present NER commands in Python and the results from processing two revenue-related disclosures extracted from the KAM sections in 2015 and 2016 auditors' reports of Robert Walters.

```
In [27]: import spacy
         from spacy import displacy
         nlp = spacy.load('en_core_web_sm')

         text = "Revenue recognition For permanent placements, which accounted for 69% of the Net Fee Income (gross profit) of \
         the Group's recruitment business in 2015, the Group's policy (as detailed in the Accounting Policies note) is to record\
         revenue when specific recognition criteria have been met, namely where a candidate accepts a position in writing and a \
         start date is agreed. Accordingly revenue is accrued in respect of permanent placements meeting the above criteria but \
         which remain unbilled. A provision is made for placements expected to be cancelled prior to the start date (back-outs) \
         on the basis of past experience. The application of this part of the Group's revenue recognition policy involves a \
         significant degree of management judgement. Our testing involved agreeing a sample of permanent placement fees earned \
         but not invoiced to written evidence of candidate acceptance, including confirmation of start date. We assessed the level\
         of provision held at the year-end against the average level of back-outs experienced on a monthly basis during the year. \
         We also evaluated the back-outs following the year end."
         doc = nlp(text)
         displacy.render(doc, style="ent", jupyter = True)
```

Revenue recognition For permanent placements, which accounted for 69% PERCENT of the Net Fee Income LAW (gross profit) of the Group's ORG recruitment business in 2015 DATE , the Group's ORG policy (as detailed in the Accounting Policies ORG note) is to recordrevenue when specific recognition criteria have been met, namely where a candidate accepts a position in writing and a start date is agreed. Accordingly revenue is accrued in respect of permanent placements meeting the above criteria but which remain unbilled. A provision is made for placements expected to be cancelled prior to the start date (back-outs) on the basis of past experience. The application of this part of the Group's ORG revenue recognition policy involves a significant degree of management judgement. Our testing involved agreeing a sample of permanent placement fees earned but not invoiced to written evidence of candidate acceptance, including confirmation of start date. We assessed the levelof provision held at the year-end DATE against the average level of back-outs experienced on a monthly DATE basis during the year DATE . We also evaluated the back-outs following the year end DATE .

```
In [30]: text = "Revenue recognition For permanent placements, which accounted for 17% of the revenue of the Group's recruitment \
         business in 2016 (2015: 17%), the Group's policy (as detailed in the Accounting Policies note) is to record revenue when \
         specific recognition criteria have been met, namely where a candidate accepts a position in writing and a start date is \
         agreed. Accordingly revenue is accrued in respect of permanent placements meeting the above criteria but which remain \
         unbilled. This is discussed by The Report of the Audit and Risk Committee on page 37. A provision is made for placements\
         expected to be cancelled prior to the start date (back-outs) on the basis of past experience. Determining the level of \
         provision required for back-outs involves a significant degree of management judgement. For temporary placements, which \
         accounted for 83% of the revenue of the Group's recruitment business in 2016 (2015: 83%), the Group's policy (as detailed\
         in the Accounting Policies note) is to record revenue as the service is provided. Accordingly revenue is accrued in \
         respect of temporary placements where temporary staff have provided a service but which remain unbilled. This is discussed\
         by The Report of the Audit and Risk Committee on page 37. Whilst the calculation of accrued income for temporary placements\
         is not complex, management judgement is required in determining the amount of accrued income to recognise in respect of \
         placements where it is believed that temporary staff provided the service before year end, but where no timesheet had been\
         received at the year-end date. In all full scope components, we evaluated the design and implementation of the internal \
         controls in place to ensure that revenue in respect of all permanent placements is recorded in the correct period. \
         In the UK, Australia and Singapore, we performed additional testing to confirm whether these internal controls for \
         permanent placements were operating effectively. Our testing involved agreeing a sample of permanent placement fees \
         earned but not invoiced to written evidence of candidate acceptance, including confirmation of start date. We assessed \
         the level of provision held at the year-end against the average level of back-outs experienced on a monthly basis during\
         the year. We also evaluated the back-outs following the year end. In all full scope locations, we evaluated the design \
         and implementation of the internal controls in place to ensure that revenue in respect of all temporary placements is \
         recorded in the correct period. We reviewed a sample of timesheets received after the year-end date, to ensure that revenue \
         in respect of these were recorded in the correct period. We recalculated the accrued income balance relating to temporary\
         placements, and assessed the cut-off applied to the receipt of post year-end timesheets relating to services provided before\
         year end. Our testing also involved a retrospective review of the dates of timesheets submitted during 2016 which related to \
         2015. This was done to assess the likely level of accrued income required at 31 December 2016 for 'missing' timesheets."
         doc = nlp(text)
         displacy.render(doc, style="ent", jupyter = True)
```

Revenue recognition For permanent placements, which accounted for 17% PERCENT of the revenue of the Group's ORG recruitment business in 2016 DATE (2015 DATE : 17% PERCENT), the Group's ORG policy (as detailed in the Accounting Policies ORG note) is to record revenue when specific recognition criteria have been met, namely where a candidate accepts a position in writing and a start date is agreed. Accordingly revenue is accrued in respect of permanent placements meeting the above criteria but which remain unbilled. This is discussed by The Report of the Audit and Risk Committee ORG on page 37 CARDINAL . A provision is made for placements expected to be cancelled prior to the start date (back-outs) on the basis of past experience. Determining the level of provision required for back-outs involves a significant degree of management judgement. For temporary placements, which accounted for 83% PERCENT of the revenue of the Group's ORG recruitment business in 2016 DATE (2015 DATE : 83% PERCENT), the Group's ORG policy (as detailed in the Accounting Policies ORG note) is to record revenue as the service is provided. Accordingly revenue is accrued in respect of temporary placements where temporary staff have provided a service but which remain unbilled. This is discussed by The Report of the Audit and Risk Committee ORG on page 37 CARDINAL . Whilst the calculation of accrued income for temporary placements is not complex, management judgement is required in determining the amount of accrued income to recognise in respect of placements where it is believed that temporary staff provided the service before year end DATE , but where no timesheet had been received at the year-end DATE date. In all full scope components, we evaluated the design and implementation of the internal controls in place to ensure that revenue in respect of all permanent placements is recorded in the correct period. In the UK GPE , Australia GPE and Singapore GPE , we performed additional testing to confirm whether these internal controls for permanent placements were operating effectively. Our testing involved agreeing a sample of permanent placement fees earned but not invoiced to written evidence of candidate acceptance, including confirmation of start date. We assessed the level of provision held at the year-end DATE against the average level of back-outs experienced on a monthly DATE basis during the year DATE . We also evaluated the back-outs following the year end DATE . In all full scope locations, we evaluated the design and implementation of the internal controls in place to ensure that revenue in respect of all temporary placements is recorded in the correct period. We reviewed a sample of timesheets received after the year-end DATE date, to ensure that revenue in respect of these were recorded in the correct period. We recalculated the accrued income balance relating to temporary placements, and assessed the cut-off applied to the receipt of post year-end DATE timesheets relating to services provided before year end DATE . Our testing also involved a retrospective review of the dates of timesheets submitted during 2016 DATE which related to 2015 DATE . This was done to assess the likely level of accrued income required at 31 December 2016 DATE for 'missing' timesheets.

Appendix G: The Loughran-McDonald uncertainty-tone wordlist (Loughran and McDonald 2020)

['abeyance', 'abeyances', 'almost', 'alteration', 'alterations', 'ambiguities', 'ambiguity', 'ambiguous', 'anomalies', 'anomalous', 'anomalously', 'anomaly', 'anticipate', 'anticipated', 'anticipates', 'anticipating', 'anticipation', 'anticipations', 'apparent', 'apparently', 'appear', 'appeared', 'appearing', 'appears', 'approximate', 'approximated', 'approximately', 'approximates', 'approximating', 'approximation', 'approximations', 'arbitrarily', 'arbitrariness', 'arbitrary', 'assume', 'assumed', 'assumes', 'assuming', 'assumption', 'assumptions', 'believe', 'believed', 'believes', 'believing', 'cautious', 'cautiously', 'cautiousness', 'clarification', 'clarifications', 'conceivable', 'conceivably', 'conditional', 'conditionally', 'confuses', 'confusing', 'confusingly', 'confusion', 'contingencies', 'contingency', 'contingent', 'contingently', 'contingents', 'could', 'crossroad', 'crossroads', 'depend', 'depended', 'dependence', 'dependencies', 'dependency', 'dependent', 'depending', 'depends', 'destabilizing', 'deviate', 'deviated', 'deviates', 'deviating', 'deviation', 'deviations', 'differ', 'differed', 'differing', 'differs', 'doubt', 'doubted', 'doubtful', 'doubts', 'exposure', 'exposures', 'fluctuate', 'fluctuated', 'fluctuates', 'fluctuating', 'fluctuation', 'fluctuations', 'hidden', 'hinges', 'imprecise', 'imprecision', 'imprecisions', 'improbability', 'improbable', 'incompleteness', 'indefinite', 'indefinitely', 'indefiniteness', 'indeterminable', 'indeterminate', 'inexact', 'inexactness', 'instabilities', 'instability', 'intangible', 'intangibles', 'likelihood', 'may', 'maybe', 'might', 'nearly', 'nonassessable', 'occasionally', 'ordinarily', 'pending', 'perhaps', 'possibilities', 'possibility', 'possible', 'possibly', 'precaution', 'precautionary', 'precautions', 'predict', 'predictability', 'predicted', 'predicting', 'prediction', 'predictions', 'predictive', 'predictor', 'predictors', 'predicts', 'preliminarily', 'preliminary', 'presumably', 'presume', 'presumed', 'presumes', 'presuming', 'presumption', 'presumptions', 'probabilistic', 'probabilities', 'probability', 'probable', 'probably', 'random', 'randomize', 'randomized', 'randomizes', 'randomizing', 'randomly', 'randomness', 'reassess', 'reassessed', 'reassesses', 'reassessing', 'reassessment', 'reassessments', 'recalculate', 'recalculated', 'recalculates', 'recalculating', 'recalculation', 'recalculations', 'reconsider', 'reconsidered', 'reconsidering', 'reconsiders', 'reexamination', 'reexamine', 'reexamining', 'reinterpret', 'reinterpretation', 'reinterpretations', 'reinterpreted', 'reinterpreting', 'reinterprets', 'revise', 'revised', 'risk', 'risked', 'riskier', 'riskiest', 'riskiness', 'risking', 'risks', 'risky', 'roughly', 'rumors', 'seems', 'seldom', 'seldomly', 'sometime', 'sometimes', 'somewhat', 'somewhere', 'speculate', 'speculated', 'speculates', 'speculating', 'speculation', 'speculations', 'speculative', 'speculatively', 'sporadic', 'sporadically', 'sudden', 'suddenly', 'suggest', 'suggested', 'suggesting', 'suggests', 'susceptibility', 'tending', 'tentative', 'tentatively', 'turbulence', 'uncertain', 'uncertainly', 'uncertainties', 'uncertainty', 'unclear', 'unconfirmed', 'undecided', 'undefined', 'undesignated', 'undetectable', 'undeterminable', 'undetermined', 'undocumented', 'unexpected', 'unexpectedly', 'unfamiliar', 'unfamiliarity', 'unforecasted', 'unforseen', 'unguaranteed', 'unhedged', 'unidentifiable', 'unidentified', 'unknown', 'unknowns', 'unobservable', 'unplanned', 'unpredictability',

'unpredictable', 'unpredictably', 'unpredicted', 'unproved', 'unproven', 'unquantifiable', 'unquantified', 'unreconciled', 'unseasonable', 'unseasonably', 'unsettled', 'unspecific', 'unspecified', 'untested', 'unusual', 'unusually', 'unwritten', 'vagaries', 'vague', 'vaguely', 'vagueness', 'vaguenesses', 'vaguer', 'vaguest', 'variability', 'variable', 'variables', 'variably', 'variance', 'variances', 'variant', 'variants', 'variation', 'variations', 'varied', 'varies', 'vary', 'varying', 'volatile', 'volatilities', 'volatility']

Appendix H: Multiple linear regression sensitivity results for the KAM determinants analyses

Panel A: the content of KAM

	(a) *Len_KAM*					(b) *Risk_Total*					(c) *Specificity*				
		(1)		(2)			(3)		(4)			(5)		(6)	
		Model 1a		Model 1b			Model 1a		Model 1b			Model 1a		Model 1b	
		Full sample		Big N subsample			Full sample		Big N subsample			Full sample		Big N subsample	
Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat
***H1*: Audit firm expertise**															
BigN	**?**	**56.2639*** **	(2.841)			**?**	0.0253	(1.157)			**+**	**0.0062** **	(1.738)		
AudInd				**44.3559*** **	(2.987)				**0.0235* **	(1.735)				0.0033	(1.179)
***H2*: Audit committee expertise**															
AComGov	**?**	27.6841	(1.265)	**29.0495* **	(1.288)	**-**	**-0.0624*** **	(-3.402)	**-0.0608*** **	(-3.202)	**+**	-0.0008	(-0.251)	-0.0009	(-0.288)
AComAud	**?**	29.9342	(1.506)	**40.9760** **	(1.993)	**-**	0.0200	(1.051)	0.0083	(0.443)	**+**	0.0001	(0.024)	-0.0006	(-0.166)
***H3*: Audit signing partner's KAM experience**															
Aud_KAMExp	**+**	1.7312	(0.356)	-0.0870	(-0.018)	**?**	0.0017	(0.473)	0.0009	(0.243)	**+**	**0.0014** **	(1.700)	**0.0011* **	(1.332)
Control variables		Yes		Yes			Yes		Yes			Yes		Yes	
Fixed Effects		Two-digit SIC codes & Year		Two-digit SIC codes & Year			Two-digit SIC codes & Year		Two-digit SIC codes & Year			Two-digit SIC codes & Year		Two-digit SIC codes & Year	
Observations		1,146		1,066			1,146		1,066			1,146		1,066	
Adjusted R-squared		0.398		0.401			0.167		0.190			0.307		0.300	

Panel B: the linguistic features of KAM

	(d) *Readability*					(e) *Uncertainty*				
		(1)		(2)			(3)		(4)	
		Model 1a		Model 1b			Model 1a		Model 1b	
		Full sample		Big N subsample			Full sample		Big N subsample	
Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat
***H1*: Audit firm expertise**										
BigN	**?**	**0.0060*** **	(5.345)			**?**	0.0006	(0.425)		
AudInd				**0.0018** **	(2.213)				**-0.0022** **	(-2.344)
***H2*: Audit committee expertise**										
AComGov	**?**	0.0005	(0.451)	0.0006	(0.569)	**?**	0.0005	(0.391)	0.0009	(0.699)
AComAud	**?**	0.0006	(0.510)	0.0003	(0.229)	**?**	0.0011	(0.724)	0.0007	(0.442)
***H3*: Audit signing partner's KAM experience**										
Aud_KAMExp	**-**	0.0000	(0.181)	-0.0000	(-0.178)	**?**	0.0001	(0.565)	0.0001	(0.402)
Control variables		Yes		Yes			Yes		Yes	
Fixed Effects		Two-digit SIC codes & Year		Two-digit SIC codes & Year			Two-digit SIC codes & Year		Two-digit SIC codes & Year	
Observations		1,146		1,066			1,146		1,066	
Adjusted R-squared		0.262		0.281			0.221		0.241	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on client company. Client industries are classified by two-digit SIC codes.*

Appendix H: Multiple linear regression sensitivity results for the KAM determinants analyses (continued)

Panel C: the content of KAM

		(a) *Len_KAM*				(b) *Risk_Total*				(c) *Specificity*			
		(1) Model 1a Full sample		(2) Model 1b Big N subsample		(3) Model 1a Full sample		(4) Model 1b Big N subsample		(5) Model 1a Full sample		(6) Model 1b Big N subsample	
Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat
***H1*: Audit firm expertise**															
BigN		-					-					-			
AudInd	?			**52.1439***	(1.88)	?			-0.0296	(-1.44)	+			-0.0005	(-0.1)
***H2*: Audit committee expertise**															
AComGov	?	28.7207	(1.44)	30.4856	(1.51)	-	**-0.0501*****	(-3.15)	**-0.0446*****	(-2.75)	+	-0.0033	(-1.01)	-0.0033	(-0.97)
AComAud	?	5.8003	(0.33)	14.0293	(0.75)	-	0.0018	(0.11)	-0.0041	(-0.25)	+	-0.0002	(-0.07)	-0.0004	(-0.12)
***H3*: Audit signing partner's KAM experience**															
Aud_KAMExp	+	3.4178	(0.68)	1.6578	(0.32)	?	-0.0024	(-0.76)	-0.0039	(-1.21)	+	0.0010	(1.24)	0.0009	(1.03)
Control variables		Yes		Yes			Yes		Yes			Yes		Yes	
Fixed Effects		Industry, Audit firm & Year		Industry, Audit firm & Year			Industry, Audit firm & Year		Industry, Audit firm & Year			Industry, Audit firm & Year		Industry, Audit firm & Year	
Observations		1,146		1,066			1,146		1,066			1,146		1,066	
Adjusted R-squared		0.425		0.420			0.315		0.322			0.304		0.283	

Panel D: the linguistic features of KAM

	(d) *Readability*					(e) *Uncertainty*				
		(1) Model 1a Full sample		(2) Model 1b Big N subsample			(3) Model 1a Full sample		(4) Model 1b Big N subsample	
Variables	**+/?/-**	Coef.	t-stat	Coef.	t-stat	**+/?/-**	Coef.	t-stat	Coef.	t-stat
***H1*: Audit firm expertise**										
BigN		-					-			
AudInd	?			0.0021	(1.389)	?			**-0.0053*****	(-2.87)
***H2*: Audit committee expertise**										
AComGov	?	-0.0001	(-0.068)	0.0001	(0.070)	?	-0.0001	(-0.09)	0.0002	(0.13)
AComAud	?	0.0003	(0.338)	0.0001	(0.118)	?	0.0012	(0.78)	0.0007	(0.48)
***H3*: Audit signing partner's KAM experience**										
Aud_KAMExp	-	-0.0000	(-0.103)	-0.0000	(-0.121)	?	0.0001	(0.36)	0.0001	(0.26)
Control variables		Yes		Yes			Yes		Yes	
Fixed Effects		Industry, Audit firm & Year		Industry, Audit firm & Year			Industry, Audit firm & Year		Industry, Audit firm & Year	
Observations		1,146		1,066			1,146		1,066	
Adjusted R-squared		0.272		0.250			0.174		0.182	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on client company.*

Appendix I: Multiple linear regression sensitivity results for the KAM impact analyses

		Dependent variables														
		(a) *AnlDisp*			(b) *AnlErr*			(c) *AB_RET*			(d) *AB_VOL*			(e) *AB_BAS*		
		(1)			(2)			(3)			(4)			(5)		
	Variables	+/?/-	Coef.	t-stat	+/?/-	Coef.	t-stat	+/?/-	Coef.	t-stat	+/?/-	Coef.	t-stat	+/?/-	Coef.	t-stat
***H4*: Nature of KAM categories**																
	WIA	?	0.0005	(0.501)	?	0.0043	(1.275)	+	**0.6526***	(1.633)	?	-0.0706	(-0.520)	?	-0.0535	(-0.481)
	WCA	?	0.0000	(0.043)	?	0.0008	(0.701)	+	-0.0693	(-0.555)	?	0.0609	(1.526)	?	-0.0169	(-0.488)
	WCE	?	0.0002	(0.464)	?	-0.0014	(-0.732)	+	0.2908	(1.074)	?	-0.0125	(-0.127)	?	0.0218	(0.240)
	NIA	?	0.0002	(0.362)	?	0.0004	(0.213)	+	0.3165	(1.206)	?	0.0471	(0.704)	?	-0.0371	(-0.466)
	NCA	?	**0.0004***	(1.779)	?	0.0009	(0.899)	+	-0.0480	(-0.557)	?	0.0152	(0.499)	?	0.0232	(0.732)
	NCE	?	0.0005	(1.359)	?	-0.0000	(-0.031)	+	0.0135	(0.066)	?	0.0160	(0.207)	?	-0.0951	(-1.115)
	RIA	?	0.0001	(0.389)	?	**-0.0028****	(-2.189)	+	**0.2691***	(1.371)	?	-0.0220	(-0.418)	?	-0.0631	(-0.975)
	RCA	?	**0.0004***	(1.931)	?	0.0005	(0.570)	+	0.0066	(0.072)	?	**0.0675****	(2.036)	?	-0.0462	(-1.420)
	RCE	?	**0.0028*****	(2.626)	?	0.0038	(1.047)	+	-0.2475	(-0.754)	?	0.0702	(0.539)	?	-0.1643	(-1.376)
Content of KAM (*H5* - *H7*)																
***H5*:**	Len_KAM	?	0.0000	(0.909)	?	-0.0000	(-0.423)	?	-0.0001	(-0.109)	?	0.0001	(0.200)	?	-0.0003	(-1.398)
***H6*:**	Risk_Total	+	**0.0033****	(1.869)	+	**0.0138****	(2.089)	-	-0.8612	(-0.909)	-	-0.0932	(-0.343)	+	0.1370	(0.380)
***H7*:**	Specificity	-	**-0.0178****	(-2.237)	-	**-0.0598****	(-1.955)	+	-3.4993	(-0.777)	+	1.2742	(0.860)	-	-1.7607	(-0.937)
Linguistic features of KAM (*H8* - *H9*)																
***H8*:**	Readability	?	0.0301	(0.815)	?	0.0543	(0.448)	+	15.5523	(1.108)	?	-4.3369	(-0.834)	?	2.5995	(0.397)
***H9*:**	Uncertainty	?	-0.0158	(-0.575)	?	**-0.2388****	(-2.513)	?	-14.2934	(-1.078)	?	1.1161	(0.272)	?	-0.1846	(-0.051)
Control variables			Yes			Yes			Yes			Yes			Yes	
Fixed effects			Two-digit SIC codes & Year			Two-digit SIC codes & Year			Two-digit SIC codes & Year			Two-digit SIC codes & Year			Two-digit SIC codes & Year	
Observations			954			952			1,046			1,046			695	
Adjusted R-squared			0.453			0.351			0.137			0.093			0.016	

*Robust t-statistics in parentheses. The symbols ***, ** and * denote significance at the 0.01, 0.05 and 0.10 levels, respectively (one-tailed for directional predictions and otherwise, two-tailed.) See Appendix A for variable definitions. All multiple linear regressions employ robust standard errors clustered on client company. Client industries are classified by two-digit SIC codes.*

Appendix J: Covariate mean differences

Panel A: Differences in treated and untreated subsample means within the full sample and the matched full sample

	Mean (BigN=1) - Mean (BigN=0)		**Mean (AComGov_dm=1) - Mean (AComGov_dm=0)**		**Mean (AComAud_dm=1) - Mean (AComAud_dm=0)**		**Mean (Aud_KAMExp_dm=1) - Mean (Aud_KAMExp_dm=0)**	
	Full Diff.	Matched Diff.	Full Diff.	Matched Diff.	Full Diff.	Matched Diff.	Full Diff.	Matched Diff.
AComGov	0.124***	-0.011					0.013	-0.024
AComAud	-0.067***	0.028					-0.003	0.031
AComFem	0.169***	-0.026	0.111***	0.002	-0.041***	-0.017	0.032***	-0.022
Acq	0.266***	0.000	0.097***	-0.035	-0.079**	0.019	0.013	-0.050
Age	3.808*	-0.385	1.069	-1.188	-1.994	-1.470	0.068	0.114
CrossList	0.384***	-0.019	0.127***	-0.004	-0.085**	0.008	0.059**	-0.064
Curr	-0.072***	0.013	-0.010	0.017	0.027*	-0.003	0.002	0.000
DecYE	0.098*	-0.038	0.121***	-0.026	0.053	0.008	0.013	-0.005
EquityIssue	0.209***	-0.038	0.093**	-0.004	-0.011	-0.008	-0.009	0.032
Lev	0.104***	0.015	0.022	-0.009	-0.011	0.003	0.005	0.010
LnSeg	0.491***	0.051	0.037	-0.040	-0.087**	0.014	0.005	-0.021
LnSize	2.274***	0.023	0.525***	-0.068	-0.514***	0.117	0.097	-0.119
Loss	-0.080*	-0.038	-0.052*	-0.009	-0.026	0.019	0.029	0.014
MB	1.770***	-0.336	0.405	0.115	0.323	0.056	0.148	-0.256
RD	0.000	-0.002	0.001	0.002	-0.006**	0.000	0.000	0.001
RetVol	-0.837***	0.009	-0.278***	0.075	0.114*	-0.064	-0.035	0.035
ROA	0.024**	-0.001	0.007	0.001	-0.002	-0.006	-0.002	-0.010
SP_Item	0.121***	-0.019	0.011	-0.013	-0.017	0.004	0.031	-0.027
Observations	**1,146**	**101**	**1,146**	**458**	**1,146**	**528**	**1,146**	**437**

Appendix J: Covariate mean differences (continued)

Panel B: Differences in treated and untreated subsample means within the Big N subsample and the matched Big N subsample

	Mean (AudInd_dm=1) - Mean (AudInd_dm=0)		**Mean (AComGov_dm=1) - Mean (AComGov_dm=0)**		**Mean (AComAud_dm=1) - Mean (AComAud_dm=0)**		**Mean (Aud_KAMExp_dm=1) - Mean (Aud_KAMExp_dm=0)**	
	Full Diff.	Matched Diff.	Full Diff.	Matched Diff.	Full Diff.	Matched Diff.	Full Diff.	Matched Diff.
AComGov	0.002	-0.001					0.010	0.011
AComAud	0.004	-0.008					-0.008	0.011
AComFem	0.014	-0.006	0.001	0.005	-0.003	0.007	0.003	0.000
Acq	0.150	-0.169	1.488	-0.739	-0.773	-0.267	0.368	1.228
Age	-0.031**	-0.002	-0.003	0.003	0.037**	0.005	0.006	-0.017
CrossList	-0.030	-0.009	0.089**	-0.009	0.069*	-0.017	0.015	-0.015
Curr	-0.033	0.006	0.064*	-0.028	-0.097***	0.009	0.055**	-0.015
DecYE	0.003	0.003	0.063	-0.038	-0.011	-0.022	-0.012	0.055
EquityIssue	0.014	0.007	0.100***	-0.007	-0.031**	-0.004	0.031**	0.002
Lev	0.078**	-0.009	-0.033	-0.002	-0.102**	0.000	0.006	0.003
LnSeg	0.199*	-0.037	0.275**	-0.057	-0.407***	-0.018	0.067	0.007
LnSize	0.010	0.039	0.055	-0.047	-0.057	-0.017	0.006	0.000
Loss	0.038	-0.006	-0.047	0.005	-0.045	-0.017	0.030	0.020
MB	0.256	-0.134	0.206	0.138	0.443*	0.240	0.174	-0.503*
RD	-0.001	0.000	0.000	0.001	-0.006**	0.001	0.000	0.004
RetVol	-0.103**	-0.033	-0.206***	0.008	-0.011	0.009	-0.052	-0.022
ROA	-0.010*	0.001	0.008	0.001	0.001	0.006	-0.001	-0.011
SP_Item	0.044*	0.003	-0.001	-0.014	-0.009	-0.009	0.033	-0.020
Observations	**1,066**	**673**	**1,066**	**422**	**1,066**	**464**	**1,066**	**402**