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# Key Audit Matters Reports in China: Their Descriptions and Implications of Audit Quality

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**SYNOPSIS:** Using Chinese data of key audit matters (KAM) reports, this study assesses whether the KAM rule improves audit quality and how KAM disclosures relate to audit quality. With textual analysis, we evaluate disclosure characteristics in detail and find that auditors report both industry-generic and firm-specific KAM. The wordings, to a large extent, are firm-specific and differ in KAM reporting components. Our empirical investigation via the pre-post and difference-in-differences analyses reveals that audit quality is improved following the mandatory rule. The cross-sectional analysis shows that the number of KAMs and disclosure characteristics (such as specificity, similarity, readability, and length) signal auditors' concern about clients' earnings quality, audit effort, and the propensity of issuing modified opinions. Overall, our paper provides some evidence on the implementation and communicative value of the new KAM reporting.

**Data Availability:** Data are available from the public sources cited in the text.

**JEL Classifications:** M41; M42; M48.

**Keywords:** key audit matters; critical audit matters; audit quality; content analysis.

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## I. INTRODUCTION

Amid the mounting demand for more informative and relevant audit reports, auditing regulators around the world have considered enhancing the auditor's report. A core theme is the disclosure of key audit matters (KAM by IAASB) or critical audit matters (CAM by PCAOB).<sup>1</sup> Being a new adoption, there is a relative lack of empirical evidence on the KAM implementation. International researchers from the European Union (e.g., Pinto and Morais 2019), Australia (e.g., Pries and Scott 2018), and New Zealand (e.g., Almulla and Bradbury 2019; Li, Hay, and Lau 2019) have documented limited or no benefits of KAM disclosures. Whereas, Chen, Jiang, and Zhang (2019) theorize that audit quality disclosures, including CAM disclosures, increase auditors' effort if and only if the underlying financial reporting quality is relatively low, arguably in developing and emerging markets. Aligned with international developments in this area, the KAM requirement in Mainland China became effective in 2017. Using recent KAM data from Chinese audit reports, we investigate whether the introduction of the KAM requirement improves audit quality and how KAM disclosure characteristics relate to audit quality.

China provides a unique setting to examine KAM reporting as there are some institutional characteristics that hamper the supply of, and demand for financial reporting quality and audit quality (e.g., DeFond, Wong, and Li 1999; Chen, Sun, and Wu 2010; Yang 2013; Ke, Lennox, and Xin 2015; Simunic, Ye, and Zhang 2017). The China Standards on Auditing (CSA) No. 1504, *Communicating Key Audit Matters in the Independent Auditor's Report*, promulgated by the Ministry of Finance as a new auditing standard in December 2016, is quite similar, in definition and guidelines, to its international counterpart, ISA No. 701 issued by the IAASB in 2015. Hence, we have the opportunity to examine whether or not the new auditing standard impacts auditor behavior in China's generally weak yet ever-changing financial reporting regulatory environment.

Using textual analysis on the 2017 KAM data, we first evaluate KAM disclosure characteristics from two conceptual levels: (1) the selection of KAM topics and (2) the wording of each KAM. More specifically, we examine the number of KAMs auditors report, the reasons auditors identify these topics as KAMs, whether the reported KAM topics reflect firm-specific information other than industry-generic information, and the textual characteristics for each KAM topic (i.e., the aspects of specificity, similarity, readability, and length). By examining these factors, we are able to enrich our understanding of how the new KAM rule unfolds in China. Our main findings via textual analysis are as follows: on average, auditors communicate two KAMs per client, and firm-specific KAMs appear more than industry-generic KAMs in auditors' reports. The three most heavily reported KAMs are related to revenue recognition, accounts receivable allowance, and goodwill impairment. The wording differs in KAM reporting components (namely, descriptions and audit procedures) and varies from client to client. We find that auditors use more specific, less similar, and shorter but more complex wording when describing KAM descriptions than when describing audit procedures.

We then employ archival methods to examine whether the KAM rule improves audit quality and how KAM disclosure characteristics relate to audit quality. We broaden a set of five audit quality proxies: discretionary accruals, small positive earnings surprise, below-the-line items, the type of audit opinion, and audit fees. The first three are more relatable to clients' earnings quality, while the last two are auditor-oriented quality proxies. Our pre-post and difference-in-differences (DiD) analyses show that audit quality is improved following the mandatory KAM rule. The post-implementation cross-sectional analysis shows that the number of KAMs and other disclosure characteristics (such as specificity, similarity, readability, and length to capture incremental information beyond the mere number of KAMs) signal auditors' concerns about clients' earnings quality, audit effort, and skepticism to deal with these financial reporting irregularities, and the propensity of issuing modified audit opinions. We further find that, when auditors communicate the reason for identifying an issue as KAM, especially when they opt to communicate extra reasons out of CSA 1504, it manifests more audit responsibility during their auditing process and their determination to improve audit quality, or enhances auditors' stance for quality audits.

This paper contributes to the literature on KAM reporting in several ways. First, our study joins an emerging stream of archival studies worldwide by providing evidence on how this new audit reporting standard has been implemented in China. We examine whether China's KAM rule is a veneer of practices or scrupulous compliance. Second, this study examines the textual evidence of KAM reports and complements early qualitative evidence on CAM studies for a small number of U.S. large, accelerated filers with a fiscal year-end on or after June 30, 2019 (e.g., Hollie 2020). Third, our findings echo the previous U.S. experimental studies (e.g., Brasel, Doxey, Grenier, and Reffett 2016; Kachelmeier, Rimkus, Schmidt, and Valentine 2020), which infer that the KAM requirement incentivizes auditors to disclose innocuous boilerplate KAMs to reduce liability

<sup>1</sup> Throughout the paper, we use "KAM" for China's and other non-U.S. studies and "CAM" for U.S. studies. The International Auditing and Assurance Standards Board (IAASB) is an independent standards body that issues standards, like the International Standards on Auditing (ISA). The U.S. Public Company Accounting Oversight Board (PCAOB) is the organization that regulates auditors of publicly traded companies.

judgments. Our results suggest that industry-generic KAMs or homogenous standardized wordings in KAM disclosures do not overwhelm the Chinese audit market. We observe cross-sectional variations among KAM reporting and document that disclosure features correspond to differential audit quality.

Finally, our study extends the literature on the relationship between institutional environments and the (un)intended effects of new auditing standards. [Simunic et al. \(2017\)](#) posit that the adoption of ISA in China, where the legal system makes the recovery of damages from auditors quite difficult, is not by itself likely to result in the intended outcomes. However, [Choi and Wong \(2007\)](#) argue that auditing serves a more significant governance function in weak legal environments, and [Chen et al. \(2019\)](#) claim that audit quality disclosure is more likely to motivate audit effort in developing and emerging markets. Our results show that adopting international KAM implementation in China is more than just “window-dressing,” consistent with [Choi and Wong \(2007\)](#) and [Chen et al. \(2019\)](#).

The rest of the paper is structured as follows. Section II reviews the relevant KAM/CAM literature. Section III describes background information and develops hypotheses. Section IV presents the topics and wording characteristics of KAM reporting. Section V examines the relationship between KAM reporting and audit quality. Finally, Section VI concludes the paper.

## II. LITERATURE REVIEW

### Experimental Studies on CAM/KAM Disclosures

The PCAOB issued a new disclosure requirement in June 2017, wherein critical audit matters are required to be included in auditors' reports for large, accelerated filers beginning with fiscal years ending on or after June 30, 2019, and for other applicable companies for fiscal years ending on or after December 15, 2020. Existing U.S. experimental studies mainly focus on how CAM disclosures affect auditor's liability exposed to jurors and financial statement users. Yet, the studies patterned after a jury trial have produced mixed findings. [Brasel et al. \(2016\)](#) provide evidence that CAM disclosures reduce auditor liability judgments as jurors perceive misstatements as having been more foreseeable to the plaintiff when the auditors previously issued a CAM. Specifically, they argue that the disclosure of even unrelated CAM provides litigation protection for auditors in cases of undetected fraud because jurors view unrelated CAM as a general warning of possible misstatements. However, other juror-based experiments document an increased effect (e.g., [Gimbar, Hansen, and Ozlanski 2016](#); [Backof, Bowlin, and Goodson 2020](#)) or no effect on the judgment of auditor liability ([Brown, Majors, and Peecher 2020](#)). [Vinson, Robertson, and Cockrell \(2019\)](#) examine the effects of CAM removal and duration on jurors' assessments of auditor negligence and find that both removal and duration increase potential liability.

Unlike the above studies, the experiment of [Kachelmeier et al. \(2020\)](#) is not set in the context of a jury trial. They argue that auditors must also consider the “court of public opinion,” i.e., financial statement users could impose reputational harm on auditors before court proceedings. They show that CAM disclosures in the auditor's report involving areas of high measurement uncertainty forewarn users of misstatement risk, and the forewarning effect of CAM disclosures mitigates perceived auditor responsibility. Likewise, [Brasel et al. \(2016, 1347\)](#) worry that auditors' legal incentives to expand CAM disclosures result in “unwarranted, boilerplate CAM disclosures, thereby undermining the intent of the proposed standard by diluting the impact of more warranted CAM disclosures.”

Other experimental studies also examine how disclosures impact investing behavior. A study by [Christensen, Glover, and Wolfe \(2014\)](#) documents that investors who receive a CAM paragraph in the audit report are more likely to stop investing in the company, but non-professional investors are less likely to react to a CAM paragraph. [Doxey \(2015\)](#) argues that auditors can improve investors' perceptions of their independence by explaining specific audit judgments behind an unqualified audit opinion, suggesting that there are benefits in expanded disclosure for auditors. [Carver and Trinkle \(2017\)](#) suggest that the CAM reporting will have a negative effect on the readability of the audit report but only a limited impact on the informational content of the audit report for investors. Two German experimental studies—[Asbahr and Ruhnke \(2019\)](#) examining auditor's judgment on the rationale of client's accounting estimates, and [Köhler, Ratzinger-Sakel, and Theis \(2020\)](#) testing the communicative value of a KAM section relating to goodwill impairment—show that KAM disclosures affect the judgment of professional investors but not non-professional investors, and have diametrically “real effects” on auditor's judgment in that the format of reporting a KAM can serve as a moral license to waive the adjustment.

### Recent Empirical Evidence

Existing studies offer evidence from other regions. For instance, [Almulla and Bradbury \(2019\)](#) analyze the consequences of KAM disclosures in New Zealand and find no incremental effect on audit costs or audit quality, but they find that KAM characteristics are priced by auditors and by investors in the year KAMs are initially disclosed and in the preceding year. [Li et al. \(2019\)](#) find that KAM disclosures in New Zealand are followed by both an improvement in audit

quality and a significant increase in audit fees. Taking a small sample of Australian-listed entities, [Pries and Scott \(2018\)](#) find no significant impact on audit fees with the introduction of KAM reporting, and KAM reporting provides an effective “signal” but no “transparency” about the key audit issues. [Pinto and Moraes \(2019\)](#) show that a positive association exists between audit fees and the number of KAMs disclosed for European Union firms. Conversely, [Ferreira and Moraes \(2020\)](#) document a negative relation between audit fees and the number of KAMs reported for Brazilian-listed companies. Still, there is currently no evidence from major developing and emerging markets with a large sample size to suggest the consequences of the KAM rule. If we could solicit more evidence to extrapolate the findings from large economies such as China, it will be helpful in building a common understanding of the overall effectiveness of the KAM implementation.

### III. HYPOTHESIS DEVELOPMENT

On December 23, 2016, China’s Ministry of Finance issued a new standard CSA 1504, *Communicating Key Audit Matters in the Independent Auditor’s Report*. CSA 1504 requires auditors to disclose what issues the KAMs relate to, why auditors consider these issues to be KAMs, and how the auditors handle KAMs during the audit engagement. These requirements are quite similar to those of the new standard ISA 701 issued by the IAASB in 2015. CSA 1504 was implemented by stages for different entities. In 2016, the first batch, 90 firms cross-listing on both the Mainland China A-share market and the Hongkong H-share market (hereafter, AH firms), became subject to this new requirement. That is, auditors of the 90 AH firms were required to report KAMs in audit reports for the 2016 annual financial statement. Non-AH firms began to comply with CSA 1504 one year later. Hence, auditors of all publicly traded Chinese companies were required to disclose KAMs in early 2018 (for their fiscal year ended in 2017).

From the existing KAM reporting data, we aim to explore whether the KAM rule helps improve audit quality and the disclosure characteristics of auditors’ KAM reporting related to audit quality. The more informative and more firm-specific KAM may imply greater audit effort or auditors’ determination for quality audits. Nonetheless, innocuous boilerplate KAM reporting is used to meet the regulation and has limited or no effect on audit quality. In light of that, we first describe the disclosure characteristics in detail using textual analysis. Specifically, we evaluate whether KAM reporting in China is merely standardized or perfunctory disclosures, as documented in prior experimental studies (e.g., [Brasel et al. 2016](#); [Brown et al. 2020](#); [Kachelmeier et al. 2020](#)). A relevant U.K. study by [Lennox, Schmidt, and Thompson \(2019\)](#) mentions the possibility of boilerplate disclosures in an expanded model of audit reporting and cites an article by [Norris \(2014\)](#): “One concern regarding the British rules, as well as the proposed United States ones, is that in the end they might be filled with boilerplate, providing little if any useful information.”

Beyond the standardized language, we scrutinize the text of KAM reporting from two conceptual levels: (1) the selection of KAM topics and (2) the wording of each KAM. More specifically, we aim to examine the number of KAMs auditors choose to report and the reasons auditors list these topics as KAMs. We further examine whether the reported KAM topics reflect generic information across industries or are firm-specific. We also inspect the textual characteristics for each KAM topic, including the specificity, readability, length, and similarity (such as the wordings auditors choose to communicate to different clients within each KAM topic).

Then, we use archival data to examine the relationship between the KAM rule/disclosure characteristics and audit quality. The KAM rule may discipline both the management for more accurate financial reporting and auditors for high-quality audits, based on the following two reasons. First, the new rule states that key matters arising from the current period audit of the financial statements are required to be communicated to the audit committee. The communication would draw managers’ attention to the KAM-related accounts and disclosures. Managers are more likely to take action, such as adjusting journal entries, to improve the quality of the audited financial statements.

Second, the involved complexity and auditor subjectivity in evaluating management assertion and obtaining sufficient appropriate audit evidence induce greater audit effort so as to identify KAMs. Auditor communication of KAMs draws the attention of financial statement users to KAM disclosures ([Christensen et al. 2014](#); [Sirois, Bédard, and Bera 2018](#)). These attention-directing effects of KAM disclosures increase relevant auditor responsibilities/liabilities in KAM communications, inducing auditors to convey their judgment of audited financial statements more objectively. Providing thorough and transparent KAM disclosures can bolster assurance quality, and prior research finds that auditors’ independent judgment increases the likelihood of issuing qualified audit opinions ([Craswell, Stokes, and Laughton 2002](#); [Chen et al. 2010](#); [Chan and Wu 2011](#)). Altogether, the purported KAM rule may result in improvements to audit quality, consistent with the communicative value of KAMs.

There is still a possibility that the adoption of international KAM is just window-dressing in China and cannot improve audit quality under the weak legal environments ([DeFond et al. 1999](#); [Chan, Lin, and Mo 2006](#); [Simunic et al. 2017](#)). Nevertheless, forces driving high-quality audits stem not only from litigation costs, but also from sanction pressure and reputational risk ([DeFond and Zhang 2014](#)). Administrative sanctions have been increasing and induced public litigation and



reputational damage.<sup>2</sup> Recently financial news media also plays a disciplining role in capital markets through its potential to trigger reputational damage and regulatory action, and compensates for the weaker institutional environment (Gong, Gul, and Shan 2018; Kim, Li, Yu, and Zhang 2019). Hence, if we consider litigation, sanction pressure, and reputation concerns from the legal system, government, and media together, the new KAM rule may impact auditors' behavior and audit outcomes.

Compared to the mandatory KAM rule, disclosure characteristics are subjective and specific to a particular engagement, so it is more difficult to infer their relationships with audit quality. As far as the KAM number is concerned, CSA 1504 requires auditors to describe each KAM in a separate section and clarify the reason why it is considered of most significance. However, the standard does not include specific requirements about the number or size of KAMs. The disclosure of more matters may induce auditors to gather more and better evidence involved, thereby increasing audit effort. Further, as suggested by the Council of Institutional Investors in its response to the IAASB Exposure Draft (2013), the disclosure of KAMs could "increase quality competition among audit firms, particularly in the area of professional skepticism."<sup>3</sup> Ultimately, an increase in auditors' professional skepticism recognizing circumstances such as financial misreporting results in more KAM communications (i.e., more KAMs). Thus, the number of KAMs may imply auditors' willingness to provide incremental information of their reasonable assurance and indicate auditors' enhanced stance for quality audits. Meanwhile, auditors communicate more KAMs to convey their concerns about management opportunistic behavior. The KAM number may signal management opportunism (as it signals problems with management assertions and/or increased risk). Auditors report more KAMs to compensate for the higher audit risk and liability exposure (including expressing a qualified opinion). Therefore, the KAM number would be negatively related to earnings quality but positively related to auditor independence and audit fees.

Regarding other KAM disclosure characteristics, longer reports are regarded to be more informative (Lang and Stice-Lawrence 2015). However, less readable and lengthy disclosure (i.e., less concise) is also referred to as disclosure "overload" (Dyer, Lang, and Stice-Lawrence 2017). More specific text that contains numbers or organization name is more verifiable and precise than general descriptions of topics (Dyer et al. 2017). Generic and standardized disclosure is often referred to as "boilerplate," and Brasel et al. (2016) caution that auditors may commonly report unwarranted, boilerplate CAM disclosures. When auditors use more specific words, it indicates that they devote more effort and their work stands the test. If auditors tailor their KAM disclosures, it may also indicate that specific risks face the client, so the wording may be engagement specific by including clarifying language.

Taken together, we argue that the mandatory KAM rule improves audit quality, while KAM disclosure characteristics may have different implications of audit quality. Accordingly, we hypothesize the following:

**H1a:** Audit quality improves following the mandatory KAM rule.

**H1b:** KAM disclosure characteristics are related to audit quality.

#### IV. KAM REPORTING: A DESCRIPTIVE ANALYSIS

##### Selection of Topics in KAM Reporting

Table 1 presents our sample selection procedures, composition, and industry distribution. In 2016, 90 AH firms cross-listed in both the Mainland China A-share market and the Hongkong H-share market were required to comply with CSA 1504 and report KAMs. In 2017, all public companies were required to follow the KAM rule. According to CSA 1504, auditors shall describe each key audit matter, using an appropriate subheading, in a separate section of the auditor's report under the heading "Key Audit Matters" (p. 3). Given that the sample size in 2016 is much smaller and the new revenue recognition standard took effect in 2017, the KAM reports in the first year may be not representative of KAMs going forward. We restrict the sample to KAM disclosures in 2017 in our main tests. The first batch of AH firms in 2016 is only used in the DiD test. In 2017, there are a total of 3,413 listed firms. Since CSA 1502 and 1504 require auditors not to communicate KAMs in the audit report when they issue a disclaimer, we drop nine firms that received disclaimed audit opinions. Auditors of the remaining 3,404 client firms disclose a total of 7,153 KAMs, with each client firm disclosing one to six KAMs. Panel A of Table 1 lists the sample composition and selection process. Panel B shows the industry distribution of these firms. Industry classification follows the

<sup>2</sup> According to the annual reports in the China Securities Regulatory Commission (CSRC—China SEC equivalent) website: <http://www.csrc.gov.cn/pub/zjhpublic/index.htm?channel=3300/3313>. Administrative sanctions by the CSRC have been increasing after 2015, from two-digit numbers before 2015 (85 in 2013, 92 in 2014, and 63 in 2015) to three-digits after 2015 (139 in 2016, 118 in 2017, and 130 in 2018). For example, in 2016 the CSRC issued a sanction to BDO for its auditing in Shanghai DZH Limited (stock ID: 601519) indicting that BDO did not act with due diligence and issued the audit report with false records, misleading statements, and reckless negligence. In 2017, the Shanghai-based court adjudged that BDO undertook joint liability with DZH to the loss of investors, with a claim amount of 380 million RMB.

<sup>3</sup> <https://www.ifac.org/system/files/publications/exposure-drafts/comments/CII.pdf>

**TABLE 1**  
**Sample Selection and Industry Distribution**

**Panel A: Sample Selection**

Sample for Descriptive Analysis of KAM Reporting		
All listed firms including AH firms in 2017	3,413	firms
delete: firms that did not disclose KAM with disclaimer audit opinions	9	firms
Total firms	3,404	firms
<b>Total firm-KAMs</b>	<b>7,153</b>	<b>firm-KAMs</b>
Sample for Regression Analysis of KAM reporting		
(1) pre- versus post-KAM regression		
Non-AH firms in 2016 and 2017	6,628	firm-years
delete: firm-years from financial industry or without necessary financial data	(1,322)	firm-years
Total firm-years	5,306	firm-years
(2) difference-in-differences test		
AH firms in 2015 and 2016	180	firm-years
Matched non-AH firms in 2015 and 2016	338	firm-years
delete: firm-years from financial industry or without necessary financial data	(14)	firm-years
Total firm-years	504	firm-years
(3) cross-sectional regression		
Non-AH firms in 2017	3,314	firms
delete: firms from the financial industry or without necessary financial data	(626)	firms
Total firms	2,688	firms

**Panel B: Sample Distribution Over Industries**

Code	Industry Name	Number of Firms
A	Agriculture	40
B	Mining	74
C1	Manufacturing: food and textile	211
C2	Manufacturing: chemical products	624
C3	Manufacturing: metal and equipment	1,245
C4	Manufacturing: instruments	67
D	Energy and Water	104
E	Construction	93
F	Wholesale and Retail Trade	162
G	Transportation	91
H	Lodging	9
I	IT and Computing	248
J	Finance	78
K	Real Estate	121
L	Commercial Services	48
M	R&D and Technology Services	47
N	Public Utilities	47
P	Education	5
Q	Health	10
R	Publication and Culture	57
S	Conglomerates	23
Total firms		3,404

Table 1 reports the procedures of sample selection for both descriptive analysis and regression analysis, and sample distribution over industries. AH firms are those cross-listing on both the Mainland China A-share market and the Hongkong H-share market. Industry classification follows the guideline (2012 version) issued by the China Securities Regulatory Commission (CSRC), and firms are grouped by two-character codes for the manufacturing sector (which is by far the largest sector of the Chinese economy) and by one-character codes for the other sectors.

guideline issued by the China Securities Regulatory Commission (CSRC) in 2012, and firms are grouped by two-character classification codes in the manufacturing sector (which is by far the largest sector of the Chinese economy) and by one-character classification codes in the other sectors.

Table 2 lists the number (Panel A) and topics (Panel B) of the KAM reporting. Panel A shows that in 2017 nearly 65 percent of client firms receive two KAMs, 14 percent receive one KAM, 18 percent receive three KAMs, 2 percent receive four KAMs, and about 0.5 percent (0.41 percent + 0.12 percent) receive more than four KAMs.

We scrutinize the reported 7,153 KAM subheadings and cluster them into 96 distinct topics.<sup>4</sup> Auditors may use different but connotatively similar words in KAM subheadings. For example, auditors of public utility companies may report BOT (i.e., build-operate-transfer) project revenue as a KAM, real-estate companies may report real-estate sales revenue as a KAM, while retailing companies may report supermarket revenue as a KAM. Some companies even specify their particular projects or products that have revenue recognition issues. Though these KAM subheadings look different, they all refer to the basic accounting issue, revenue recognition. If the matter is not transaction-based like revenue recognition but account-based, we classify it into the related asset's recognition, impairment, or derecognition topic.

Panel B of Table 2 lists the top 20 KAM topics that are frequently reported by auditors. The most popular topic is revenue recognition, with a frequency of 2,323 among a total of 7,153 KAMs. The second most frequent topic is the accounts receivable allowance, and this topic appears 1,267 times in our sample. Regarding this topic, some firms mention collectability, some mention bad debt allowance, and others mention impairment, with or without referring to a particular client. Among other common topics, some are account-specific, like goodwill impairment, inventory write-downs, PPE impairment, long-term equity investment recognition, long-term equity investment derecognition, and inventory recognition. Others are event or transaction-specific, like related-party transactions, government grants, structured entities, and lawsuits.

We try to identify the reasons that auditors report these topics as KAMs. Similar to ISA 701, CSA 1504 requires that auditors take the following three matters into account when determining KAMs: areas of higher assessment risk of material misstatement (*Reason\_1*), significant auditor judgments relating to areas in the financial statements that involved significant management judgment (*Reason\_2*), and the effect on the audit of significant events or transactions that occurred during the period (*Reason\_3*). Table 3 lists the reason frequency mentioned by auditors. We screen keywords in KAM reporting and find that auditors determine KAMs mainly based on the aforementioned three reasons and that sometimes auditors mention other reasons at their own discretion.

Among 77.2 percent of KAM reporting, auditors claim that the reported account, event, or transaction is significant in volume, value, or effect (*Reason\_3*), with keywords such as “huge amount of value,” “essential component of financial statements,” “key performance index,” or “directly influencing investors’ decision.” Among 60.3 percent of KAMs, auditors report that the matter involves significant management judgment and estimation (*Reason\_2*), with keywords such as “a series of assumptions,” “great uncertainty,” “professional judgment,” “management biases,” or “reasonable estimation.” These two reasons are mentioned most frequently. Auditors mention one of the two reasons for 6,681 (93.4 percent) KAMs in our sample, and both of them for 3,050 (42.6 percent) KAMs. Among 24 percent of KAMs, auditors mention that the matter involves a high risk of misstatement or fraud (*Reason\_1*), with keywords such as “risk of misstatement,” “significant deficiencies in internal control,” “earnings management,” “fraud,” “incorrect accounting period,” “revenue recognition in advance,” or “lack of commercial substance.”

Aside from the three reasons required by the new auditing standard, auditors voluntarily discuss other reasons. For example, among 6.4 percent of KAMs, auditors indicate that the matter consumes a significant amount of time or audit resources (*Reason\_4*), with keywords such as “huge time,” “huge audit cost,” “highly complicated engagement,” or “quite difficult checking.” Among 3.8 percent of KAMs, auditors describe the reason as a matter which entails a dramatic upward or downward change (*Reason\_5*), with keywords such as “substantial growth,” or “obvious declining.” Among 0.7 percent of KAMs, auditors mention other reasons with keywords such as “policy control,” “environmental protection,” “diminishing industrial capacities,” “interference with last year’s audit opinion,” or “delisting risk.”

Next, we examine whether the reported KAM topics reflect industry-generic information or firm-specific information. Following [Lennox et al. \(2019\)](#), we use 50 percent as the cutoff to define industry KAMs. Industry KAMs are those whose occurrence ratio is above 50 percent in a given industry-year. That is, if one KAM topic is reported in over 50 percent of the firms’ audit reports for a given industry-year, we deem that this KAM type reflects more information about the industry than about the firm. For example, revenue recognition is an industry KAM for most industries, and accounts receivable allowance is

<sup>4</sup> Our classification scheme is more exhaustive than the common practice known by public accounting firms in China, as we use content analysis for a thorough study. For example, auditors may aggregate all types of assets impairment into one group. For us to analyze disclosure characteristics in many aspects, it is not suitable to classify PPE impairment, inventory write-down, allowance for doubtful accounts, and goodwill impairment into one category of “assets impairment.”



**TABLE 2**  
**Number and Topics of KAM Reporting**

**Panel A: Number of KAMs Per Client Firm**

Number of KAMs	Number of Firms	Percentage of Firms
1	477	14.01%
2	2,212	64.98%
3	621	18.24%
4	76	2.23%
5	14	0.41%
6	4	0.12%
Total firms	3,404	100%

**Panel B: Top 20 Most Commonly Reported KAMs**

KAM Topical Category	Number of Firm-KAMs
Revenue recognition	2,323
Accounts receivable allowance	1,267
Goodwill impairment	816
Inventory write-downs	679
PPE impairment	168
Long-term equity investment recognition	167
Related-party transactions	128
Long-term equity investment derecognition	109
Government grants	84
Inventory recognition	81
Research and development expenditure	79
Financial instrument recognition	75
Structured entities	68
Deferred income taxes	70
Financial instrument impairment	59
Long-term equity investment impairment	59
PPE recognition and measurement	59
Lawsuits	54
Mixed assets impairment	49
Loan impairment	39
Others	720
Total firm-KAMs	7,153

Table 2 reports the number of KAMs (in Panel A) and the top 20 KAM topics reported by auditors (in Panel B) for the sample firms in 2017.

an industry KAM for some manufacturing industries. Inventory write-down is an industry KAM for agriculture, real estate, and some manufacturing industries. Goodwill impairment is an industry KAM for education, health, culture, and art industries. Structured entities are an industry KAM for finance industries.

To measure the prevalence of industry KAMs, we construct two variables at the firm level: (1) an industry KAM dummy (*D\_Ind*, a dummy of 1 indicating that a firm has at least an industry KAM, 0 otherwise) and (2) an industry KAM number (*N\_Ind*, a continuous variable indicating the number of industry KAMs a firm has). In Table 4, we show the summary statistics for the full sample (in Panel A) and across industries (in Panel B). For the full sample, the mean of *D\_Ind* is 0.444, meaning that 44.4 percent of sample firms have one or more industry KAMs; the mean of *N\_Ind* is 0.872, meaning that on average, a firm receives less than one industry KAM. Given that, on average, a firm has two KAMs (in Table 2), the results show that the KAM reporting is not predominantly industry-generic. Panel B of Table 4 presents the statistics by the top and bottom ten industry sectors in order of the mean value of *N\_Ind*. The highest *N\_Ind* mean value appears in the insurance industry (code: J68,

**TABLE 3**  
**Reasons that Auditors Identify the Matter as KAM**

Reason	Percentage of Firm-KAMs	Examples of Keywords in Disclosures	Specified in CSA 1504?
<i>Reason_1</i> : It involves material misstatement or fraud risk	24.0%	Risk of misstatement; related-party transactions; material weakness in internal control; earnings management; fraud; incorrect accounting period; revenue recognition in advance; lack of commercial substance	Yes
<i>Reason_2</i> : It involves significant judgment and estimation	60.3%	Important or significant judgment; a series of assumptions; great uncertainty; professional judgment; key assumption; management biases; reasonable estimation	Yes
<i>Reason_3</i> : It involves significant value and directly affects investors' decision	77.2%	Huge amount of value; importance of value; essential component of financial statements; key performance index; directly influencing investors' decision	Yes
<i>Reason_4</i> : It consumes huge audit resources	6.4%	Huge time or audit resources; huge audit cost; highly complicated engagement; quite difficult checking	No
<i>Reason_5</i> : A transaction or account experiences dramatic upward or downward change	3.8%	Substantial growth; rapid growth; obvious declining	No
Others: Other special risk	0.7%	Policy control; political and economic environment; environmental protection; diminishing industrial capacities; interference with last year's audit opinion; delisting risk; special matters	No

Table 3 reports the reasons why auditors identify a matter as a KAM. A specific reason is screened by keywords from KAM reporting. For the first three reasons, CSA 1504 Article 9(2) requires that auditors take them into account when determining KAMs. The remaining reasons are auditors' own discretionary disclosures.

2,500), and the second in monetary and financial services (code: J66, 2,063). In these two financial industries, each firm has more than two industry KAMs on average. Among the bottom ten industries, six industries have zero means for the two industry KAM variables: fishing industry (code: A04), ferrous metal smelting (code: C31), power and heat (code: D44), road transportation (code: G54), other financial industries (code: J69),<sup>5</sup> and diversified industries (code: S90). In these six industries, firms have no industry KAM.

### Wordings in KAM Reporting

According to CSA 1504, an auditor communicates KAMs under the heading "Key Audit Matters" in a separate section of the auditor's report. For each individual KAM, auditor's disclosure includes the following contents: (1) descriptions of the matter, including a reference to the related disclosure(s) in the financial statement and the reason why the matter is considered significant in the audit and therefore determined to be a KAM and (2) how the matter is addressed during the auditing process (CSA 1504, p. 4). We separately analyze the language characteristics of these two disclosure components from four aspects, namely, *Specificity*, *Similarity*, *Readability*, and *Length*.

For *Specificity*, we construct three measures: *Specificity\_1*, a dummy of 1 if a specific company or organization is mentioned, 0 otherwise. *Specificity\_2*, a dummy of 1 if some specific date, number, or percentage is mentioned, 0 otherwise. *Specificity\_3*, a continuous variable indicating the words relating to a specific date, number, or percentage in proportion to the total words of the disclosure.<sup>6</sup> Panel A of Table 5 describes the specificity for KAM descriptions. The mean of *Specificity\_1* (*Specificity\_2*) is 0.210 (0.958). It suggests that auditors mention specific dates, numbers, or percentages in

<sup>5</sup> The other financial industry (J69) is the remaining financial industry except for the monetary and financial services (J66), capital market services (J67) and insurance (J68). Any financial firm not classified as J66, J67, or J68 falls into the other financial industry (J69).

<sup>6</sup> Our method is similar to Hope, Hu, and Lu's (2016) measure to quantify the level of specificity of firms' qualitative risk-factor disclosures and Cazier, McMullin, and Treu's (2019) measure of non-specificity and standardization to be proxies for disclosure "boilerplate."

**TABLE 4**  
**Summary Statistics of Industry KAM**

**Panel A: Full Sample**

	<u>n</u>	<u>Mean</u>	<u>S.D.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>
Industry KAM dummy ( <i>D_Ind</i> )	3,379	0.444	0.497	1.000	0.000	1.000
Industry KAM number ( <i>N_Ind</i> )	3,379	0.872	0.644	1.000	0.000	3.000

**Panel B: Top and Bottom Ten Industries**

The Top Ten Industries				The Bottom Ten Industries			
Code and Name	n	Mean		Code and Name	n	Mean	
		<i>D_Ind</i>	( <i>N_Ind</i> )			<i>D_Ind</i>	( <i>N_Ind</i> )
J68 Insurance	6	0.833	(2.500)	A04 Fishing	8	0.000	(0.000)
J66 Monetary and financial services	32	0.656	(2.063)	C31 Ferrous metal smelting	29	0.000	(0.000)
J67 Capital market services	47	0.723	(1.957)	D44 Power and heat	68	0.000	(0.000)
C19 Leather, fur, and footwear	11	0.909	(1.636)	G54 Road transportation	33	0.000	(0.000)
E48 Civil engineering	62	0.742	(1.613)	J69 Other financial industries	11	0.000	(0.000)
E50 Architectural decoration	28	0.786	(1.607)	S90 Diversified industries	23	0.000	(0.000)
R86 Radio, television, and film	25	0.680	(1.560)	H61 Accommodation and lodging	6	0.167	(0.500)
I64 Internet and related services	56	0.643	(1.518)	B06 Coal mining and dressing	26	0.385	(0.538)
M74 Professional technical service	41	0.780	(1.512)	C28 Chemical fiber	22	0.364	(0.545)
R87 Culture and arts	9	0.889	(1.444)	F51 Wholesale business	77	0.286	(0.558)

Table 4 reports the summary statistics of industry KAMs for the full sample (in Panel A) and over top and bottom ten industries in the order of industry KAM number (*N\_Ind*) (in Panel B). *D\_Ind* is a dummy variable equal to 1 if a client firm receives at least one industry KAM, 0 otherwise. *N\_Ind* is the number of industry KAMs a client firm receives. The definition of industry KAMs is described in Appendix A. To more thoroughly describe industry KAMs, we use a three-character industry code in this table. We drop a given industry with the number of firms less than five when reporting the statistics of industry KAMs. Thus, we retain a total of 3,379 firms from the original 3,404 firms.

most cases (96 percent), and occasionally mention specific organizations or firms (21 percent). The mean of *Specificity\_3* is 0.124, indicating that the average percentage of specific information in KAM descriptions is 12 percent. A maximum value of *Specificity\_3* (0.574) suggests that the disclosure contains 57 percent specific information, whereas the minimum value (0.000) suggests that the disclosure has no specific information about any date, number, or percentage. Panel B shows the specificity of KAM audit procedures. Compared to KAM descriptions, wordings in audit procedures have more specific information about firms and organizations but much less information about the dates, numbers, or percentages, as evidenced by the mean differences of *Specificity\_1* (0.210 versus 0.263) and *Specificity\_2* (0.958 versus 0.149). The univariate difference test, presented in Panel C, shows that the mean differences between these two characteristics are statistically significant.

For *Similarity*, we construct two variables: *Similarity\_1*, the similarity score in wordings over the same KAM in a given industry, *Similarity\_2*, the similarity score in wordings over the same KAM reported by the same auditor in a given industry. We compute the cosine distance to measure the similarity across the disclosures. The computational method is detailed in the Appendix. Panel A (Panel B) of Table 5 presents the similarity of disclosures in KAM descriptions (in audit procedures).<sup>7</sup> We find that auditors use more similar wordings when disclosing audit procedures than disclosing KAM descriptions. If we only compare the same KAM topic in a given industry (*Similarity\_1*), the mean similarity value for audit procedures is 0.268, higher than that for KAM descriptions (0.191). If we further take into account the cases where the disclosures are issued by the same auditor (*Similarity\_2*), the mean similarity value for audit procedures increases to be 0.303, also higher than that of KAM descriptions (0.206), and both of the differences are significant (seen in Panel C).

For *Readability*, we use the modified FOG index for Chinese text. The FOG index is commonly used to measure readability for English text (e.g., Li 2008; Brown and Tucker 2011; Lang and Stice-Lawrence 2015; Dyer et al. 2017),

<sup>7</sup> Since we compare over the same KAM, we drop some KAMs that appear only once in a given industry for *Similarity\_1* and those that appear only once from the same auditor in a given industry for *Similarity\_2*.

**TABLE 5**  
**Textual Analysis of KAM Reporting**

**Panel A: KAM Descriptions**

	<u>n</u>	<u>Mean</u>	<u>S.D.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>
<i>Specificity_1</i>	7,153	0.210	0.407	0.000	0.000	1.000
<i>Specificity_2</i>	7,153	0.958	0.199	1.000	0.000	1.000
<i>Specificity_3</i>	7,153	0.124	0.073	0.113	0.000	0.574
<i>Similarity_1</i>	6,489	0.191	0.130	0.198	0.007	0.930
<i>Similarity_2</i>	4,219	0.206	0.153	0.181	0.003	0.937
<i>Readability</i>	7,153	25.775	9.916	23.660	8.105	108.800
<i>Length_1</i>	7,153	4.024	2.110	4.000	1.000	33.000
<i>Length_2</i>	7,153	228.992	102.852	211.000	36.000	2,616.000

**Panel B: KAM Audit Procedures**

	<u>n</u>	<u>Mean</u>	<u>S.D.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>
<i>Specificity_1</i>	7,153	0.263	0.440	0.000	0.000	1.000
<i>Specificity_2</i>	7,153	0.149	0.356	0.000	0.000	1.000
<i>Specificity_3</i>	7,153	0.004	0.013	0.000	0.000	0.270
<i>Similarity_1</i>	6,489	0.268	0.128	0.253	0.002	0.961
<i>Similarity_2</i>	4,219	0.303	0.175	0.274	0.006	1.000
<i>Readability</i>	7,153	17.023	4.234	16.693	5.760	80.400
<i>Length_1</i>	7,153	6.575	2.227	6.000	1.000	28.000
<i>Length_2</i>	7,153	266.167	101.817	252.000	46.000	1,231.000

**Panel C: KAM Descriptions Versus KAM Audit Procedures: The t-tests**

	<u>Mean Difference</u>	<u>t-value</u>
<i>Specificity_1</i>	0.210 vs. 0.263	-0.053***
<i>Specificity_2</i>	0.958 vs. 0.149	0.809***
<i>Specificity_3</i>	0.124 vs. 0.004	0.120***
<i>Similarity_1</i>	0.191 vs. 0.268	-0.077***
<i>Similarity_2</i>	0.206 vs. 0.303	-0.097***
<i>Readability</i>	25.775 vs. 17.023	8.752***
<i>Length_1</i>	4.024 vs. 6.575	-2.550***
<i>Length_2</i>	228.992 vs. 266.167	-37.176***

\*\*\* Represents statistical significance at the 1 percent level.

Table 5 reports the textual analysis, including the specificity, similarity, readability, and length in KAM descriptions (in Panel A), KAM audit procedures (in Panel B), and the mean difference tests between KAM descriptions and audit procedures (in Panel C). Refer to Appendix A for variable definitions.

calculated by a weighted average of the number of words per sentence and the percentage of complex words in total words. It generally defines complex words as those consisting of three or more syllables. Since our sample disclosures are in the Chinese language, we define complex words based on the list of “1,000 less frequently used Chinese words” issued by *The National Language Commission* in 2013.<sup>8</sup> Panel A (Panel B) in Table 5 reports the readability of disclosures in KAM descriptions (audit procedures). The results show that the FOG index (*Readability*) in KAM descriptions is much higher than in audit procedures. The mean and median values of *Readability* for KAM descriptions are 25.775 and 23.660, while those for audit procedures are 17.023 and 16.693. Their differences are significant (in Panel C). We infer that information users need a certain degree of financial literacy to understand the text in KAM descriptions than in audit procedures.

<sup>8</sup> To our knowledge, no prior literature uses a comprehensive word list that can adequately reflect the financial context in Chinese—a limitation that words used in daily life would misclassify common words in financial text (Loughran and McDonald 2011; Bushee, Gow, and Taylor 2018).

For *Length*, we construct two measures: *Length\_1*, the number of total sentences, and *Length\_2*, the number of total words. Panel A (Panel B) in Table 5 reports the length of disclosures in KAM descriptions (in audit procedures). The results show that disclosures in KAM descriptions have fewer sentences (*Length\_1*) and words (*Length\_2*) than in audit procedures. On average, disclosures of KAM descriptions have four sentences and 229 words, while disclosures of audit procedures have seven sentences and 266 words. Their differences are significant (in Panel C). Combining the findings of *Readability* and *Length*, we notice that disclosures of KAM descriptions are shorter but more difficult to understand than audit procedures.

In summary, the descriptive analysis shows that: (1) in most cases, auditors report two KAMs; (2) firm-specific KAMs have more appearance than industry-generic KAMs; (3) the major reasons of KAM identification are the three reasons required by CSA 1504 (i.e., significant transaction value, significant judgment and estimation, and material misstatement or fraud), and there exist other reasons that are at auditors' own discretion; and (4) auditors use different wordings to disclose KAM descriptions and audit procedures, and they use more specific, less similar, shorter but more complex wordings in KAM descriptions. Inconsistent with the "innocuous boilerplate" concerns from prior U.S. experimental studies (e.g., [Brasel et al. 2016](#); [Kachelmeier et al. 2020](#)), our findings show that the new KAM rule plays a role in China, echoing [Choi and Wong \(2007\)](#) and [Chen et al. \(2019\)](#).

## V. RELATIONSHIP BETWEEN KAM REPORTING AND AUDIT QUALITY

For audit quality, we choose the following five proxies: discretionary accruals (*DA*), small positive earnings surprise (*SP*), the adoption of below-the-line items or non-core earnings (*BL*), types of audit opinions (*OP*), and audit fees (*FEE*). The first three are common proxies for client firms' earnings quality and related to auditor's competence, while the fourth is more likely associated with auditor's independence, and the fifth is generally associated with audit effort. Discretionary accruals (*DA*) are the performance-matched abnormal accruals, in the absolute value, estimated from the Jones model ([Kothari, Leone, and Wasley 2005](#)). *SP* is a dummy equal to 1 if a firm's *ROE* is between 0 and 0.01, 0 otherwise ([Burgstahler and Dichev 1997](#); [Gul, Wu, and Yang 2013](#)).<sup>9</sup> *BL* is the sum of investment net income, profits from other operations, and non-operating net income, scaled by total assets ([Chen and Yuan 2004](#); [Haw, Qi, Wu, and Wu 2005](#); [Kao, Wu, and Yang 2009](#); [Gul et al. 2013](#)). *OP* is an ordered variable equal to 0 for a clean audit opinion, 1 for an unqualified opinion with explanatory notes, and 2 for a qualified opinion, following [Chen et al. \(2010\)](#).<sup>10</sup> There is no adverse opinion in our sample. *FEE* is the natural logarithm of audit fees.

Following prior research (e.g., [Jiang, Lee, and Yue 2010](#); [Gul et al. 2013](#)), we control for firm size (*SIZE*), profitability (*ROA* and *LOSS*), leverage (*LEVER*), book-to-market ratio (*BM*), cash flow from operations (*CFO*) scaled by assets, sales volatility (*VOLATILITY*, the standard deviation of sales, scaled by assets, over the past five years), the ratio of receivables and inventory (*RECINV*) to total assets, and whether the auditor is a Big 4 auditor (*BIG4*) or domestic Big 8 auditor (*DOMESTIC8*). In the audit opinion and audit fees models, we further control the following variables that may affect the likelihood of receiving a modified audit opinion: the quick ratio (*QUICK*), the number of years since a company has gone public (*FIRMAGE*), and the ratio of other receivables (*OTHERREC*) to total assets.<sup>11</sup> The control set varies slightly depending on the different test models. All variables are defined in Appendix A. All KAM data are manually collected; data on audit quality and control variables are drawn from the China Stock Market and Accounting Research (CSMAR) database.

### The Pre- Versus Post-Regression Model

We first compare audit quality around KAM reporting. Our empirical model is specified as follows:

$$AQ_{i,t} = \beta_0 + \beta_1 POST_{i,t} + CONTROLS + Industry\ Fixed\ Effects + \varepsilon_{i,t} \quad (1)$$

where *AQ* presents the five measures of audit quality. *POST* is a time dummy of 1 indicating the first KAM-disclosing year (i.e., 2017), 0 for the preceding year (i.e., 2016). If auditors react positively, rather than perfunctorily, to the new disclosure requirement, they spend more effort that leads to higher audit quality. We expect to observe a negative  $\beta_1$  on *DA* for a lower level of discretionary accruals, on *SP* for less garbling in reporting a small profit to avoid loss income, and on *BL* for less below-the-line items, and a positive  $\beta_1$  on *OP* for being more likely to issue an unclear audit opinion and on *FEE* for greater audit effort.

<sup>9</sup> We use return on equity (*ROE*) to calculate *SP* because regulators and investors pay more attention to *ROE*. For instance, the CSRC requires a public company's *ROE* to be positive over the last three years if the company wants to refinance by issuing new shares or bonds.

<sup>10</sup> The pairwise correlations between the individual proxies for audit quality range from 0.001 to 0.128 (untabulated for brevity). The small, positive correlations suggest that they capture nonoverlapping information and represent different audit quality metrics.

<sup>11</sup> [Jiang et al. \(2010\)](#) find that Chinese auditors are quite sensitive to inter-firm loans, which are booked as other receivables between listed companies and their parent companies under the Chinese GAAP.



For the 3,314 non-AH-listed firms that disclosed KAMs in 2017, we collect 2016 and 2017 data and define 2017 as the *POST* year. After dropping those firm-years from financial industries or without necessary financial data,<sup>12</sup> we obtain 5,306 firm-year observations, which vary slightly in different audit quality models. We restrict the sample to the balanced panel of the two-year sample firms. In our regressions, we use two-character industry codes for manufacturing industries (C1, C2, etc.) and one-character industry codes for other industries (A, D, E, etc.). All continuous variables are winsorized at the 1st and 99th percentiles to mitigate the influence of outliers.

Panel A of Table 6 presents summary statistics for the regression variables. The mean of *DA* in the absolute value is 0.054. The mean of *SP* (0.038) indicates that about 3.8 percent of sample firm-years report small positive earnings possibly to exceed the benchmark. The mean of *BL* (0.011) indicates that the use of below-the-line items increases core earnings by 1.1 percent on average. The mean of *OP* is 0.041, and we notice (untabulated) that about 97 percent of sample firm-years receive clean audit opinions, 2.2 percent receive unqualified opinions with explanatory notes, and 0.8 percent receive qualified opinions.<sup>13</sup> The average *ROA* and leverage ratio (*LEVER*) are 6.3 percent and 42 percent, respectively. About 7 percent of firms report a negative profit (*LOSS*). About 6 percent of client firms are audited by Big 4 auditing firms (*BIG4*) and 62 percent of firms are audited by domestic Big 8 auditing firms (*DOMESTIC8*), indicating that international auditing firms do not have a large market share in China. The average quick ratio is 1.459 (*QUICK*), the average ratio of accounts receivable to inventory (*RECINV*) is 26.6 percent, the average other receivables (*OTHERREC*) to total assets is 1.5 percent, and the average firm age is about ten years (*FIRMAGE*).

Panel B of Table 6 tests the difference between means of audit quality pre- versus post-KAM reporting. The results show that accruals management (*DA*) becomes less after the KAM rule, with the difference (−0.002) significant at the 10 percent level. The probability of reporting a small profit (*SP*) is decreased from 0.040 before the KAM rule to 0.036 after the rule, with the difference (−0.004) significant at the 10 percent level. The below-the-line items (*BL*) are decreased from 0.015 to 0.010, with the difference (−0.005) significant at the 1 percent level. The mean of audit opinion (*OP*) is increased from 0.037 to 0.044, with the difference (0.007) significant at the 10 percent level. The mean of log-transformed audit fees (*FEE*) is increased from 4.624 to 4.701, with the difference (0.077) significant at the 1 percent level. Collectively, we find that after the KAM requirement, client firms use less discretionary accruals and below-the-line items, and are less likely to report a small profit. Moreover, auditors are more likely to issue unclear audit opinions and charge higher audit fees.

Table 7 presents the result of the pre- versus post-regression on audit quality. We find that the coefficients on *POST*, our variable of interest, are significant in all the five models. In the *DA* model, the coefficient on *POST* is −0.008 (t-value = −2.72), significant at the 1 percent level. It suggests that when auditors implement the KAM requirement, their clients' discretionary accruals significantly decrease. The coefficients on *POST* are significantly negative in both the *SP* model (−0.165, t-value = −2.38) and *BL* model (−0.005, t-value = −8.31). We reason that disclosing KAMs provides additional information about significant auditor judgments in the audited financial statements, and this enhanced transparency and/or responsibility help to curb clients' earnings management. The coefficient on *POST* in the *OP* model is 0.191 (t-value = 2.32), significant at the 5 percent level. It suggests that auditors are more likely to issue unqualified audit opinions with explanatory notes or qualified audit opinions after they consider the KAM requirement. In the *FEE* model, the coefficient on *POST* is 0.074 (t-value = 6.00), significant at the 1 percent level. It indicates that when auditors are required to disclose KAMs in audit reports, they tend to charge more fees. We reason that disclosing KAMs incurs more audit effort and reflects the increased risk; thus, auditors build these efforts and/or risk into audit fees. In conclusion, these findings suggest that audit quality is improved following the KAM rule – corroborating our H1a.

The results for the control variables are generally consistent with prior studies. For example, firm size (*SIZE*) is positively related to audit fees, and negatively related to the incidence of modified audit opinions, the presence of reporting a small profit, and below-the-line items. Leverage (*LEVER*) is positively related to ordered audit opinion and negatively related to discretionary accruals. *CFO* is negatively related to discretionary accruals, the presence of a small positive earning, and below-the-line items. *VOLATILITY* is positively related to ordered audit opinion and audit fees, and negatively related to discretionary accruals. Both international Big 4 auditors (*BIG4*) and domestic Big 8 auditors (*DOMESTIC8*) charge higher audit fees. *ROA* is negatively related to ordered audit opinion and audit fees. The percentage of accounts receivable and inventory (*RECINV*) is

<sup>12</sup> For multivariate regression, we drop financial firms following prior research (e.g., H. Chen, J. Chen, Lobo, and Wang 2011; Firth, Mo, and Wong 2012; Ke et al. 2015; Gong, Li, Lin, and Wu 2016). For example, Ke et al. (2015, 1604) drop “125 observations in the financial industry because many of our variables are not meaningful in that sector.” Firth et al. (2012, 64) exclude companies from the finance sector because these companies “have different reporting regulations.”

<sup>13</sup> We perform a sensitivity test that redefines *OP* with values of 0 (for clean audit opinions) and 1 (for unclear audit opinions) after excluding the qualified opinions. The results from the probit model are quite similar with those from an ordered probit model.

**TABLE 6**  
**Summary Statistics for Variables in Regression**

**Panel A: Summary Statistics**

	<u>n</u>	<u>Mean</u>	<u>S.D.</u>	<u>Median</u>	<u>Min.</u>	<u>Max.</u>
<i>DA</i>	4,824	0.054	0.053	0.038	0.001	0.267
<i>SP</i>	5,306	0.038	0.192	0.000	0.000	1.000
<i>BL</i>	5,306	0.011	0.019	0.006	-0.015	0.123
<i>OP</i>	5,072	0.041	0.238	0.000	0.000	2.000
<i>FEE</i>	5,072	4.663	0.689	4.554	2.303	8.945
<i>KamNumber</i>	5,306	2.104	0.654	2.000	1.000	6.000
<i>Specificity</i>	5,306	3.415	1.793	3.000	0.000	15.000
<i>Similarity</i>	5,306	0.283	0.122	0.274	0.006	0.901
<i>Readability</i>	5,306	24.494	6.359	23.246	12.925	94.600
<i>Length</i>	5,306	1036.691	423.888	969.500	192.000	6690.000
<i>Reason_1</i>	5,306	0.467	0.499	0.000	0.000	1.000
<i>Reason_2</i>	5,306	0.800	0.400	1.000	0.000	1.000
<i>Reason_3</i>	5,306	0.921	0.270	1.000	0.000	1.000
<i>Reason_4</i>	5,306	0.125	0.331	0.000	0.000	1.000
<i>Reason_5</i>	5,306	0.074	0.262	0.000	0.000	1.000
<i>SIZE</i>	5,306	8.462	1.331	8.325	3.963	14.693
<i>ROA</i>	5,306	0.063	0.058	0.056	-0.139	0.260
<i>LOSS</i>	5,306	0.071	0.256	0.000	0.000	1.000
<i>LEVER</i>	5,306	0.420	0.206	0.408	0.059	0.934
<i>BM</i>	5,306	0.351	0.197	0.315	0.053	0.888
<i>CFO</i>	5,306	0.039	0.071	0.039	-0.207	0.239
<i>VOLATILITY</i>	5,306	0.113	0.119	0.077	0.004	0.743
<i>BIG4</i>	5,306	0.064	0.244	0.000	0.000	1.000
<i>DOMESTIC8</i>	5,306	0.617	0.486	1.000	0.000	1.000
<i>FIRMAGE</i>	5,072	10.444	3.578	8.000	2.000	27.000
<i>QUICK</i>	5,072	1.459	1.399	1.033	0.146	8.868
<i>RECINV</i>	5,072	0.266	0.163	0.246	0.000	0.902
<i>OTHERREC</i>	5,072	0.015	0.023	0.007	0.000	0.150

**Panel B: Difference Between Means of Audit Quality Pre- Versus Post-KAM Rule**

	<u>n</u>	<u>Before KAM</u>	<u>After KAM</u>	<u>Difference</u>
<i>DA</i>	2,412	0.055	0.053	-0.002*
<i>SP</i>	2,653	0.040	0.036	-0.004*
<i>BL</i>	2,653	0.015	0.010	-0.005***
<i>OP</i>	2,536	0.037	0.044	0.007*
<i>FEE</i>	2,536	4.624	4.701	0.077***

\*\*\*, \* Represents 1 percent or 10 percent significance, respectively.

Table 6 reports descriptive statistics for variables in regression (in Panel A) and the mean differences of audit quality/fees surrounding KAM rule for the balanced panel of the two-year sample firms (in Panel B).

All variables are defined in Appendix A.

negatively related to ordered audit opinion, while firm age (*FIRMAGE*) and the fraction of other receivables (*OTHERREC*) are positively related to ordered audit opinion.

**The Difference-in-Differences Test**

The single time-series pre-post analysis may be not robust enough to the contemporaneous events that could affect audit quality. As such, we re-perform the analysis with the DiD approach. We turn our attention to AH cross-listed firms, the first batch to carry out the new KAM rule starting in 2016. Since these 90 AH firms are intrinsically different from non-AH firms, we augment a double differencing approach with a research design including matched non-AH firms based on dual listing

**TABLE 7**  
**Pre- versus Post-Regression on Audit Quality**

Variables	DA	SP	BL	OP	FEE
<i>POST</i>	−0.008*** (−2.72)	−0.165** (−2.38)	−0.005*** (−8.31)	0.191** (2.32)	0.074*** (6.00)
<i>SIZE</i>	0.010*** (11.98)	−0.285*** (−6.30)	−0.001*** (−3.10)	−0.202*** (−4.65)	0.374*** (40.92)
<i>LOSS</i>	0.049*** (7.32)	0.379** (2.44)	0.007** (2.01)	0.273* (1.87)	0.055** (2.08)
<i>LEVER</i>	−0.051*** (−11.61)	0.177 (0.86)	−0.002 (−0.92)	1.276*** (4.26)	0.090** (2.20)
<i>BM</i>	−0.045*** (−12.35)	1.832*** (7.29)	−0.005*** (−2.62)	−1.050*** (−3.32)	−0.317*** (−6.75)
<i>CFO</i>	−0.926*** (−21.24)	−2.213*** (−4.52)	−0.031*** (−5.00)	−0.507 (−0.86)	0.060 (0.66)
<i>VOLATILITY</i>	−0.017** (−2.57)	0.296 (0.99)	−0.000 (−0.13)	0.596** (2.39)	0.400*** (6.66)
<i>BIG4</i>	−0.005 (−1.60)	−0.051 (−0.25)	0.002 (1.43)	−0.375 (−0.99)	0.473*** (11.87)
<i>DOMESTIC8</i>	0.000 (0.19)	−0.039 (−0.58)	0.000 (0.63)	−0.038 (−0.46)	0.041*** (3.34)
<i>ROA</i>				−2.927*** (−2.82)	−0.269* (−1.75)
<i>QUICK</i>				−0.021 (−0.33)	
<i>RECINV</i>				−0.666** (−2.50)	−0.038 (−0.86)
<i>FIRMAGE</i>				0.187*** (3.14)	
<i>OTHERREC</i>				3.018** (2.29)	
Intercept	−0.002 (−0.30)	0.147 (0.27)	0.035*** (6.02)		1.481*** (19.75)
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes
n	4,824	5,306	5,306	5,072	5,072
Adj. R <sup>2</sup>	0.737		0.120		0.556
Pseudo R <sup>2</sup>		0.113		0.231	

\*\*\*, \*\*, \* Represents 1 percent, 5 percent, or 10 percent significance, respectively.

Table 7 reports regression results examining the effects of the KAM rule on audit quality/fees. The sample includes two-year observations (the 2017 KAM-disclosing year and the preceding year). The dependent variables are audit quality, measured by five variables: *DA* (discretionary accruals), *SP* (a dummy equal to 1 if a firm's ROE is between 0 and 0.01, 0 otherwise), *BL* (below-the-line items, scaled by total assets), *OP* (an ordered variable equal to 0 for a clean audit opinion, 1 for an unqualified opinion with explanatory notes, and 2 for a qualified audit opinion), and *FEE* (audit fees). The key variable of interest is *POST*, a dummy equal to 1 for the first KAM-disclosing year, and 0 for the preceding year. In parentheses are t-statistics (or z-statistics) with robust standard errors clustered by firm.

All variables are defined in Appendix A.

probability. Following Lang, Raedy, and Wilson (2006) and Krishnan, Krishnan, and Song (2017), we use a probit model to predict the dual-listing propensity score.<sup>14</sup> The model includes variables that are likely to discriminate between AH and non-AH firms: firm size (*SIZE*), cash flow from operations (*CFO*), leverage (*LEVER*), asset turnover (*TURNOVER*), sales growth (*GROWTH*), Big 4 auditor type (*BIG4*), and industry type. The model's pseudo R<sup>2</sup> is 0.49, indicating strong explanatory power. Considering that the first batch has only 90 firms, we do not use one-to-one matching. Instead, we use three-nearest-

<sup>14</sup> We conduct an alternative matching approach by using a simple attribute-based matching by industry type, to the closest company in firm size, within a maximum allowable distance in ROA, to partially mitigate the concern on covariate imbalance from the dual-listing propensity score matching. The results (untabulated) are qualitatively similar with those using propensity score matching.

neighbor radius matching with a caliper of 0.05 times the standard deviation of the estimated propensity scores, to partially mitigate the issue with sample variance (Shipman, Swanquist, and Whited 2017). Thus, we receive 169 matched non-AH firms as our control sample. For both treatment and control sample firms, we collect their data in 2015 and 2016. After deleting 14 firm-years from the financial industry or without necessary financial data, we retain 504 firm-years for the DiD test. We use the sample to run the following regression, specified as:

$$AQ_{i,t} = \beta_0 + \beta_1 POST_{i,t} + \beta_2 AH_{i,t} + \beta_3 POST_{i,t} \times AH_{i,t} + CONTROLS + \varepsilon_{i,t} \quad (2)$$

where *AH* is a dummy of 1 for the experimental sample, and 0 for the control sample. *POST* is a dummy of 1 for year 2016 (the first KAM year), and 0 for year 2015 (the pre-KAM year). The interaction term between these two dummies (i.e., *POST* × *AH*) is the variable of interest.

In Table 8, the results show that the coefficients on the interaction term are significantly negative in the *DA* model (−0.014, *t*-value = −1.80), the *SP* model (−4.652, *t*-value = −5.11), and the *BL* model (−0.005, *t*-value = −1.66), and positive in the *OP* model (4.558, *t*-value = 6.27).<sup>15</sup> These findings indicate that when the KAM rule is implemented, clients use less discretionary accruals or below-the-line items, are less likely to report small positive earnings surprises, and are more likely to receive unqualified audit opinions with explanatory notes or qualified opinions. These findings are generally consistent with the main tests.

### The Cross-sectional Regression Model

We use the sample of 2017 KAM-disclosing observations and analyze whether audit quality is reflected by the KAM characteristics, such as the number of reported KAMs, the reason auditors report these matters as KAMs, and textual characteristics in terms of specificity, similarity, readability, and length. The sample includes KAM-disclosing observations for non-AH firms that receive KAM for the first time. After dropping observations from the financial industry or with missing financial data, we obtain 2,688 observations, which vary slightly between different audit quality models. We use the following cross-sectional regression model specified as:

$$AQ_{i,t} = \beta_0 + \beta_1 KamNumber_{i,t} + \beta_2 Specificity_{i,t} + \beta_3 Similarity_{i,t} + \beta_4 Readability_{i,t} + \beta_5 Length_{i,t} + \beta_{6-10} Reason\_1(/5)_{i,t} + CONTROLS + Industry - Fixed Effects + \varepsilon_{i,t} \quad (3)$$

where *AQ* is defined the same as Model (1). *KamNumber* is the number of KAMs in an audit report. Since the regression is at the firm level, we design aggregate firm-level KAM variables based on the KAM-level specificity, similarity, readability, and length measures separately for different disclosure contents. For specificity, we first sum individual KAM's *Specificity\_1* and *Specificity\_2* to be the firm-level *Specificity\_1* and *Specificity\_2*, then we use the sum of *Specificity\_1* and *Specificity\_2* for the two KAM reporting components (i.e., descriptions and audit procedures) to aggregate at the firm level. For similarity, we first use the mean of individual KAM's *Similarity\_1* and *Similarity\_2* as the firm-level *Similarity\_1* and *Similarity\_2*, then we average *Similarity\_1* and *Similarity\_2* for descriptions and audit procedures to be the aggregate firm-level *Similarity*. For readability, we first use the mean of individual KAM's *Readability* (the FOG index) as the firm-level *Readability*, then use the mean of *Readability* for descriptions and audit procedures to be the aggregate firm-level *Readability*. For length, we first sum individual KAM's *Length\_2* (i.e., total words) to be the firm-level *Length\_2*, then sum *Length\_2* for descriptions and audit procedures to be the aggregate firm-level *Length*. In our regression, we use the natural logarithm of aggregate specificity, readability, and length.

To capture the reasons for KAM reporting, we construct five dummies, *Reason\_1* to *Reason\_5*, to represent the five distinct reasons described in Table 3. We collapse across individual KAM reason dummies to make a firm-level dummy using the maximum value. For example, the firm-level *Reason\_1* is equal to 1 if there is at least one KAM involving “material misstatement or fraud.” From Table 6 for the firm-level KAM variables, *KamNumber* ranges from 1 to 6, with a mean of 2.104 and a median of 2.000. *Specificity* ranges from 0 to 15, with a mean of 3.415 and a median of 3.000. The mean and median of *Similarity* is 0.283 and 0.274, respectively. The average *Readability* (the FOG index) is 24.494, and the average *Length* is about 1,037 words. The results of *Reason* dummies suggest that 46.7 percent of firms report KAM topics involving material misstatement (*Reason\_1*), 80.0 percent of firms report KAM topics involving significant judgment and estimation (*Reason\_2*), 92.1 percent of firms report KAM topics involving significant value and directly affecting investors' decision (*Reason\_3*), 12.5

<sup>15</sup> Since the KAM rule for the AH sample has been enforced in December 2016, while in general audit fees are determined and ratified by the shareholders' meeting in the second quarter each year—the listing requirement for all Chinese public companies (including AH firms)—the DiD approach of Model (2) testing the KAM-audit fees relationship is to no avail.

**TABLE 8**  
**Difference-in-Differences Propensity Score Matching Approach**

Variables	DA	SP	BL	OP
<i>POST</i>	0.008 (1.51)	-0.069 (-0.10)	-0.000 (-0.06)	0.631* (1.92)
<i>AH</i>	-0.009 (-1.30)	-0.734 (-0.97)	0.001 (0.32)	-5.197*** (-7.74)
<i>POST</i> × <i>AH</i>	-0.014* (-1.80)	-4.652*** (-5.11)	-0.005* (-1.66)	4.558*** (6.27)
<i>SIZE</i>	0.003 (1.10)	0.247 (1.12)	0.001 (1.49)	-0.437*** (-3.49)
<i>LEVER</i>	-0.001*** (-6.19)	-0.021 (-1.63)	-0.001*** (-3.01)	0.022 (1.17)
<i>BM</i>	-0.003** (-2.53)	0.080* (1.74)	0.000 (0.76)	-0.005 (-0.18)
<i>CFO</i>	-0.747*** (-14.75)	0.022 (0.01)	-0.019 (-1.33)	2.745 (1.50)
<i>BIG4</i>	0.006 (0.84)	1.314 (1.62)	0.005 (1.56)	-4.415*** (-6.49)
<i>DOMESTIC8</i>	0.008 (1.15)	0.171 (0.27)	0.009*** (2.97)	0.197 (0.29)
<i>ROA</i>				-0.020 (-0.77)
<i>QUICK</i>				-0.696 (-1.12)
<i>RECINV</i>				-0.508 (-0.52)
<i>FIRMAGE</i>				0.242 (0.82)
<i>OTHERREC</i>				0.653 (0.12)
Intercept	0.082*** (4.41)	5.423*** (2.77)	0.014* (1.87)	
n	439	504	504	504
Adj. R <sup>2</sup>	0.511		0.030	
Pseudo R <sup>2</sup>		0.486		0.479

\*\*\*, \*\*, \* Represents 1 percent, 5 percent, or 10 percent significance, respectively.

In parentheses are t-statistics (or z-statistics) with robust standard errors.

Table 8 reports regression results using the diff model estimation. The experimental sample is the 90 cross-listed AH firms, the first batch to disclose KAMs in 2016. The control sample is comprised of matched non-AH firms based on the cross-listing propensity score. *AH* is a dummy of 1 for the experimental sample, and 0 for the control sample. The dependent variables are audit quality, measured by four variables: *DA* (discretionary accruals), *SP* (a dummy equal to 1 if the firm's ROE is between 0 and 0.01, 0 otherwise), *BL* (below-the-line items, scaled by total assets), and *OP* (an ordered variable equal to 0 for a clean audit opinion, 1 for an unqualified opinion with explanatory notes, and 2 for a qualified audit opinion). *POST* is a dummy equal to 1 for the year 2016 and 0 for the year 2015. The key variable of interest is the interaction term between *POST* and *AH*.

All variables are defined in Appendix A.

percent of firms report KAM topics involving significant commitments of audit resources (*Reason\_4*), and 7.4 percent of firms report KAM topics involving a substantial change of transaction or account over last year (*Reason\_5*).

Panel A of Table 9 presents the regression results for KAM characteristic variables. The coefficients on *KamNumber* are significantly positive in the *DA* model (0.005, t-value = 1.76), *SP* model (0.209, t-value = 1.93), *BL* model (0.002, t-value = 1.83), *OP* model (0.364, t-value = 3.32), and *FEE* model (0.046, t-value = 2.15). The findings suggest that when an auditor reports more KAMs to a client firm, it signals lower financial reporting quality. Specifically, the client has a higher level of accruals management, is more likely to report small positive earnings, and uses more below-the-line items to manage earnings. Though auditors do not provide a separate opinion regarding KAMs (according to CSA 1504), the number of KAMs in the audit report conveys some information about financial statements. More KAMs give rise to auditors' concern about the clients'



**TABLE 9**  
**Cross-Sectional Regression on Audit Quality**

**Panel A: Overall Disclosure Characteristics**

Variables	<i>DA</i>	<i>SP</i>	<i>BL</i>	<i>OP</i>	<i>FEE</i>
<i>KamNumber</i>	0.005* (1.76)	0.209* (1.93)	0.002* (1.83)	0.364*** (3.32)	0.046** (2.15)
<i>Specificity</i>	-0.006** (-2.38)	-0.261** (-2.04)	0.005*** (4.79)	-0.082 (-0.55)	0.009 (0.42)
<i>Similarity</i>	-0.011 (-1.27)	0.152 (1.16)	-0.010** (-2.09)	-1.558*** (-2.82)	-0.098 (-1.20)
<i>Readability</i>	-0.007 (-1.42)	0.600** (2.35)	0.006** (2.54)	0.014 (0.06)	0.014 (0.38)
<i>Length</i>	0.006 (1.39)	-0.443** (-2.09)	-0.003* (-1.69)	-0.193 (-0.82)	-0.003 (-0.07)
<i>Reason_1</i>	-0.002 (-1.16)	-0.027 (-0.23)	-0.002** (-2.34)	0.276** (2.31)	0.038** (2.02)
<i>Reason_2</i>	-0.006* (-1.91)	0.263 (1.55)	-0.001 (-1.57)	0.257 (1.49)	0.049*** (4.11)
<i>Reason_3</i>	-0.003 (-0.73)	0.098 (0.45)	-0.001* (-1.66)	-0.197 (-1.04)	-0.020 (-0.59)
<i>Reason_4</i>	0.004 (1.28)	-0.383** (-2.34)	-0.000 (-0.44)	-0.088 (-0.57)	0.023 (0.91)
<i>Reason_5</i>	-0.005** (-1.97)	-0.467 (-1.53)	-0.003** (-2.00)	0.093 (0.42)	0.063** (2.09)
Controls	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes
n	2,431	2,688	2,688	2,578	2,578
Adj. R <sup>2</sup>	0.467		0.084		0.627
Pseudo R <sup>2</sup>		0.184		0.242	

**Panel B: Individual Disclosure Characteristics**

Models	<i>KamNumber</i>	<i>Specificity</i>	<i>Similarity</i>	<i>Readability</i>	<i>Length</i>	<i>Reason_1</i>	<i>Reason_2</i>	<i>Reason_3</i>	<i>Reason_4</i>	<i>Reason_5</i>
<i>DA</i>	0.004* (1.68)	-0.002 (-0.78)	-0.014* (-1.66)	-0.005 (-1.04)	0.003 (1.00)	-0.001 (-0.50)	-0.003* (-1.71)	0.001 (0.17)	0.004 (1.39)	0.003 (0.73)
<i>SP</i>	0.097* (1.82)	-0.237** (-2.39)	0.803 (1.49)	0.322** (1.99)	-0.250* (-1.91)	-0.108 (-0.98)	0.132 (0.89)	-0.027 (-0.13)	-0.341** (-2.16)	-0.532* (-1.77)
<i>BL</i>	0.003*** (3.49)	0.005*** (6.33)	-0.007** (-2.19)	0.007*** (3.87)	0.003*** (2.84)	-0.001* (-1.87)	-0.002* (-1.78)	0.001 (1.29)	0.000 (0.41)	-0.002* (-1.74)
<i>OP</i>	0.174** (2.25)	0.162 (1.42)	-1.126** (-2.27)	0.158 (0.79)	0.123 (0.82)	0.270** (2.39)	0.165 (1.19)	-0.266 (-1.34)	-0.010 (-0.07)	0.097 (0.45)
<i>FEE</i>	0.057*** (4.51)	0.053*** (3.12)	0.061 (0.79)	0.046 (1.33)	0.076*** (3.54)	0.028** (2.50)	0.091*** (4.20)	-0.013 (-0.38)	0.041** (2.55)	0.039** (2.18)

\*\*\*, \*\*, \* Represents 1 percent, 5 percent, or 10 percent significance, respectively.

In parentheses are t-statistics (or z-statistics) with robust standard errors.

Table 9 reports the regression results of the cross-sectional tests examining the effects of KAM disclosure characteristics on audit quality. The dependent variables are audit quality, measured by five variables: *DA* (discretionary accruals), *SP* (a dummy equal to 1 if the firm's ROE is between 0 and 0.01, 0 otherwise), *BL* (below-the-line items, scaled by total assets), *OP* (an ordered variable equal to 0 for a clean audit opinion, 1 for an unqualified opinion with explanatory notes, and 2 for a qualified audit opinion), and *FEE* (audit fees). The key variables of interest are disclosure characteristic variables, including the KAM number (*KamNumber*), *Specificity*, *Similarity*, *Readability*, *Length*, and five *Reason* variables. Panel A shows the results of each model estimation, including all the disclosure characteristics together. Panel B horizontally presents the coefficient of individual disclosure characteristic variable regressing against audit quality, one at a time. Controls (the same set as in Table 7 excluding *POST*) and intercepts (excluded in the *OP* model) are included in the regression but omitted for brevity.

All variables are defined in Appendix A.

biased financial reporting. Thus, auditors are more likely to issue unclean audit opinions when reporting more KAMs. Moreover, auditors charge higher audit fees in such cases. The fee premium indicates either more effort to improve audit quality or the increased risk when a client receives more KAMs.

We further find that *Specificity* is significantly and positively related to *BL* (0.005, *t*-value = 4.79). We reason that when auditors use more specific language in KAM reporting, it reflects that clients may manage earnings by using more below-the-line items. This finding does not mean that auditors implement KAM in a perfunctory manner. As specific information is not required by the CSA 1504 standard but voluntarily provided by auditors, when auditors identify a company or organization name, date, number, or percentage in KAM reporting, auditors devote special attention to and exert more effort in handling KAM issues. By the same token, the negative coefficients of *Specificity* on *DA* (−0.006, *t*-value = −2.38) and *SP* (−0.261, *t*-value = −2.04) suggest that specific language in KAM reporting may indicate auditor's effort in constraining the management from optimistically biasing earnings and reporting a small positive income.

We continue to find that *Similarity* is significantly and negatively related to *BL* (−0.010, *t*-value = −2.09) and *OP* (−1.558, *t*-value = −2.82). We infer that when auditors use more similar wordings for the same KAM over different clients, it reflects that the client firms are less likely to engage in earnings management through inflating income by timing the execution of transactions pertaining to below-the-line items. Meanwhile, auditors are less likely to issue unqualified audit opinions with explanatory notes or qualified audit opinions. That is, more similar KAMs, less income inflation, and higher likelihood of clean audit opinions.

We also find that *Readability* is significantly and positively related to *SP* (0.600, *t*-value = 2.35) and *BL* (0.006, *t*-value = 2.54), while *Length* is significantly and negatively related to these two variables (−0.443 in the *SP* model and −0.003 in the *BL* model). It suggests that when client firms have higher earnings quality, auditors use longer (a higher value of *Length*) but easier-to-understand (a lower value of *Readability*) words in KAM reporting. Stated differently, when client firms have lower earnings quality, auditors use shorter but more difficult-to-understand words in KAM reporting. We reason that when auditors are aware of the complexity of or uncertainty on clients' financial reporting, they would rather use fewer and more complex wordings than clearly expressive language.

The reasons for KAM reporting also convey information. *DA* is negatively related to *Reason\_2* (−0.006, *t*-value = −1.91) and *Reason\_5* (−0.005, *t*-value = −1.97), indicating that discretionary accruals are contained when auditors communicate KAMs involving significant judgment and estimation (i.e., *Reason\_2*) and a dramatic change of one transaction or account (i.e., *Reason\_5*). *SP* is negatively related to *Reason\_4* (−0.383, *t*-value = −2.34). A negative coefficient on *Reason\_4* (i.e., the matter consuming significant audit resources) suggests that more effort leads to a lower likelihood of reporting small positive earnings for clients. *BL* is negatively related to *Reason\_1* (−0.002, *t*-value = −2.34), *Reason\_3* (−0.001, *t*-value = −1.66), and *Reason\_5* (−0.003, *t*-value = −2.00). The results for *BL* suggest that when auditors identify KAMs based upon *Reason\_1* (involving material misstatement or fraud), *Reason\_3* (involving significant value and directly affects investors' decision), or *Reason\_5*, it reflects their effort to deter clients' artificially misreporting the revenues. When auditors voluntarily disclose *Reason\_4* and/or *Reason\_5* that are not specified in CSA 1504, they express a great deal of responsibility that is presumably associated with audit quality.

Likewise, *OP* is positively related to *Reason\_1* (0.276, *t*-value = 2.31), indicating that auditors are more likely to issue unclean audit opinions when they identify a KAM with respect to material misstatement or fraud. Both *Reason\_1* and *Reason\_2* are positively related to audit fees (0.038, *t*-value = 2.02; 0.049, *t*-value = 4.11, respectively), indicating that material misstatement and greater uncertainty in judgment and estimation incur more effort or a higher risk for auditors. *FEE* is also positively related to *Reason\_5* (0.063, *t*-value = 2.09), auditor's own reason uncovering unusual change of transactions or accounts.

Considering the possibility that these KAM characteristic variables may be highly correlated with each other, we regress each disclosure characteristic individually.<sup>16</sup> The results are reported in Panel B of Table 9. For brevity, we only show the regression coefficient, cell by cell, on the ten disclosure characteristics horizontally for the five models, i.e., the first column lists the five dependent variables of Model (3).<sup>17</sup> These results are similar with those in Panel A: (1) when auditors report more KAMs, use more specific language, less similar and more complex wordings, the disclosures signal lower earnings quality, and (2) when auditors expressly identify an issue as KAM due to a high risk of misstatement or fraud, great uncertainty in judgment and estimation, or rapid change, they tend to constrain clients' earnings management. A noteworthy exception is that the result for *Length* in the *BL* model is different from those in the overall multiple regressions in Panel A. Our explanation is that the

<sup>16</sup> We analyze the correlation matrix (untabulated for simplicity) for the ten characteristic variables, namely, *KamNumber*, *Specificity*, *Similarity*, *Readability*, *Length*, and five *Reason* dummies. Both Pearson and Spearman correlation matrix show that the KAM characteristic variables are significantly correlated with each other. Among 45 pairs ( $= 10 \times 9 \div 2$ ), 35 pairs' correlation coefficients are significant at the 1-percent level.

<sup>17</sup> Without the horizontal layout of the table, it would have 30 columns for these five audit quality models regressing six disclosure characteristics individually, i.e., one at a time. Note that all of the five reason variables are entered into the regression simultaneously.

variable of *Length* contains too much quantitative information, confounding the results with or without controlling for other disclosure characteristic variables.

Our primary results show meaningful evidence of the effect of KAM reporting on audit quality. In summary, the number of KAMs and disclosure characteristics in terms of specificity, similarity, readability, and length reflect an auditor's concerns about clients' financial reporting quality or irregularities. When auditors communicate the reason for identifying an issue as KAM, especially when they opt to communicate other reasons not required by CSA 1504, it manifests more audit responsibility during their auditing process and their determination to improve audit quality or enhance auditors' appearance of conducting quality audits. These results are generally consistent with our H1b.

### Supplemental Tests

We conduct cross-sectional analysis for firms partitioned by variables that reflect Chinese characteristics like political connections and capture reputational/litigation concerns. Considering that we have ten disclosure characteristic variables and some of them will be dropped when we partition the sample and use non-continuous variables as the dependent variables (e.g., in the *SP* and *OP* models), we only consider the most prominent disclosure characteristic variable, i.e., the number of KAMs (*KamNumber*), in subsample regressions.

First, we partition the firms by state ownership, SOEs versus non-SOEs, and expect the effect of KAM reporting on audit quality to be different between the two types of firms. State-owned enterprises would balance between financial and sociopolitical objectives, thus the importance of auditing as a monitoring device is likely to be more pronounced for non-SOEs compared to SOEs (Chen et al. 2011). Hope, Yue, and Zhong (2020) show that non-SOEs improve financial reporting quality more than SOEs after China launched the anti-corruption campaign in 2012. Table 10, Panel A presents the results. We find that the coefficient on *KamNumber* is more significant in non-SOE subsample than in SOE subsample. For non-SOEs whose auditors disclose more KAMs, these firms have lower earnings quality (i.e., higher discretionary accruals, higher propensity to report small positive earnings surprise, and more below-the-line items), and their auditors are more likely to issue unclear audit opinions and charge higher audit fees.

Second, we partition the firms by higher reputation versus lower reputation. We expect the effect of KAM reporting on audit quality to be stronger among lower-reputation firms since these firms have greater concerns for audit quality and a higher motivation or much room for improvement of audit quality. To classify a firm as high reputation, we utilize the *Corporate Governance Index* and the *Social Responsibility Index* published by the Shanghai Stock Exchange and the Shenzhen Stock Exchange, respectively. These two index constituents are chosen from firms that have good reputations with respect to corporate governance and social responsibility (Dai, Du, Young, and Tang 2018). Thus, if a firm remains to be the member firm of one of the two indexes in both 2016 and 2017, the firm belongs to the higher-reputation subsample. To classify a firm as low reputation, we retrieve the data of CSRC sanctions and penalties. If a firm had been sanctioned by the CSRC in the past three years (i.e., 2015–2017), the firm belongs to the lower-reputation subsample.

Ultimately, we hand collect a total of 415 (593) firms that are classified as higher (lower) reputation, with each model having smaller sample observations in the regression. The results of the subsample regressions are shown in Panel B of Table 10. We find that the coefficient on *KamNumber* is only significant among the lower-reputation firms. For these firms whose auditors disclose more KAMs, they have lower earnings quality, evidenced by a higher propensity to report small positive earnings surprise and more below-the-line items, and their auditors are more likely to issue unclear audit opinions and charge higher audit fees. Our findings confirm that the effect of KAM reporting becomes stronger among client firms that exhibit greater (*ex ante*) concerns for audit quality.

## VI. CONCLUSION

With the goal of enhancing the informational value of audit reports and providing additional transparency about the auditing process, regulators worldwide have implemented significant new requirements on the auditor's report. On December 23, 2016, China's Ministry of Finance issued a new audit guideline, No. 1504 Auditing Standards for Chinese Certified Public Accountants, *Communicating Key Audit Matters in Auditing Report*. Using Chinese KAM data, we investigate whether KAM reporting and disclosure characteristics relate to audit quality. We first evaluate disclosure characteristics in detail with textual analysis and find that auditors report both industry-generic and firm-specific KAMs, and the wordings to a large extent are firm-specific and differ in KAM reporting components. Our empirical investigation reveals that audit quality increases significantly following the KAM rule. The cross-sectional analysis shows that the number of KAMs, disclosure characteristics (such as specificity, similarity, readability, and length), and reasons auditors identify issues as KAMs signal auditors' concerns about clients' earnings quality, their audit effort, and the propensity of issuing modified opinions. In essence, our results suggest the significance of analyzing reporting characteristics when studying the communication and implementation of KAMs.

**TABLE 10**  
**Subsample Regressions Based on Ownership and Reputation**

**Panel A: State-Owned Enterprises Versus Non-State-Owned Enterprises**

Variables	DA		SP		BL		OP		FEE	
	SOEs	Non-SOEs	SOEs	Non-SOEs	SOEs	Non-SOEs	SOEs	Non-SOEs	SOEs	Non-SOEs
<i>KamNumber</i>	-0.002 (-0.94)	0.006*** (3.62)	0.210** (2.22)	0.235** (2.26)	0.002 (1.38)	0.003*** (3.66)	0.094 (0.61)	0.213** (2.23)	0.042* (1.76)	0.067*** (4.42)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n	967	1,464	1,055	1,633	1,055	1,633	1,000	1,578	1,000	1,578
Adj. R <sup>2</sup>	0.102	0.152			0.104	0.057			0.697	0.543
Pseudo R <sup>2</sup>			0.151	0.168			0.412	0.247		

**Panel B: High Reputation Versus Low Reputation**

Variables	DA		SP		BL		OP		FEE	
	High-Reputation	Low-Reputation	High-Reputation	Low-Reputation	High-Reputation	Low-Reputation	High-Reputation	Low-Reputation	High-Reputation	Low-Reputation
<i>KamNumber</i>	-0.002 (-0.48)	0.007* (1.75)	0.059 (0.29)	0.203*** (2.69)	0.004 (1.53)	0.004** (2.02)	2.555 (0.51)	0.279** (2.10)	0.020 (0.56)	0.071** (2.34)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry-fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
n	363	508	404	564	404	564	377	527	377	527
Adj. R <sup>2</sup>	0.098	0.155			0.184	0.056			0.750	0.515
Pseudo R <sup>2</sup>			0.091	0.043			0.522	0.496		

\*\*\*, \*\*, \* Represents 1 percent, 5 percent, or 10 percent significance, respectively.

In parentheses are t-statistics (or z-statistics) with robust standard errors.

Table 10 reports the results of subsample regressions examining the effects of the number of KAMs on audit quality/fees. We partition the sample firms into SOEs versus non-SOEs (in Panel A) and as high reputation versus low reputation (in Panel B). The key variable of interest is the number of KAMs (*KamNumber*). The dependent variables and controls (excluding *POST*) are the same as those in Table 7.

All variables are defined in Appendix A.



Our research has important implications for extant and future studies. First, experimental studies from the U.S. raise a concern regarding innocuous boilerplate disclosures. **Our results suggest that KAMs based on industry-generic matters known to investors and standardized language in reporting do not overwhelm the Chinese audit market.** We observe cross-sectional differences in KAM reporting that correspond to differential audit quality. Second, archival evidence on KAM disclosures from other regions document limited or no benefits of KAM disclosures (e.g., Li et al. 2019; Pinto and Morais 2019). Our results suggest that textual analysis could shed light on the features of KAM communication and implementation. Third, our study supports the theoretical framework of Chen et al. (2019) that audit quality disclosure is more likely to motivate audit effort in developing and emerging markets.

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## APPENDIX A

### Variable Definitions

Variable	Definition
<b>KAM Characteristics</b>	
<i>KamNumber</i>	The number of KAMs a client firm receives in its auditor's report.
<i>D_Ind</i>	A dummy equal to 1 if a client firm has an industry KAM where an industry KAM is one whose occurrence ratio in a given industry-year is above 50%, and 0 otherwise. An industry is classified as three-character alphanumeric code, a Latin letter followed by two-digit Arabic numerals, issued by the CSRC in 2012. Refer to the Section of "Selection of Topics in KAM Reporting" for more details.
<i>N_Ind</i>	The number of industry KAMs a client firm receives.
<i>Reason_j</i>	A dummy equal to 1 if the reason that auditors report the matter as KAM is the <i>j</i> th reason ( <i>j</i> = 1 to 5) listed in Table 3, and 0 otherwise.
<i>Specificity_1</i>	A dummy equal to 1 if the KAM reporting mentions a specific company or organization, and 0 otherwise.
<i>Specificity_2</i>	A dummy equal to 1 if the KAM reporting mentions a specific date, number, or percentage, and 0 otherwise.
<i>Specificity_3</i>	A continuous variable indicating the words of a specific date, number, or percentage in proportion to total words in a given KAM reporting.
<i>Similarity_1</i>	The similarity score in the language of the same KAM in a given industry-year. We use <i>Gensim</i> , a Python topic modeling tool, to calculate the similarity score. The steps are as follows: (1) select the related disclosures, like the audit procedures, as the corpus collection; (2) use <i>Jieba</i> , the Python Chinese words segmentation utilities, to separate the corpus collection and use bag-of-words ( <i>BOW</i> ) model to transfer the segmentation into sparse <i>BOW</i> vectors; (3) use TF-IDF model to give weights to vectors; and (4) calculate the cosine distance for every two vectors. For <i>N</i> (the number of) disclosures, we calculate $C_N^2$ cosine distance and use the average value as the final similarity score for these <i>N</i> disclosures. The similarity ranges from 0 to 1. The higher the score, the more similar these disclosures.
<i>Similarity_2</i>	The similarity score in the language of the same KAM reported by the same auditor in a given industry-year.
<i>Readability</i>	The Gunning FOG index modified for Chinese text, measured as $0.4 \times (\text{words} \div \text{sentences} + 100 \times \text{complex words} \div \text{words})$ , where complex words are from the list of "1,000 less frequently used characters" (in Chinese). The higher the index, the more difficult to read the disclosure. For the aggregate firm-level FOG index used for regression, we first use the mean of individual KAM's FOG index into the firm-level <i>Readability</i> . Then, we use the mean of FOG index for KAM descriptions and audit procedures to be the aggregate firm-level readability. We use its natural logarithm in regression.
<i>Length_1</i>	The number of total sentences in the KAM reporting.
<i>Length_2</i>	The number of total words in the KAM reporting.
<i>Specificity</i>	The aggregate firm-level specificity variable used for regression. First, we use the sum of individual KAM's <i>Specificity_1</i> and <i>Specificity_2</i> to be the firm-level <i>Specificity_1</i> and <i>Specificity_2</i> . Then, we use the sum of <i>Specificity_1</i> and <i>Specificity_2</i> for the KAM reporting components, including descriptions and audit procedures, to be the aggregate firm-level specificity. We use its natural logarithm in regression.
<i>Similarity</i>	The aggregate firm-level similarity variable used for regression. First, we use the mean of individual KAM's <i>Similarity_1</i> and <i>Similarity_2</i> into firm-level <i>Similarity_1</i> and <i>Similarity_2</i> . Then, we use the mean of <i>Similarity_1</i> and <i>Similarity_2</i> for KAM descriptions and audit procedures to be the aggregate firm-level similarity.
<i>Length</i>	The aggregate firm-level length variable used for regression. First, we use the sum of individual KAM's <i>Length_2</i> (total words) into firm-level <i>Length_2</i> . Then, we use the sum of <i>Length_2</i> for KAM descriptions and audit procedures to be the aggregate firm-level length. We use its natural logarithm value in regression.
<i>Reason_1 to 5</i>	The five distinct KAM reasons described in Table 3. We collapse across individual KAM reason dummies to make a firm-level dummy using the maximum value.
<b>Audit Quality/Auditor Independence</b>	
<i>DA</i>	Discretionary accruals (in the absolute value), estimated from the performance-matched Jones model, following Kothari et al. (2005).
<i>SP</i>	Indicator variable equal to 1 if the client firm reports return on equity ( <i>ROE</i> ) between 0 and 0.01 for small positive earnings surprise, and 0 otherwise.
<i>BL</i>	Sum of investment net income, profits from other operations, and non-operating net income, scaled by total assets, following prior literature, such as Chen and Yuan (2004), Haw et al. (2005); Kao et al. (2009), and Gul et al. (2013).

(continued on next page)

## APPENDIX A (continued)

Variable	Definition
<i>OP</i>	Ordered (categorical) variable equal to 0 for a clean audit opinion, 1 for an unqualified opinion with explanatory notes, and 2 for a qualified opinion, following <a href="#">Chen et al. (2010)</a> . There is no adverse opinion in our sample. We drop nine cases of disclaimed audit opinions since CSA 1502 and 1504 require auditors not to communicate KAMs in the audit report when they issue a disclaimer.
<i>FEE</i>	The natural logarithm of audit fees (RMB in ten thousand).
Other Variables	
<i>POST</i>	A dummy equal to 1 for the first year disclosing KAMs and 0 for the preceding year.
<i>AH</i>	A dummy equal to 1 for the firms cross-listing in both Mainland China and Hongkong, and 0 for other listed firms.
<i>SIZE</i>	The natural logarithm of total assets (RMB in million).
<i>ROA</i>	Operating income divided by total assets.
<i>LOSS</i>	Indicator variable equal to 1 if the client firm's net income is negative, and 0 otherwise.
<i>LEVER</i>	Total liability divided by total assets.
<i>BM</i>	The book-to-market ratio of equity.
<i>CFO</i>	Cash flow from operations divided by total assets.
<i>VOLATILITY</i>	Standard deviation of annual sales (scaled by total assets) over the prior five years.
<i>BIG4</i>	Indicator variable equal to 1 if the client is audited by an international Big 4 auditing firm, and 0 otherwise.
<i>DOMESTIC8</i>	Indicator variable equal to 1 if the client is audited by a domestic Big 8 auditing firm, and 0 otherwise.
<i>QUICK</i>	Quick assets divided by total assets.
<i>RECINV</i>	Sum of total accounts receivables and total inventory divided by total assets.
<i>OTHERREC</i>	Other receivables divided by total assets.
<i>FIRMAGE</i>	The number of years since the firm's IPO. We use its natural logarithm in regression.
<i>TURNOVER</i>	Asset turnover ratio, calculated as sales revenue divided by the average of the beginning and ending total assets.
<i>GROWTH</i>	Sales growth, calculated as the change of this year's sales revenue over last year divided by the previous year's sales revenue.