Critical Audit Matters: Possible Market Misinterpretation

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Running Head: Critical Audit Matters: Possible Market Misinterpretation

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ABSTRACT

The Public Company Accounting Oversight Board recently expanded audit reports to disclose Critical Audit Matters (CAMs) and the audit procedures used to address them. We study the first wave of CAM disclosers from July 2019 through May 2020, which included large accelerated filers reporting on their 2019 fiscal year results. We examine whether market participants erroneously perceive firms with more extensive CAM disclosures to be riskier than firms with less extensive CAM disclosures. Consistent with possible market misinterpretation, we find that firms with more extensive CAM disclosures are associated with increased perceived uncertainty: stock prices of these firms are significantly more volatile and analyst forecasts are significantly more dispersed than those of firms with less extensive CAM disclosures.

Keywords: auditor reports, textual analysis, critical audit matters, firm uncertainty.

JEL Classifications: G12, G14, M41.

Data Availability: Data used in this study are available from public sources identified in the study.

I. INTRODUCTION

Over 98 percent of publicly listed firms in the Compustat database through 2019 received unqualified audit opinions, in language that is standard and rigidly prescribed. There is very little variation, if any, in the contents of most audit reports—even in their wording. To provide more information to external users about audit risk, the Public Company Accounting Oversight Board (PCAOB) recently required auditors to expand their reports with information about "critical audit matters" ("CAMs"). The PCAOB defines CAMs as "any matter arising from the audit of financial statements that is communicated to the firm's audit committee, relates to accounts or disclosures that are material to the financial statements and involve especially challenging, subjective or complex auditor judgement" (PCAOB 2017). The PCAOB also requires auditors to disclose the type of audit procedures they used to address CAMs. This requirement became effective for large accelerated filers with financial statements after June 2019 and was in force for all filers after December 15, 2020.

Following PCAOB guidance, auditors provide CAMs to highlight financial statement areas that present audit risk and the audit procedures used to mitigate this risk. These disclosures are not intended to communicate information about business risks in general. Instead, they focus only on the risk of material misstatement and how auditors perform procedures to help mitigate these risks. However, early experimental studies and investor feedback indicate that investors may erroneously view CAMs as communicating new, overall business risks, and not just a heightened risk of financial misstatement. Given this early evidence, it is possible that market participants may misperceive the audit risk and react to extensive CAM disclosures as if they indicate greater uncertainty about firm operations and future cash flows. In contrast, if market participants correctly understand the role of CAM disclosures and appreciate the extensive audit procedures

employed to reduce the risk of misstatements in financial statements, the extent of a firm's CAMs should make no difference in measures of market uncertainty. Thus, whether market participants do or do not misinterpret CAMs can be examined empirically through changes in measures of uncertainty around the disclosures of CAMs.

To perform our analyses, we collect data about the extent of CAMs and audit procedures disclosed by the first wave of filers. We write specific natural language processing (NLP) rules that capture more than 20 of the most common CAMs as well as a comprehensive set of audit procedures. Consistent with Hollie (2020), Burke, R. Hoitash, U. Hoitash, and Xiao (2021), and Klevak, Livnat, Pei, and Suslava (2021), we find that the most frequent CAMs are in the areas of fair value, acquisition, goodwill impairment, tax positions, and revenue recognition, and a nontrivial percentage are in lease accounting, likely because of a recent leases rule change. In terms of audit procedures, auditors mostly report performing tests of controls and analytical procedures when addressing CAMs, and tend to rely less on inspection and observation.

We measure the extent of CAM disclosures using the number of words in the CAM section of the audit report, as well as the number of extracted CAMs and audit procedures used to address the CAMs. We find that both the standard deviation of equity returns and the dispersion of analysts' earnings forecasts are positively and significantly associated with the extensiveness of CAM disclosures. Furthermore, after CAMs are disclosed, the dispersion of analyst forecasts increases more for firms with more extensive CAM disclosures.

We also find a significant negative association between short-term market returns around the Form 10-K filing date and the extent of CAM disclosures. These negative returns are robust to controlling for management risk disclosures in the Management Discussion & Analysis and Risk sections of the 10-K, previously disclosed earnings surprises, and other information discussed in

the earnings conference call. Finally, we provide evidence that managers choose to discuss CAM topics in subsequent earnings calls, likely to attenuate investors' uncertainty about these areas.

Our study contributes to the literature in several ways. First, it provides evidence that market participants seem to misinterpret extensive CAM disclosures as a measure of uncertainty. Because we study only the first wave of CAM disclosures, future research is needed to assess whether this misinterpretation persists in future years and for smaller firms (i.e., non-accelerated filers). Second, our NLP rules that classify CAMs and audit procedures can be used as a foundation for further textual analysis research. If the misinterpretation continues, the PCAOB and the audit firms may need to better explain the role of CAMs and the audit risk they measure. Finally, our study contributes to the emerging literature on textual extraction, showing how to use specific NLP rules to extract distinguishing information from highly similar texts.

The next section surveys the relevant literature and formulates our predictions. Section III describes the data sources and the process of extracting textual information from CAM filings. Section IV reports the empirical findings, and the last section summarizes and concludes the study.

II. BACKGROUND, LITERATURE REVIEW, AND PREDICTIONS

Reactions to Audit Opinions

Most early audit report studies find little market reaction to their release. The majority of firms receive unqualified opinions (Firth 1978; Chow and Rice 1982; Krishnan 1994), and, unsurprisingly, researchers find that the market does not respond to these opinions (Firth 1978). Also not surprisingly, studies find little market response to "subject to" qualified opinions (Elliott 1982; Dodd, Dopuch, Holthausen, and Leftwich 1984; Robertson 1988) and "except for" qualified opinions (Robertson 1988). There was also minimal response to unqualified opinions with explanatory language, which replaced the qualification paragraphs (Czerny, Schmidt, and

Thompson 2019). Studies find significant market reactions around qualified and modified audit opinions only when they are "going concern" opinions (Chen and Church 1996; Jones 1996; Blay, Geiger, and North 2011; Amin, Krishnan, and Yang 2014), unexpected (Loudder et al. 1992; Fleak and Wilson 1994), repeated by the media (Dopuch, Holthausen, and Leftwich 1986), or retracted (Fields and Wilkins 1991).

Reactions to CAM-like Disclosures

Answering calls for greater transparency, the auditing regulatory bodies implemented a wave of audit report reforms. With similar goals of providing more information, France established Justification of Assessments (JOAs) in 2003; the United Kingdom (UK) revised its International Standard on Auditing (ISA 700) in 2013; the International Auditing and Assurance Standards Board implemented Key Audit Matters (KAMs) in 2016; and the PCAOB required Critical Audit Matters (CAMs) in 2019. JOAs require auditors to include any information important to the understanding of the financial statements, the revised ISA 700 requires a list of risks of material misstatements that are significant to the audit, and KAMs also mandate communication of any matters instrumental to the audit that are reported to those charged with governance.

Empirical evidence about the effects of CAM-like disclosures on external users outside the United States (US) is inconclusive. Many studies find no reaction at all. For example, Bedard, Gonthier-Besacier, and Schatt (2019) finds that JOAs do not significantly affect abnormal returns, trading volume, audit report lag, audit quality, or audit fees. Similarly, Gutierrez, Minutti-Meza, Tatum, and Vulcheva (2018) shows that investors do not deem expanded audit reports required under ISA 700 to be useful for decision-makers. Lennox, Schmidt, and Thompson (2022) also documents no significant immediate market reaction to new ISA 700 disclosures, attributing this

to possible information leakage before the filing date. The authors do, however, show some evidence that ISA 700 disclosures correlate with firm risk.[1]

International studies that document a significant reaction to CAM-like disclosures present additional results. Reid, Carcello, Li, and Neal (2019) finds an increase in the Earnings Response Coefficient (ERC) after revised ISA 700 disclosures, attributing this to increased financial reporting quality. Porumb, Karaibrahimoglu, Lobo, Hooghiemstra, and De Waard (2021) provides evidence that after ISA 700 disclosures were introduced, adopting UK firms had lower borrowing costs than nonadopting firms. However, the authors also find that the number of new ISA 700 disclosures is associated with higher loan spreads, indicating higher perceived information risk.

Reactions to US CAMs

Recent archival studies provide evidence that the first wave of CAMs indeed highlighted uncertain areas of firms' financial statements. Hollie (2020) documents that CAMs correspond to financial statement areas with the most accounting uncertainty. Burke et al. (2021) shows that firms with more CAMs produce financial statements with more words denoting uncertainty.[2] Sulcaj (2020) finds that the number of CAMs is associated with higher litigation risk.

Experimental and descriptive studies find that external users view these new disclosures as communicating not only audit risk, but business risk in general. For example, Pelzer (2016) surveys Master of Business Administration students as a proxy for retail investors, and finds that the majority of respondents believe that the purpose of CAMs is to communicate more information about risk. In an experiment, Christensen, Glover, and Wolfe (2014) finds that

[1] Specifically, earnings' ability to predict market prices decreases for firms with ISA 700 disclosures, likely because of the additional uncertainty.

[2] Klevak et al. (2021) also finds early evidence that more extensive and longer CAMs correlate with more negative abnormal returns and analyst revisions but does not sufficiently control for other factors that may affect these relations. In addition, the authors do not examine the effects of CAMs on market perceptions of uncertainty.

investors are less willing to invest in firms that report CAMs. Rapley, Robertson, and Smith (2021) provides evidence that CAM disclosures increase perceived quality but also perceived risk, and therefore reduce willingness to invest in firms with CAMs.

Some PCAOB comment letters issued before CAM adoption echoed this interpretation of CAM disclosures. Investors viewed the disclosures as informative because "insights on CAMs may be relevant in analyzing and pricing risks in our valuation and allocation of capital" (CalSTRS 2016). After having exposure to the UK ISA 700 disclosures, the UK Hermes Fund similarly expected to employ CAMs for "disclosure of risks and challenges" (Hermes Equity 2016). This view seems to have been shared by the general public, which saw CAMs as "giving investors a better view into potential problems that may not have been previously apparent" and "a spotlight on companies' hairiest internal issues" (WSJ 2019).

This perception has persisted. In response to interim requests for comment after the launch of CAMs, investors confirmed that they used CAMs to "compare [their] primary concerns with difficult issues highlighted by auditors" (Colorado Public Employees' Retirement Association 2020). The Council of Institutional Investors wrote that "reviewing CAMs has become an important step in many investors' due diligence process" (Council of Institutional Investors 2020), highlighting the practice of using CAMs to gauge the overall investment risk. This sentiment is confirmed by legal experts at Mayer Brown (Mayer Brown 2020). These comments suggest that investors may have erroneously been using CAMs in their assessments of companies' general risk and uncertainty, not just as an indicator of audit or financial statement risk, which can be mitigated through additional audit procedures.

Our Predictions

The new regulations require auditors to list CAMs, describe them, and report the audit procedures they performed to address them. The length of these new disclosures should reflect only the extent of the auditor's concerns about financial statement uncertainty. Given the extensive audit procedures used to mitigate these misstatement risks, market participants should not consider them as indicators of additional uncertainty, and no market reactions should be present. Moreover, investors might already have been aware of the information contained in CAM disclosures through previous financial statements, management discussions, and other disclosures.[3]

However, investors may still react to extensive CAM disclosures because this information is now communicated through a new channel - the audit opinion letter. Auditors are perceived to be independent and credible (Teoh and Wong 1993), and an auditor's listing of CAMs might signal that a firm has some additional problematic areas. In fact, Christensen et al. (2014) documents that CAMs shown in the audit report have more impact than the same CAMs shown in management footnotes.

Given these opposing views, we make the following predictions:

P1: Firms with more extensive CAM disclosures will not experience more uncertainty among market participants.

To test P1, we compare the standard deviations of security returns of firms with more extensive CAMs with those of firms with less extensive CAMs. If investors perceive extensive CAMs as indicating greater business risk, the standard deviation of returns of firms with more extensive CAMs will be significantly greater than that of firms with less extensive CAMs. Similarly, we may

[3] Indeed, Lennox et al. (2022) presents evidence that market participants may already be aware of CAM-equivalent topics before those topics are published.

witness a greater dispersion of analyst forecasts for firms with more extensive CAM disclosures. The opposite relation is expected if CAMs reduce uncertainty.

If CAMs are erroneously associated with overall uncertainty, we may also see significantly higher increases in the standard deviation of returns and analyst forecast dispersion from the period before the CAM disclosures to the period afterwards for firms with more extensive CAM disclosures. Because this may not hold, our second prediction is:

P2: Firms with more extensive CAM disclosures will not witness an increase in standard deviation of returns or analyst forecast dispersion from before to after the CAM disclosures.

We test this proposition using what is, in essence, a difference-in-difference research design.

If CAMs are associated with perceptions of increased business uncertainty, market participants will likely adjust their expectations about the riskiness of firm cash flows, lowering returns around the time of the 10-K filing. If, on the other hand, CAMs reduce uncertainty, we expect higher stock returns when these new audit disclosures reach market participants. Our final prediction is:

P3: There are no differences in returns of firms with more and less extensive CAMs immediately after their disclosure.

We test P3 by examining whether short-term returns immediately after the disclosures of CAMs are significantly and negatively associated with CAM extensiveness.

III. SAMPLE SELECTION AND CAM MEASURES

Sample Selection

We focus on the first batch of CAM disclosures by large accelerated filers (i.e., issuers with public float of $700 million or more), whose auditors are required to make CAM disclosures for all annual filings after June 2019. We collected all 10-K forms from July 2019 through May 2020 in .txt format from the EDGAR filings database and identified 2,029 filings with CAM

disclosures. Next, we extracted the text of CAM sections for each of these filings from Item 8 (Financial Statements and Supplementary Data), using the phrase "critical audit matters" to locate the beginning of CAM disclosures and the auditor's signature (marked as "/s/," "we served as company's auditor," or "LLP") to identify the end. We also extracted the Central Index Key (CIK) and filing date for each annual report with a CAM section. We deleted 60 reports with missing filing dates. Our final dataset includes the text of 1,969 CAM disclosures with firm identifiers and filing dates.

We matched the observations in our sample with Datastream for returns, with Compustat for accounting data, with I/B/E/S for analyst forecast revisions, with S&P for earnings call transcripts, and with Audit Analytics for auditor characteristics. Not surprisingly, given that our sample consists of large publicly traded firms, 91 percent of sample firms engaged the "Big Four" audit firms (EY, PwC, Deloitte, and KPMG) and approximately 7 percent engaged midsize accounting firms (Grant Thornton, BDO, Crowe, RSM, and BKD). Because most sample firms have a December 31 fiscal year-end and large accelerated filers have 60 days to file their annual reports, 71 percent of filings in our sample occurred in February 2020.

Extraction of Textual Characteristics of CAM Disclosures

NLP studies in accounting use three main methods to extract textual disclosures from corporate filings. Under the dictionary method, researchers count the number of positive/negative words (Feldman, Govindaraj, Livnat, and Segal 2010; Loughran and McDonald 2011), certain idioms (Klevak, Livnat, and Suslava 2019; Suslava 2021), or business keywords (Henry 2006). Under the classification method, sentiment is assigned to sentences and paragraphs and an overall document sentiment is calculated based on the document's sentences and paragraphs (Li 2010). Under the third approach, researchers write NLP rules that target specific events in the text of firm

disclosures, such as, for example, M&A-related activity (Hu, Shohfi, and Wang 2021) or backlog disclosures (Feldman, Govindaraj, Livnat, and Suslava 2021).

We write NLP rules to extract the specific content of CAM disclosures. We use a proprietary textual analysis software package developed by Amenity Analytics (www.amenityanalytics.com; "Amenity"). We began by uploading a random sample of 200 CAM disclosures into Amenity's graphic user interface and creating two types of text-processing rules. The first captured the types of CAMs auditors were reporting, and the second documented the audit procedures they performed to address these matters. In Appendix 1A, examples 1–7 illustrate the NLP rules that we used to identify and classify CAM issues, and examples 8–15 show some of the rules we wrote to identify audit procedures. One of Amenity's useful features is that it tags each word according to its part of speech (noun, verb, adjective) and syntactical role (subject, predicate, object), which allowed us to write rather general rules. For example, for a complex phrase such as "valuation of level 3 commodity derivative assets" (example 1 in Appendix 1A), Amenity allowed us to ignore two words in between "commodity derivative" and focus on the key parts of the phrase. Lemma "level_0" is tagged as a modifier of lemma "asset," and is general enough to also capture "level 1 asset" and "level 2 asset." Another useful feature of Amenity is synonymous rows. In example 6, we used a phrase, "assess its property, plant and equipment for potential impairment" to create a rule with a semantic row for lemma "assess." The synonyms include "analyze," "ascertain," "determine," "evaluate," "examine," and "monitor."

[Appendix 1 here]

Using the constructed set of rules, we parsed the entire CAM corpus of all firms in our sample (essentially the population of all firms subject to CAM disclosures) using the Amenity batch process, which calculates how many times the rules occur in each CAM filing. In our first

round of text processing, we identified certain filings where our initial set of rules did not identify any CAM instances. We therefore repeated the process of rule-writing several times, by loading these filings into Amenity's graphic user interface and creating more text-processing rules. Appendices 1B and 1C present a comprehensive list of specific key words and phrases that we used to capture types of CAM or audit procedures.[4] For example, to identify CAMs related to lease accounting we used phrases such as "right-of-use asset," "operating lease asset," "ASC 842," and "adoption of lease standard." Expressions that identify audit inquiries include "met with management," "met with legal counsel," and "obtained representation letter."

Figure 1 shows the distribution of CAM counts for our sample. In most audit reports, we identified one (974 filings, 49 percent of 10-Ks in our sample), two (529 filings, 27 percent), or three (301 filings, 15 percent) CAMs. The most frequently encountered CAMs relate to accounting areas involving a high degree of estimation, such as fair value (29 percent of the 10-K sample), goodwill impairment (22 percent), tax positions (16 percent), accruals (12 percent), and loan loss provisions (9 percent). Some deal with new accounting pronouncements, such as revenue recognition (23 percent) and leases (9 percent), or relate to complex transactions, such as acquisitions (24 percent).

[Figure 1 here]

Figure 2 shows that, on average, auditors report three (402 filings, 20 percent of our sample), four (473 filings, 24 percent), or five (471 filings, 24 percent) distinct audit procedures per report. The most frequent procedures include tests of controls (89 percent of the 10-K sample),

[4] In our classification of audit procedures**,** we rely of the list defined in Auditing Standard No. 15, which includes test of controls, analytical procedures, inspection of records and assets, recalculation, inquiry, confirmation, and observation. Additionally, we identify instances when auditors rely on the use of specialists to perform certain audit procedures (Auditing Standard 1210). Finally, in a separate category, we identify the review of client methodology as part of the audit process, which is not limited to a specific audit procedure or stage of the audit process, but occurs throughout planning, internal control testing, and fieldwork.

review of managers' methods (71 percent), use of specialists (66 percent), and analytical reviews (64 percent). Procedures that involve inspection or observation of more tangible evidence are less frequent: only half of audit reports mention inspection of records (52 percent). Auditors reported confirming accounts in only 3 percent of firms in our sample, whereas only three filings mention inspection of assets and only one mentions observation. This is consistent with the definition of CAMs as reporting areas that require significant auditor judgment and reliance on estimates.

[Figure 2 here]

Description of CAM Measures

We used six different statistics to measure the extent of CAM disclosures: three based on word counting and three based on specific NLP rules that we developed to extract information from CAM disclosures. We measured the length of CAM disclosures with *CHAR_COUNT/ WORD_COUNT/ VERB_COUNT*, which represent the total counts of characters/words/verbs in the CAM section. These three measures exhibit pairwise correlations of 98–99 percent; thus, for our subsequent tests, we combine them into one measure (*CAM_LENGTH*) using principal component analysis. Using the results from our textual analysis, we calculate *CAM_COUNT* as the number of distinct CAM issues identified with the NLP rules. If several rules identify the same type of CAM, for example "revenue recognition," we count them as one *CAM_COUNT*. Finally, we calculate two NLP measures to proxy for the extent of audit procedures in the CAM section: *AUDIT_COUNT* is the count of distinct audit procedures, and *AUDIT_SUM* is the total count of audit procedures (including repetitions when the audit reports include more than one CAM).

IV. EMPIRICAL RESULTS

Descriptive Statistics

Table 1 presents descriptive statistics for our key variables. A cursory examination reveals that CAM disclosures have significantly extended the auditor's message in the annual report. CAM sections, on average, contain 5,922 characters (*CHAR_COUNT*), 864 words (*WORD_COUNT*), and 109 verbs (*VERB_COUNT*). This is approximately double the length of an audit opinion, which consists of approximately 400 words and 2,200 characters. Auditors tend to identify two audit matters per filing (i.e., the average *CAM_COUNT* is 2.11) and perform ten procedures to address them (i.e., the average *AUDIT_SUM* is 9.96).

[Table 1 here]

We control for risk disclosures in the MD&A and Risk Factors sections (Items 7 and 7A, respectively) with the number of uncertainty and litigation words from the Loughran and McDonald (2011) dictionary, scaled by the total number of words. On average, approximately 2 percent of words refer to uncertainty or litigation (i.e., the averages of *10-K UNCERT* and *10-K LITIG* are 0.02). Our control for qualitative disclosures in the preceding earnings call, *CALL_TONE*, is mostly positive, with the number of negative words starting to exceed the number of positive ones only in the first percentile (i.e., P1 is at -0.10). This is consistent with previous findings that managers tend to use these less-regulated voluntary disclosures to provide a positive spin on financial results (Larcker and Zakolyukina 2012; Zhou 2014; Lee 2016; Bushee, Gow, and Taylor 2018). Because our sample consists of large accelerated filers, the mean (median) value of book assets (*ASSETS*) is $27.4 billion ($4.9 billion), and, on average, five to six analysts follow each firm (i.e., *N_ANALYST* averages 5.52).

Panel A of Table 2 reports the Spearman correlations of CAM measures (CAM length and count and audit procedures length and sum) with firm characteristics. It reveals that larger firms tend to have more extensive CAM disclosures. Significant correlations of CAM measures with

ASSETS range from 0.15 to 0.29, and with *N_ANALYST* from 0.05 to 0.10. We also note positive and significant correlations between CAM measures and analyst forecast dispersion (*ANALYST_DISP*). The correlation coefficient ranges from 0.04 for *CAM_COUNT* to 0.10 for *AUDIT_SUM*, indicating that more extensive CAM disclosures are associated with a higher standard deviation of analyst forecasts. The correlations of *AUDIT_COUNT* and *AUDIT_SUM* with changes in analyst dispersion (*CH_ANALYST_DISP*) are also positive and significant, indicating that analyst consensus about firms with more extensive CAM disclosures is lower than before CAMs were revealed. All CAM measures are negatively correlated with immediate market returns (*XRET_0*), providing some evidence that investors react negatively to more extensive CAM disclosures. Finally, *AUDIT_COUNT* and *AUDIT_SUM* have a high correlation (0.83) so in our main regression, we focus on *AUDIT_SUM*.[5]

[Table 2 here]

In Panel B, we present correlations our measures of risk and CAM discussions in the MD&A and Risk sections of 10-Ks (*10-K UNCERT*, *10-K LITIG*, *10-K AUDIT*, and *10-K CAM*) with our measures of CAM extensiveness, and find positive and significant correlations for *10-K UNCERT, 10-K LITIG*, and *10-K CAM*. This suggests that when firm managers provide more extensive discussions of risk, auditors also tend to present more extensive CAMs.[6]

[5] All inferences remain qualitatively similar if we use either of these two variables.

[6] In additional tests, we further confirm the positive association between our measures of CAM disclosures and the proportion of uncertainty words used in the text of annual reports (*10-K UNCERT*). Specifically, we sort *CAM_LENGTH*, *AUDIT_SUM*, and *CAM_COUNT* into terciles and examine the pattern across *10-K UNCERT* terciles. We observe a consistent pattern; firms with longer CAM disclosures, more audit procedures, and more CAMs have a higher proportion of uncertainty words used by managers in the annual report. We present the differences between the bottom (i.e., fewer CAMs) and top terciles for all three CAM measures below. *** indicates $p < 0.01$, ** indicates $p < 0.05$, and * indicates $p < 0.1$.

CAM Measure	Difference in 10-K UNCERT Bottom - Top	t-statistics	N
CAM LENGTH	-0.001***	-4.02	1,298
AUDIT SUM	-0.001**	-2.26	1,302
CAM_COUNT	-0.001**	-2.05	1,428

CAM Disclosures and the Variability of Stock Returns

In our first test, we examine the association between CAM measures and stock volatility, using the following regression models:

$$STD\_RET_{j,t} = \beta_1 CAM\ MEASURE_{jt} + \beta_2 10\_K\ AUDIT_{jt} + \beta_3 10\_K\ CAM_{jt} + \beta_4 10\_K\ UNCERT_{jt} + \beta_5 10\_K\ LITIG_{jt} + \beta_6 Log(10\_K\ LENGTH)_{jt} + \beta_7 CALL\_TONE_{jt} + \beta_8 ABS\_SUE_{jt} + \beta_9 STD\_FORECAST_{jt} + \beta_{10} Log(Assets)_{jt} + \beta_{11} LOSS_{jt} + f_{jt} + \varepsilon_{jt}. \quad (1)$$

$$CH\_STD\_RET_{j,t} = \beta_1 CAM\ MEASURE_{jt} + \beta_2 10\_K\ AUDIT_{jt} + \beta_3 10\_K\ CAM_{jt} + \beta_4 10\_K\ UNCERT_{jt} + \beta_5 10\_K\ LITIG_{jt} + \beta_6 Log(10\_K\ LENGTH)_{jt} + \beta_7 CALL\_TONE_{jt} + \beta_8 ABS\_SUE_{jt} + \beta_9 STD\_FORECAST_{jt} + \beta_{10} Log(Assets)_{jt} + \beta_{11} LOSS_{jt} + f_{jt} + \varepsilon_{jt}. \quad (2)$$

We use two measures of stock volatility: *STD_RET*, which is the standard deviation of returns over days [+1, +10], where day 0 is the Form 10-K filing date, and *CH_STD_RET*, which is the difference between *STD_RET* in the ten days after the 10-K filing and *STD_RET* in the ten days before. If investors erroneously perceive that more extensive CAM disclosures are communicating more risk, we expect to see positive and significant coefficients on our measures of CAM disclosures.

The regression includes controls for other quantitative and qualitative information available to investors around the filing date. *10-K UNCERT*, *10-K LITIG*, *10-K AUDIT*, *10-K CAM*, and *10-K LENGTH* control for the extent of management risk and CAM disclosures in the MD&A and Risk sections of the 10-K. Qualitative information about firm performance is captured by *CALL_TONE*, calculated as the total number of positive words in the earnings conference call

less the total number of negative words, divided by the sum of the two. The dictionary of positive and negative words is based on the Loughran and McDonald (2011) and Amenity proprietary dictionaries. We also control for the absolute value of earnings surprise (*ABS_SUE*) and analyst forecast dispersion (*STD_FORECAST*) because Neururer, Papadakis, and Riedl (2016) find that these variables are associated with post-announcement stock volatility. We control for firm size with *ASSETS* and for firm performance with *LOSS*. For ease of interpretation, and following an accepted practice in accounting (e.g., Feldman et al. 2010; Lee 2016; Bushee et al. 2018), we normalize our textual measures between -0.5 and 0.5, by ranking them into terciles (*CAM_COUNT*), quartiles (*AUDIT_SUM*, *10-K AUDIT*, and *10-K CAM*), or deciles (*CAM_LENGTH*, *10-K UNCERT*, *10-K LITIG*, *CALL_TONE*), dividing the rank by the top rank number, and subtracting 0.5.[7] Finally, the model includes industry and auditor fixed effects to control for industry reporting styles and audit firm reporting practices.

Table 3 presents the results from estimating Regression (1). All CAM measures load positively at the 1 percent level: the coefficients range from 0.6 percent for *CAM_COUNT* (t-statistic=2.87) to 0.9 percent for *AUDIT_SUM* (t-statistic=3.90) and 1.1 percent for *CAM_LENGTH* (t-statistic=3.92). These results suggest that firms with more extensive CAM disclosures experience higher stock volatility in the ten-day window after the filing, providing some support for the view that investors erroneously perceive that CAMs communicate overall business risk. Regarding economic significance, the coefficient on *CAM_LENGTH* indicates that, relative to firms in the bottom decile of this measure (i.e., filings with shortest CAM disclosures), firms in the top decile have 33 percent higher standard deviation of returns in the ten-day window

[7] The number of ranking groups varies with the distribution of the variable. For example, we use terciles for *CAM_COUNT* because 49 percent of firms have one CAM, 27 percent have two, and 24 percent have three or more. We use quartiles for *AUDIT_SUM* because 25 percent of firms have 0–4 audit procedures, 25–50 percent have 4–8 procedures, and 50–75 percent have 8–14 procedures.

after the filing, relative to the median of the magnitude of STD_RET_{jt} (0.011/0.033 = 0.328).[8] Similarly, firms with only one CAM (i.e., in the bottom tercile of *CAM_COUNT*) experience 18 percent lower standard deviation of returns than firms with more than three CAMs (0.006/0.033=0.179), whereas firms whose auditors report more than 14 procedures (i.e., in the top quartile of *AUDIT_SUM*) experience 27 percent higher volatility than firms with fewer than 5 reported audit procedures (0.009/0.033=0.268).

[Table 3 here]

The coefficient on *10-K UNCERT* is positive and significant, so management disclosures about risk are also associated with higher stock volatility. The coefficient on *CALL_TONE* is negatively associated with stock volatility (-0.4 percent), indicating that firms with more positive sentiment in their earnings calls have lower subsequent stock volatility. The coefficient on *ABS_SUE* is positive (1.4 percent) and significant (at 1 percent), revealing that larger earnings surprises are associated with higher stock volatility. Firms with negative earnings also tend to have higher stock volatility (the coefficient on *LOSS* is at 0.6 percent with t-statistics between 1.97 and 2.19), whereas larger firms tend to have more stable returns (i.e., the coefficient on *ASSETS* is negative and significant at the 1 percent level).

In Table 4, we use the change in stock volatility as our dependent variable. All three measures of CAM disclosures load positively, but only *AUDIT_SUM* continues to be statistically significant, at the 5 percent level (t-statistic=2.09). This result indicates that firms with more extensive audit procedures disclosed in the CAM section experience increased stock volatility after the 10-K filing. Regarding economic significance, the magnitude of the coefficient on *AUDIT_SUM* implies that firms in the top quartile of this measure experience a 33 percent higher

[8] To interpret economic significance, we follow Lee (2016).

increase in stock volatility than do firms in the bottom quartile of *AUDIT_SUM*, relative to the median of the magnitude of $CH\_STD\_RET_{jt}$ (0.005/0.015 = 0.332). Moreover, management disclosures of uncertainty are positively and significantly associated with changes in stock volatility in all three specifications: the coefficient on *10-K UNCERT* is 0.5 percent and is significant at the 10 percent level.

[Table 4 here]

The evidence in this section sheds light on our first two predictions. The results in Tables 3 and 4 suggest that lengthier CAM disclosures with more CAM items and more audit procedures tend to be positively associated with higher subsequent levels and changes of stock volatility. This indicates that investors erroneously perceive these disclosures as signaling overall business risk, rather than audit risk that can be mitigated with additional audit procedures.

Analyst Reactions to CAM Disclosures in Form 10-K Filings

Our second set of tests considers the pattern of analyst forecast dispersion for our sample firms. If analysts also misinterpret CAMs as communicating overall business uncertainty, we should see a higher standard deviation of analyst forecasts for filings with more extensive CAM disclosures. Similarly, we should see an increase in dispersion relative to the period before the Form 10-K filing. To test these predictions we estimate the following regression models:

$$ANALYST\_DISP_{j,t} = \beta_1 CAM\ MEASURE_{jt} + \beta_2 10\_K\ AUDIT_{jt} + \beta_3 10\_K\ CAM_{jt} + \beta_4 10\_K\ UNCERT_{jt} + \beta_5 10\_K\ LITIG_{jt} + \beta_6 Log(10\_K\ LENGTH)_{jt} + \beta_7 CALL\_TONE_{jt} + \beta_8 ABS\_SUE_{jt} + \beta_9 Log(N\_ANALYST)_{jt} + \beta_{10} LOSS_{jt} + f_{jt} + \varepsilon_{jt} \quad (3)$$

$$CH\_ANALYST\_DISP_{j,t} = \beta_1 CAM\ MEASURE_{jt} + +\beta_2 10\_K\ AUDIT_{jt} + \beta_3 10\_K\ CAM_{jt} + \beta_4 10\_K\ UNCERT_{jt} + \beta_5 10\_K\ LITIG_{jt} + \beta_6 Log(10\_K\ LENGTH)_{jt} + \beta_7 CALL\_TONE_{jt} + \beta_8 ABS\_SUE_{jt} + \beta_9 Log(N\_ANALYST)_{jt} + \beta_{10} LOSS_{jt} + + f_{jt} + \varepsilon_{jt}\ . \quad (4)$$

Our dependent variables are the level of analyst forecast dispersion (*ANALYST_DISP*, calculated as the standard deviation of annual earnings forecasts at the end of the month when the 10-K is filed, scaled by price three days before the quarterly earnings announcement), and the change (*CH_ANALYST_DISP*, calculated as the difference between *ANALYST_DISP* in the month after the 10-K filing date and *ANALYST_DISP* in the month before the 10-K filing).[9] Our variables of interest are the CAM measures. We control for earnings volatility with the absolute value of earnings surprises (*ABS_SUE*), other financial information released in earnings announcements (*CALL_TONE*) and the 10-K filing (*10-K LENGTH*, *10-K UNCERT*, *10-K LITIG*, *10-K AUDIT*, *10-K CAM*), the number of analysts following (*N_ANALYST*), and financial distress (*LOSS*).

Table 5 presents the results from estimating Regression (3). The coefficients are positive and significant for all CAM measures, ranging from 0.002 to 0.005 (t-statistics between 1.88 and 3.29). This result suggests that firms with more extensive CAM disclosures have more dispersed analyst forecasts at the end of the month in which the 10-K was filed. Regarding economic significance, the coefficients on *CAM_LENGTH/CAM_COUNT/AUDIT_SUM* indicate that relative to firms in the bottom ranking of these measures, firms in the top rankings (i.e., those with the most extensive CAM disclosures) have 44/22/56 percent higher analyst forecast dispersion relative to the median of $ANALYST\_DISP_{jt}$ (0.004/0.009; 0.002/0.009; 0.005/0.009).

[9] For this test, we limit our sample to firms with at least two analysts and with forecasts updated after the 10-K filing, and we use analyst forecasts for the next fiscal year earnings (i.e., for 2020).

Our measure of earnings call sentiment (*CALL_TONE*) is negative and significant, suggesting that a more positive tone lowers analyst forecast uncertainty. The coefficient on our proxy for the extent of managerial disclosures in MD&A and Risk sections (*10_K LENGTH*) is positive and significant, indicating that lengthier disclosures introduce more disagreement among analysts. The association between our measure of earnings volatility (*ABS_SUE*) and analyst forecast dispersion is positive and significant, indicating that higher realized earnings surprises lead to more dispersed analyst predictions. Finally, losses also increase analyst forecast uncertainty.

[Table 5 here]

Table 6 presents the results from estimating Regression (4). As with the results in Table 5, we note positive and significant associations between our CAM measures and changes in the dispersion of analyst forecasts. The coefficients across all CAM measures are 0.003 (with t-statistics ranging between 2.09 and 2.95). This indicates that relative to firms in the bottom ranking of CAM measures, firms in the top rankings have a 75 percent higher change in analyst dispersion relative to the median of the magnitude of $CH\_ANALYST\_DISP_{jt}$ (0.003/0.004). Therefore, analysts become more uncertain about future earnings in the month after the 10-K is filed, indicating that even sophisticated market participants erroneously perceive that more extensive CAM measures communicate more overall business risk.

[Table 6 here]

CAM Disclosures and the Magnitude of Stock Returns

To test our third prediction, we examine market reactions to CAM disclosures as reflected in the immediate abnormal three-day returns around the 10-K filing date. The measure of abnormal returns (*XRET_0*) is the buy-and-hold return for the stock minus the return on the S&P 500 Index

on days [-1, +1], where day 0 is the 10-K filing date. We estimate the following regression model to test our prediction about the stock market reaction:

$$XRET\_0_{j,t} = \beta_1 CAM\ MEASURE_{jt} + \beta_2 10\_K\ AUDIT_{jt} + \beta_3 10\_K\ CAM_{jt} +$$
$$\beta_4 10\_K\ UNCERT_{jt} + \beta_5 10\_K\ LITIG_{jt} + \beta_6 Log(10\_K\ LENGTH)_{jt} + \beta_7 CALL\_TONE_{jt} +$$
$$\beta_8 SUE_{jt} + \beta_9 ACCRUAL_{jt} + \beta_{10} Log(Assets)_{jt} + f_{jt} + \varepsilon_{jt}\ . \quad (5)$$

If external users misinterpret CAMs as new information about overall business risk, the coefficients on our CAM measures will be negative. If external users interpret CAMS as indicating higher financial reporting quality, the coefficients will be positive. As in Regression (1), we control for the extent of management risk and CAM disclosures in the MD&A and Risk sections of the 10-K and the tone of earnings calls. Controls for operating performance are earnings surprise and accruals, and assets control for size. Like previous regressions, the model includes industry and auditor fixed effects to control for industry reporting styles and audit firm reporting practices.[10]

Table 7 presents the results. The coefficients on all CAM measures are significant at the 1 percent level (t-statistics range between -3.44 and -3.83) and negative, ranging from -0.019 to -0.026. This result suggests that market participants tend to erroneously interpret more extensive CAM disclosures and more CAM items and audit procedures as signaling higher overall business risk. Regarding economic significance, the coefficient on *CAM_LENGTH* indicates that firms with the longest CAM disclosures (i.e., in the top decile) earn 2.6 percent lower abnormal returns around their 10-K filing dates than do firms with the shortest CAM disclosures (i.e., in the bottom decile). The coefficient on *CAM_COUNT* indicates that firms with three or more CAMs earn, on average, 1.9 percent lower returns than do firms with only one CAM. Finally, firms whose CAM sections

[10] In additional tests, we examine the robustness of our regression results by (a) adding CAM-type fixed effects to make sure our results are not driven by a specific type of CAM disclosure and (b) clustering by dates because during the reporting season, multiple firms can report on the same day. In untabulated regression results, our main inferences remain qualitatively unchanged.

mention more than 14 audit procedures (i.e., in the top quartile) earn 2.1 percent lower returns than firms with fewer than 4 mentions (i.e., in the bottom quartile).

[Table 7 here]

The control for the information content of earnings calls (*CALL_TONE*) is positive and significant, with coefficients of approximately 2.3 percent (t-statistics between 3.04 and 3.13). This indicates that investors continue to incorporate the qualitative disclosures made in these calls around the 10-K filing, consistent with findings that conference call qualitative information is reflected in subsequent drift (Price, Doran, Peterson, and Bliss 2012; Lee 2016). The control for earnings surprises (*SUE*) is also positive and significant at the 1 percent level, consistent with studies that show drift following earnings news (Livnat and Mendenhall 2006). In sum, the results in Table 7 provide additional evidence that investors misinterpret extensive CAM disclosures as indicating higher business risk.

Additional Tests

In this section, we present the results of robustness tests and additional analyses. First, we consider whether CAM disclosures communicate something new or whether this information is already known to the market. Many CAMs, such as rate regulation, fair value measurement, and uncertain tax positions, are long-term issues. It is possible that they reflect well-known concerns about which market participants are fully aware before the CAM disclosures. Therefore, we perform a placebo test by replacing the dependent variables in Regression (5) with abnormal returns calculated around the 10-K filing one year before the CAMs were first disclosed (i.e., at the 2018 fiscal year end). In untabulated results, we find insignificant coefficients on all CAM measures in the placebo regressions, suggesting that the market was not aware of the extensive CAM issues when the previous annual report was filed. Our finding is contrary to findings in

Lennox et al. (2022), which suggest that the new UK Risk of Material Misstatement disclosures were known to the market before auditors included them. The difference may result from country differences or from our refined textual analysis measure, which is able to capture more specific CAM topics and audit procedures.

Second, we validate the informativeness of CAMs using conference calls in the quarter after the 10-K filings. Earnings calls are high-attention events that convey important value-relevant information (Matsumoto, Pronk, and Roelofsen 2011). If CAM issues revealed in the audit reports disclose important information to the market, call participants are likely to refer to them in subsequent calls. We use a comprehensive set of conference call transcripts provided by Capital IQ and, using the same CAM NLP rules, extract mentions of these topics in subsequent conference calls. We are able to match 80 percent of our sample of 10-K filings (1,644 firms) to the Capital IQ database. Of these, 366 firms have CAM topics that overlap between the Form 10-K and the subsequent earnings call discussions. Similarly, we examine CAM topics in the second conference call after the 10-K filing. We find that this number decreased to 132 firms. The most common CAM topics addressed in subsequent conference calls are acquisitions (33 percent of calls), loan loss provisions (25 percent), revenue recognition (15 percent), and goodwill impairment (8 percent). This is consistent with our expectations because these CAM issues rank high on the list of 10-K CAM topics and involve increased subjectivity and auditor judgment. CAM topics are most often mentioned in the presentation section of the call (78 percent of calls), so it appears that managers tend to anticipate analysts' questions about these sensitive accounting areas. In general, we interpret these findings as additional evidence that CAM issues identified in 10-Ks contain

information, which is recognized and expanded upon at a later date by firm managers and analysts.[11]

Our use of NLP technology to classify CAM types offers both advantages and disadvantages. On the one hand, using NLP rules allows us to avoid the subjectivity and inconsistency present in manual classifications. NLP systems apply the same amount of attention to each CAM disclosure and this level of consistency cannot be guaranteed when human raters are used, as is the case for Audit Analytics classification. It is reasonable to assume that humans might apply different levels of attention to different paragraphs when they become tired or distracted. On the other hand, our approach is likely to be more difficult to replicate. We attempt to overcome this concern by providing Appendices 1B and 1C, which list all words and phrases we used to identify CAM issues and audit procedures, respectively. Second, we tested the consistency of our NLP classification with the manual classification of CAMs provided by Audit Analytics for a random sample of 20 firms with a total of 36 CAMs. In 83 percent of cases, our classification provided identical results. The differences included four firms for which we identified an extra CAM issue, and two firms for which it missed one CAM issue.

Finally, to assess whether our findings were driven by the COVID-19 pandemic, which resulted in significant market returns and volatility in March 2020, we reperformed our main analyses on a subsample that excluded Form10-K filings occurring after March 1, 2020. Because most of the sample is from before March 1, 2020, the untabulated results are very similar to those reported above.

[11] We also examine the presence of CAM topics in earnings calls preceding 10-K filing and note that a similar number of firms discuss CAM topics in those calls (350 firms versus 366 firms in the subsequent conference calls). Additionally, these discussions are about similar CAM topics: acquisitions (47 percent of calls), loan loss provisions (18 percent), and revenue recognition (18 percent). Therefore, it appears that market participants are aware of certain CAM areas before 10-K filings. However, it is possible that market participants erroneously react to CAMs only after firm auditors disclose them as such in the 10-K filing.

V. CONCLUSION

The PCAOB now requires auditor reports to include CAMs, which provide information about financial statement areas that are material and complex, challenging, or highly subjective, as well as information about the steps that auditors took to form an opinion about these CAMs. Although similar disclosures have been required in France and in the UK for the last several years, prior empirical studies typically do not provide conclusive evidence that these disclosures are used by market participants. This raises the question whether the new US CAM disclosures are associated with any significant market effects.

If CAM disclosures convey information only about areas of audit risk and the auditor has performed additional steps to mitigate these audit risks, the disclosures should have no effect. In addition, initial CAM disclosures were made by large public firms, which have information environments that are already fairly efficient. These firms are followed by analysts, have considerable institutional investment, and are likely to be scrutinized closely by market participants. Furthermore, the expanded audit report is disclosed in the annual Form 10-K filing a few weeks after firms issue their preliminary earnings announcements and hold analyst conference calls.

Interestingly, our tests do suggest that the market reacts to the new CAM disclosures. We document significantly more volatile stock returns in the 10 days after the Form 10-K filing for firms with more extensive CAM disclosures. Even for a group of sophisticated users (financial analysts), we document that more extensive CAM disclosures tend to elicit more uncertainty. Specifically, analyst forecasts vary significantly more after the Form 10-K filing than before. We also find that firms with more extensive CAM disclosures have significantly lower market returns around the Form 10-K filing date than firms with less extensive disclosures—even after controlling

for several other types of information that might be associated with the textual attributes of CAMs (e.g., previous earnings surprise), firm size, and other information released in the earnings conference call and in other sections of Form 10-K.

Our findings suggest that market participants use information from the new CAM disclosures in their investment decisions, and that they misinterpret CAMs as increasing uncertainty about firms' operations and future cash flows. One caveat is that although we document increased uncertainty for firms with more extensive CAM disclosures, we do not know whether this is due to market participants' misinterpretations of additional overall uncertainty or because they interpret CAMs as suggesting greater audit risk. It is possible that the disclosure of extensive CAMs leads market participants to realize that their previous assessments of audit risk were too low, so measures of uncertainty rise and returns fall.

REFERENCES

Amin, K., J. Krishnan, and J. S. Yang. 2014. Going concern opinion and cost of equity. *Auditing: A Journal of Practice & Theory* 33 (4): 1–39.

Blay, A. D., M. A. Geiger, and D. S. North. 2011. The auditor's going-concern opinion as a communication of risk. *Auditing: A Journal of Practice & Theory* 30 (2): 77–102.

Burke, J., R. Hoitash, U. Hoitash, and X. Xiao. 2021. The determinants, textual properties, and consequences of U.S. critical audit matter disclosures. *The Accounting Review*: forthcoming.

Bushee, B. R., I. D. Gow, and D. J. Taylor. 2018. Linguistic complexity in firm disclosures: Obfuscation or information? *Journal of Accounting Research* 56 (1): 85–121.

Chen, K. C., and B. K. Church. 1996. Going concern opinions and the market's reaction to bankruptcy filings. *The Accounting Review* 71 (1): 117–128.

Chow, C. W., and S. J. Rice. 1982. Qualified audit opinions and auditor switching. *The Accounting Review* 57 (2): 326–335.

Christensen, B. E., S. M. Glover, and C. J. Wolfe. 2014. Do critical audit matter paragraphs in the audit report change nonprofessional investors' decision to invest? *Auditing: A Journal of Practice & Theory* 33 (4): 71–93.

Colorado Public Employees' Retirement Association. 2020. *Re: Request for Comment on Interim Analysis of Critical Audit Matter Requirements*. Viewed March 3, 2022. < https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/economicandriskanalysis/pir/postimplementationreviewas3101unqualifiedopinion/3_copera.pdf?sfvrsn=38d94917_0>

Council of Institutional Investors. 2020. *Re: Interim Analysis No. 2020-01, Critical Audit Matter Requirements*. Viewed March 3, 2022. < https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/economicandriskanalysis/pir/postimplementationreviewas3101unqualifiedopinion/5_cii.pdf?sfvrsn=79458935_0>

Dodd, P., N. Dopuch, R. Holthausen, and R. Leftwich. 1984. Qualified audit opinions and stock prices: Information content, announcement dates, and concurrent disclosures. *Journal of Accounting and Economics* 6 (1): 3–38.

Dopuch, N., R. W. Holthausen, and R. W. Leftwich. 1986. Abnormal stock returns associated with media disclosures of 'subject to' qualified audit opinions. *Journal of Accounting and Economics* 8 (2): 93–117.

Elliott, J. A. 1982. 'Subject to' audit opinions and abnormal security returns—Outcomes and ambiguities. *Journal of Accounting Research* 20 (2): 617–638.

Feldman, R., J. Govindaraj, J. Livnat, and B. Segal. 2010. Management's tone change, post earnings announcement drift and accruals. *Review of Accounting Studies* 15 (4): 915–953.

Feldman, R., J. Govindaraj, J. Livnat, and K. Suslava. 2021. Market reaction to quantitative and qualitative order backlog disclosures. *Journal of Accounting and Public Policy* 40 (6): October-November 2021.

Fields, L. P., and M. S. Wilkins. 1991. The information content of withdrawn audit qualifications: New evidence on the value of 'subject-to' opinions. *Auditing: A Journal of Practice & Theory* 10 (2): 62–69.

Firth, M. 1978. Qualified audit reports: Their impact on investment decisions. *The Accounting Review* 53 (3): 642–650.

Fleak, S. K., and E. R. Wilson. 1994. The incremental information content of the going-concern audit opinion. *Journal of Accounting, Auditing & Finance* 9 (1): 149–166.

Gutierrez, E., M. Minutti-Meza, K. W. Tatum, and M. Vulcheva. 2018. Consequences of adopting an expanded auditor's report in the United Kingdom. *Review of Accounting Studies* 23 (4): 1543–1587.

Henry, E. 2008. Are investors influenced by how earnings press releases are written? *Journal of Business Communication* 45 (4): 363–407.

Hermes Equity Ownership Services Limited. 2016. *Re: PCAOB Rulemaking Docket Matter No. 034.* Viewed October 20, 2021. < https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/rulemaking/docket034/088c_hermes.pdf?sfvrsn=4154a646_0 >

Hollie, D. 2020. Early evidence on the AS 3101 critical audit matters disclosure. *Journal of Forensic and Investigative Accounting* 12 (1): 45–54.

Hu, W., T. Shohfi, and R. Wang. 2021. What's really in a deal? Evidence from textual analysis of M&A conference calls. *Review of Financial Economics* 39: 500–521.

Jones, F. L. 1996. The information content of the auditor's going concern evaluation. *Journal of Accounting and Public Policy* 15 (1): 1–27.

Klevak, J., J. Livnat, and K. Suslava. 2019. When more or less is less: Managers' clichés. *The Journal of Financial Data Science* 1 (3): 57–67.

Klevak, J., J. Livnat, D. S. Pei, and K. Suslava. 2021. A new uncertainty measure—CAM. *The Journal of Investing* 30 (2): 93–113.

Krishnan, J. 1994. Auditor switching and conservatism. *The Accounting Review* 69 (1): 200–215.

Lee, J. 2016. Can investors detect managers' lack of spontaneity? Adherence to predetermined scripts during earnings conference calls. *The Accounting Review* 91 (1): 229–250.

Lennox, C. S., J. J. Schmidt, and A. M. Thompson. 2022. Why are expanded audit reports not informative to investors? Evidence from the United Kingdom. *Review of Accounting Studies*, forthcoming .

Li, F. 2010. The information content of forward-looking statements in corporate filings—A naïve Bayesian machine learning approach. *Journal of Accounting Research* 48 (5): 1049–1102.

Livnat, J., and R. Mendenhall. 2006. Comparing the post–earnings announcement drift for surprises calculated from analyst and time series forecasts. *Journal of Accounting Research* 44 (1): 177–205.

Loughran, T., and B. McDonald. 2011. When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *The Journal of Finance* 66 (1): 35–65.

Loudder, M. L., I. K. Khurana, R. B. Sawyers, C. Cordery, C. Johnson, J. Lowe, and R. Wunderle. 1992. The information content of audit qualifications. *Auditing: A Journal of Practice & Theory* 11 (1): 69–82.

Mayer Brown. 2020. *Due diligence questions relating to critical audit matters.* Viewed March 6, 2022 < https://www.freewritings.law/2020/08/due-diligence-questions-relating-to-critical-audit-matters/>

Minutti-Meza, M. 2021. The art of conversation: The expanded audit report. *Accounting and Business Research* 51 (5): 548–581.

Neururer, T., G. Papadakis, and E. J. Riedl. 2016. Tests of investor learning models using earnings innovations and implied volatilities. *Review of Accounting Studies* 21 (2): 400–437.

PCAOB Release No. 2017-001. 2017. *The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion and Related Amendments to PCAOB Standards*. (June 1). Available at: https://pcaobus.org/oversight/standards/auditing-standards/details/AS3101

PCAOB. 2019. *Implementation of critical audit matters: A deeper dive on the determination of CAMs*. Viewed March 6, 2022. < https://pcaobus.org/Standards/Documents/Implementation-of-Critical-Audit-Matters-Deeper-Dive.pdf>

PCAOB. 2020. *Staff white paper stakeholder outreach on the initial implementation of CAM requirements*. Viewed March 3, 2022. < https://pcaob-assets.azureedge.net/pcaob-dev/docs/default-source/economicandriskanalysis/pir/documents/stakeholder-outreach-initial-implementation-cam-requirements.pdf?sfvrsn=9f3e02b2_2>

Pelzer, J. R. E. 2016. *Understanding barriers to critical audit matter effectiveness: A qualitative and experimental approach*. Doctoral dissertation, The Florida State University.

Porumb, V. A., Y. Zengin- Karaibrahimoglu, G. J. Lobo, R. Hooghiemstra, and D. De Waard. 2021. Expanded auditor's report disclosures and loan contracting. *Contemporary Accounting Research* 38 (4): 3214–3253.

Price, S. M., J. S. Doran, D. R. Peterson, and B. A. Bliss. 2012. Earnings conference calls and stock returns: The incremental informativeness of textual tone. *Journal of Banking & Finance* 36: 992–1011.

Rapley, E. T., J. C. Robertson, and J. L. Smith. 2021. The effects of disclosing critical audit matters and auditor tenure on nonprofessional investors' judgments. *Journal of Accounting and Public Policy* 40 (5): 1–21.

Reid, L. C., J. V. Carcello, C. Li, T. L. Neal, and J. R. Francis. 2019. Impact of auditor report changes on financial reporting quality and audit costs: Evidence from the United Kingdom. *Contemporary Accounting Research* 36 (3): 1501–1539.

Robertson, J. C. 1988. Analysts' reactions to auditors' messages in qualified report. *Accounting Horizons* 2 (2): 82–89.

Sulcaj, V. 2020. Litigation risk, financial reporting quality, and critical audit matters in the audit report: Early US evidence. Working paper. Available at SSRN: https://ssrn.com/abstract=3771081.

Suslava, K. 2021. "Stiff business headwinds and unchartered economic waters": Use of euphemisms in earnings conference calls. *Management Science* 67 (11): 6629–7289.

Teoh, S. H., and T. J. Wong. 1993. Perceived auditor quality and the earnings response coefficient. *The Accounting Review* 68 (2): 346–366.

Wall Street Journal. 2019. *Stitch Fix's material weakness over IT controls spotlighted under new audit rule*. Viewed October 20, 2021. < *https://www.wsj.com/articles/stitch-fixs-material-weakness-over-it-controls-spotlighted-under-new-audit-rule-11572559214*>

APPENDIX 1A
Examples of Amenity Rules

This table exhibits some examples of Amenity rules to capture instances of CAM accounting topics and CAM audit procedures in the corpus of Forms 10-K. The lemmas captured by the Amenity rules are bolded.

#	CAM Section Extract	Amenity Rule	Classification
1	These procedures included testing the effectiveness of controls relating to the **valuation of level-3 commodity derivative assets** and liabilities, including controls over the company's model, significant assumptions, and data.	(0: Lemma=level_0 nmod->1) + (1: Lemma=asset pobj->2) + (2: prep->3) + (3: Lemma=valuation)=> {AddProp (3.SENTIMENT=NEG); AddProp(3.NOMERGE=true);AddProp(3.EVENT=cam_desc_fv);AddLink(3.SL OT_ORG->0);AddLink(3.SLOT_ASSET SREVENUEDATA->1);AddLink(3.Sent Word->0);AddLink(3.SentWord->1);Ad dLink(3.SentWord->2);}	CAM Topic Fair Values
2	The company's evaluation of goodwill associated with the fluids systems reporting unit for impairment includes a comparison of the **carrying value of the reporting unit**, including goodwill, with the estimated fair value.	(0: Lemma=carry A1<-1) + (1: Lemma=value prep<-2) + (2: pobj<-3) + (3: Lemma=unit compound<-4) + (4: Lemma=report) => {AddProp(1.SENTIMENT=NEG);AddPr op(1.NOMERGE=true);AddProp(1.EVE NT=cam_desc_goodwill); AddLink(1.SentWord->0); AddLink(1.SentWord->2);AddLink(1.Se ntWord->3);AddLink(1.SentWord->4);}	CAM Topic Goodwill
3	Management applies significant judgment in the **valuation of inventories**, which involves estimating future demand and market conditions.	(0: Lemma=inventory pobj->1) + (1: prep->2) + (2: Lemma=valuation)=>{AddProp (2.SENTIMENT=NEG);AddProp(2.NO MERGE=true);AddProp(2.EVENT=cam _desc_inventory);AddLink(2.SentWord- >0);AddLink(2.SentWord->1);}	CAM Topic Inventory
4	We identified the estimate of the aggregate effect of the qualitative adjustments on the **allowance for loan and lease losses** as a critical audit matter as it involved especially subjective auditor judgement.	(0: Lemma=loan_and_lease_loss pobj->1) + (1: Lemma=for prep->2) + (2: Lemma=allowance) => {AddProp(2.SENTIMENT=NEG); AddProp(2.NOMERGE=true);AddProp(2.EVENT=cam_desc_loanloss);AddLink (2.SLOT_LIABILITIESEXPENSEDAT A->0);AddLink (2.SentWord->0);AddLink(2.SentWord- >1);}	CAM Topic Loan Loss
5	The determination of the company's **pension and**	(0: Lemma=pension nmod->1) + (1: Lemma=obligation) => {AddProp	CAM Topic Pensions

	OPEB obligations is dependent, in part, on the selection of certain estimates and actuarial assumptions, including discount rates.	(1.SENTIMENT =NEG); AddProp (1.NOMERGE=true);AddProp(1.EVENT=cam_desc_pension);AddLink(1.SentWord->0);}	
6	The company **assesses its property, plant and equipment for potential impairment** whenever events or changes in circumstances indicate that the carrying value of the asset or asset group may not be recoverable.	(0: Lemma=impairment pobj->1) + (1: PRD->2 NX<-3)+ (2: Lemma=(assess | analyze | ascertain | determine | evaluate | examine | monitor) nsubj<-4) + (3: Lemma=equipment) + (4:) => {AddProp(2.SENTIMENT=NEG);AddProp(2.NOMERGE=true);AddProp(2.EVENT=cam_desc_PPE);AddLink(2.SentWord->0);AddLink (2.SentWord->1);AddLink(2.SentWord->3);AddLink(2.SentWord->4);}	CAM Topic PPE
7	The **acquisition date fair value** was based on probability-weighted scenario analyses of achieving certain levels of gross profit growth over a three-year period.	(0: Lemma=fair amod->1) + (1: Lemma=value nmod<-2) + (2: Lemma=date compound<-3) + (3: Lemma=acquisition) => {AddProp (1.SENTIMENT=NEG);AddProp(1.NOMERGE=true);AddProp(1.EVENT=cam_desc_acq);AddLink(1.SentWord->0);AddLink(1.SentWord->2);AddLink(1.SentWord->3);}	CAM Topic Acquisitions
8	For example, we **tested controls** over the company's significant data and assumptions used in the company's estimation of cash flows and fair value analysis.	(0: Lemma=(internal_control | control) A1->1) + (1: Lemma=(test | analyze | ascertain | assess | calculate | check | determine | evaluate | examine | gauge | inspect | monitor | recalculate | review | scrutinize | study | trails | trial)) => {AddProp (1.SENTIMENT=POS); AddProp(1.NOMERGE=true);AddProp(1.EVENT=cam_act_TOC);AddLink(1.SentWord->0);}	CAM Procedures Test of Controls
9	**We involved our valuation specialists** to assist in evaluating the company's discount rates and royalty rates.	(0: Lemma=specialist A1->1)+(1: Lemma= involve nsubj<-2)+(2:Lemma=we) => {AddProp (1.SENTIMENT=POS);AddProp(1.NOMERGE=true);AddProp(1.EVENT=cam_act_specialist);AddLink(1.SentWord->0);AddLink (1.SentWord->2);}	CAM Procedures Specialist
10	We **assessed the mathematical accuracy**	(0: Lemma=accuracy A1->1) + (1: Lemma= (assess | analyze | ascertain | determine | evaluate | examine | monitor))	CAM Procedures Recalculation

	of the average selling prices.	=> {AddProp (1. SENTIMENT=POS); AddProp(1.NOMERGE=true);AddProp(1.EVENT=cam_act_recalc);AddLink(1.S entWord->0);}	
11	We **evaluated management's methodology** for determining the discount rate that reflects the maturity and duration of the benefit payments.	(0: Lemma=methodology A1->1) + (1: Lemma=(assess | analyze | ascertain | determine | evaluate | examine | monitor) nsubj<-2) + (2: Lemma=we) => {AddProp(1.SENTIMENT =POS);AddProp(1.NOMERGE=true);Ad dProp(1.EVENT=cam_act_method);Add Link(1.SentWord->0);AddLink(1.SentW ord->2);}	CAM Procedures Methodology
12	Our audit procedures included **reviewing the company's insurance contracts** to assess the company's self-insured retentions, deductibles, and coverage limits.	(0: Lemma=review A1<-1) + (1: NERTag=AGREEMENT) => {AddProp(0.SENTIMENT=POS);AddPr op(0.NOMERGE=true);AddProp(0.EVE NT=cam_act_insp_records);AddLink(0.S LOT_AGREEMENT->1);AddLink(0.Se ntWord->1);}	CAM Procedures Inspection of Records
13	For assets discussed above, we **inquired of management** with respect to the assets and factors driving assessment of realizability and corroborated explanations received.	(0: Lemma=inquire A1<-1) + (1: pobj<- 2) + (2: Lemma=management) => {AddProp (0.SENTIMENT=POS); AddProp(0.NOMERGE=true);AddProp(0.EVENT=cam_act_inquire);AddLink(0. SentWord->1);AddLink(0.SentWord->2) ;}	CAM Procedures Inquiry
14	We **obtained confirmation** from the company's third-party actuary of the projected benefit obligations for the retirement income plan and other post-employment benefit plan.	(0: Lemma=confirmation A1->1) + (1: Lemma=obtain nsubj<-2) + (2:) => {AddProp(1.SENTIMENT=POS);AddPr op(1.NOMERGE=true);AddProp(1.EVE NT=cam_act_confirm);AddLink(1.Sent Word->0);AddLink(1.SentWord->2);}	CAM Procedures Confirmation
15	We **compared the actuarial assumptions used by management to historical trends** and evaluated the change in the self-insurance reserve from the prior year due to changes in these assumptions.	(0: Lemma=(assumption | estimate | forecast | outlook | prediction | projection | view) A1->1 A1->2) + (1: Lemma=compare) + (2: prep<-3) + (3: Lemma=to pobj<-4) + (4: Lemma=(trend | condition | market | type)) => {AddProp(1.SENTIMENT=POS);AddPr op(1.NOMERGE=true);AddProp(1.EVE NT=cam_act_analytics);AddLink(1.SLO	CAM Procedures Analytics

		T_MACRO->4);AddLink(1.SentWord->0);AddLink(1.SentWord->2);AddLink(1.SentWord->3);AddLink(1.SentWord->4);}	

Appendix 1B: Identification of CAM Issues

This table exhibits examples of audit report extracts captured by the Amenity rules. We used these phrases to classify the CAM issues described in the audit reports.

Type of CAM Issue	Audit Report Extracts Captured by Amenity
Fair Value	*Determination of fair value is based on projections | estimates; valuation of assets | liabilities; level 2 | level 3 assets | liabilities; unobservable inputs; valuation methodologies; fair value is determined; fair value estimate; fair value of investments; ASC 820; fair value of securities; redeemable noncontrolling interest.*
Acquisition	*Obtain a controlling interest; acquisition; purchase price allocation; acquisition method; purchase price was allocated; equity method; allocation of purchase price; completed the acquisition; accounted for the acquisition; purchase price was allocated; business combination; ASC 805; contingent consideration liability.*
Revenue	*Revenue recognition; company estimates; variable consideration; audit evidence over revenue; timing of revenue recognition; recognize revenue; performance obligations; revenue is recognized; revenue arrangement; ASC 606; commission | royalty | subscription | licensing revenue; recognize over time; evaluation of aum; asset management fees.*
Goodwill Impairment	*Goodwill impairment test; valuation of goodwill; goodwill impairment assessment; goodwill assessment; fair value of reporting units; test | evaluate goodwill for impairment; ASC 350.*
Tax Positions	*Uncertain tax positions; tax outcome is uncertain; tax position is more likely than not to be sustained; internal revenue service; federal | state tax liability; tax position taken by the company; management tax positions; company's tax expense; communications with the relevant tax authorities; tax rates; income tax liabilities; income tax provision; transfer pricing; deferred tax benefits; deferred tax assets; tax credit carryforwards; ASC 740; tax cuts and jobs act; 2017 tax act; uncertain tax position; tax professional | authority | personnel | specialist; tcja.*
Accrual	*Evaluation of insurance reserves; warranty accrual; estimated future warranty; product warranty; provisions for dealer incentives; sales incentives; recoverability of deposits; maintenance reserves; government-mandated rebates; Medicaid rebates; rebate accrual; product recall liabilities | claims; reserve for claims; asset retirement obligations; allowance for doubtful accounts; claim liability; expected loss ratio; insurance reserves; ibnr; ibnp; loss adjustment expenses; future policy benefits; asbestos related liabilities; coverage-in-place agreements; worker compensation liability; self-insured claims; deferred acquisition costs.*

Intangibles	*Fair value measurement of intangible assets; franchise rights impairment testing; impairment of trade names | secret |mark; impairment of copyright | brand | certificate | database | easement | formula | franchise | license | patent | right | trademark; valuation of intangible assets; impairment of intangible assets; acquired intangible assets; royalty method; excess earnings method; estimating fair value of intangible assets.*
PPE Impairment	*Assess equipment for impairment; retail sites | building | equipment | property might be impaired; impairment triggering events related to property | plant | equipment; land impairments; assesses community | building | equipment | property to identify indicators of potential impairment; evaluates the recoverability of the community; impairment of real estate assets; recoverability of real estate; ASC 360; impairment triggering events related to property, plant and equipment; impairment of long-lived assets; salvage value; group life method; asset group.*
Loan Loss	*Allowance for loan losses; allowance for credit losses; loan-to-value ratio; ASC 326; allowance for loan and lease losses; alll; reserve for loan losses; carrying value of loan.*
Lease Accounting	*Accounting for leases; right-of-use assets; operating lease assets; adoption of the lease standard; lease liability; operating lease; lease contracts; ASC 842; financial lease; capital lease.*
Litigation	*Party to legal proceedings; loss contingencies; company is regularly subject to claims; litigation; lawsuit.*
Amortization	*Content amortization; amortize content; amortize; auditing the amortization; judgmental nature of amortization; unit of production; depletion expense; landfill amortization expense.*
Rate Regulation	*Rate-regulation; regulatory commission; regulatory assets; regulatory liabilities; regulated distribution and transmission utilities; accounting for the economics of rate regulation; regulatory accounting; regulation rate; ASC 980.*
Inventory	*Evaluation of inventories for impairment; inventory impairment; program accounting quantity; inventory carrying value adjustments; inventory valuation; recoverability of inventory; quantities of inventory; count inventory quantities; net realizable value of inventory; obsolete inventory; LIFO; FIFO; LIFO reserve; lower of cost; obsolete inventory; slow-moving.*
Pension	*Defined benefit pension obligation; pension plan assets | liabilities; defined benefit pension plan; pension expense.*
VIEs	*Variable interest entity, VIE.*
Stock Compensation	*Stock-based compensation; stock awards; fair value of stock awards; stock-based compensation disclosures.*

Convertible Bonds	*Convertible notes transactions; convertible bonds | notes; accounting for the convertible notes.*
Discontinued Ops	*Discontinued operations; disposal group.*
R&D	*Accrue research and development expense; R&D; research and development; research and development costs; accrual for research and development costs; software capitalization process; accrual | obligation for clinical trial costs; clinical accrual; research and development liability; R&D expenses.*
Related Party	*Related party; related party transaction.*
Capitalization	*Capitalization; capitalization of installation; the company capitalizes; capitalizable activity; capitalization of property; expenditures capitalized.*

Appendix 1C: Identification of Audit Procedures

This table exhibits examples of audit report extracts captured by the Amenity rules. We used these phrases to classify the audit procedures described in the audit reports.

Audit Procedures	Audit Report Extracts Captured by Amenity Rules
Test of Controls	*Evaluated the design of controls; tested the operating effectiveness of controls; tested certain internal controls; tested the effectiveness of managements controls; testing managements process; material weakness.*
Analytical Procedures	*Compared assumptions; assessed consistency; tested the completeness of data; evaluated assumptions; compared to historical data; completeness of underlying data; developed valuation estimates; investigated differences; compared estimates to subsequent transactions; tested assumptions; performed sensitivity analyses; performed hindsight reviews; compared our expectations.*
Inspection of Records	*Compared the amounts to relevant documentation; underlying documentation; shipping documents; read the minutes; read the proceedings; assess | analyze | evaluate | examine | monitored correspondence; terms and conditions of each contract; obtained supporting documentation; reviewed the company's contracts; read relevant orders; obtained an analysis from management; reviewed the terms of customer contracts; tested cash payments; reviewed source documentation.*
Recalculation	*Recalculated; tested accuracy of the underlying data; accuracy of underlying data; tested the accuracy of the calculations; assessed the historical accuracy; tested mathematical accuracy; recalculated the company's estimated future cash flows; mathematical extrapolation.*
Inquiry	*Met with management; met with legal counsel; obtained a representation letter; representation letter; made inquiries; corroborating inquiries; inquiry of personnel; interviewed sales representatives.*
Confirmation	*Confirmation letters; receive confirmation letters; opinions provided by external counsel.*
Inspection of assets	*Compare | tie | trace | vouch cash flows to the general ledger | books | records; conduct site visits.*
Observation	*Observe the contract status; observe assets; observe process.*
Methodology Review	*Assessed the company's methodology; evaluated the asset group level; examination of assumptions; evaluate | analyze | assess | examine | study the reasonableness | appropriateness of methodology; evaluate the method; evaluate the company's accounting; comparing the projections to historical results.*

Use of Specialist	*Involved specialists; assistance of specialists; involved our tax professionals; utilized valuation specialists; utilized an internal actuarial specialist; involved our transfer pricing professionals.*

Appendix 2: Variable Definitions

CHAR_COUNT	The total count of characters in the CAM section of 10-Ks.
WORD_COUNT	The total count of words in the CAM section of 10-Ks.
VERB_COUNT	The total count of verbs in the CAM section of 10-Ks.
CAM _LENGTH	This measure combines *CHAR_COUNT*, *WORD_COUNT*, and *VERB_COUNT*, using Principal Component Analysis, and accounts for 99.07 percent of the variation of these three measures of CAM length. For regression analysis, *CAM_LENGTH* is normalized between -0.5 and 0.5 by ranking it into deciles (0 to 9) each fiscal quarter, dividing the rank by 9, and subtracting 0.5.
CAM_COUNT	The total count of CAMs in the CAM section of 10-Ks. For regression analysis, *CAM_COUNT* is normalized between -0.5 and 0.5 by ranking it into terciles (0 to 2) each fiscal quarter, dividing the rank by 2, and subtracting 0.5.
AUDIT_COUNT	The total count of distinct audit procedures in the CAM section of 10-Ks. For regression analysis, *AUDIT_COUNT* is normalized between -0.5 and 0.5 by ranking it into quartiles (0 to 3) each fiscal quarter, dividing the rank by 3, and subtracting 0.5.
AUDIT_SUM	The total count of all audit procedures (including repetitions) in the CAM section of 10-Ks. For regression analysis, *AUDIT_SUM* is normalized between -0.5 and 0.5 by ranking it into quartiles (0 to 3) each fiscal quarter, dividing the rank by 3, and subtracting 0.5.
10-K AUDIT	The total count of references to audit procedures (including repetitions) in the MD&A and Risk sections of 10-Ks. For regression analysis, the measure is normalized between -0.5 and 0.5 by ranking it into quartiles (0 to 3) each fiscal quarter, dividing the rank by 3, and subtracting 0.5.
10-K CAM	The total count of references to CAM topics in the MD&A and Risk sections of 10-Ks. For regression analysis, the measure is normalized between -0.5 and 0.5 by ranking it into quartiles (0 to 3) each fiscal quarter, dividing the rank by 3, and subtracting 0.5.
10-K UNCERT	The number of uncertainty words from Loughran and McDonald's (2011) dictionary in the MD&A and Risk sections of 10-Ks, scaled by the length of the sections. For regression analysis the measure is normalized between -0.5 and 0.5 by ranking it into deciles (0 to 9) each fiscal quarter, dividing the rank by 9, and subtracting 0.5.
10-K LITIG	The number of litigation words from Loughran and McDonald's (2011) dictionary in the MD&A and Risk sections of 10-Ks, scaled by the length of the sections. For regression analysis the measure is normalized between -0.5 and 0.5 by ranking it into deciles (0 to 9) each fiscal quarter, dividing the rank by 9, and subtracting 0.5.
10-K LENGTH	The total number of words in the MD&A and Risk sections of 10-Ks.
CALL_TONE	A measure of sentiment based on the number of positive minus the number of negative words in a conference call, scaled by the sum of the positive and the negative words; the list of positive and negative words is based on the Loughran and McDonald (2011) and extended Amenity dictionaries. For regression analysis *CALL_TONE* is normalized between -0.5 and 0.5 by ranking it into deciles (0 to 9) each fiscal quarter, dividing the rank by 9, and subtracting 0.5.
SUE	The difference between the actual earnings reported per I/B/E/S and the mean earnings preliminary estimate, divided by the price at month-end before the earnings announcement date. We use all analyst forecasts made in the 90 days before the earnings announcement

	to calculate the mean, but only the most recent forecast for each analyst is included. For regression analysis *SUE* is normalized between -0.5 and 0.5 by ranking it into deciles (0 to 9) each fiscal quarter, dividing the rank by 9, and subtracting 0.5.
ACCRUAL	The most recently available quarterly accruals, measured as the difference between quarterly income before extraordinary items and quarterly operating cash flows, scaled by the average total assets during the quarter.
STD_FORECAST	The standard deviation of analysts' earnings forecasts for the quarter that are outstanding the day before the quarter's earnings are announced.
ANALYST_DISP	The standard deviation of annual analyst earnings forecasts at the end of the month when the 10-K is filed, scaled by price three days before the earnings announcement preceding the 10-K filing. Analyst forecasts include the most recent forecast for each analyst issued in the previous 365 days and predict next fiscal year earnings (2020 earnings).
CH_ANALYST_DISP	The difference between *ANALYST_DISP* in the month after the 10-K filing date and *ANALYST_DISP* in the month before the 10-K filing (both measures of dispersion measure next, 2020, fiscal year earnings).
ASSETS	The total assets at the end of the preceding quarter.
N_ANALYST	The total number of analysts following the firm.
XRET_0	The buy-and-hold return on a stock minus the return on the S&P 500 Index in the interval [-1, +1], where day 0 is the 10-K filing date.
STD_RET	The standard deviation of returns for the [+1, +10] interval, where day 0 is the 10-K filing date.
CH_STD_RET	The difference between the standard deviation of returns measured in the ten days *after* the 10-K filing date ([+1, +10] interval with day 0 being the 10-K filing date) and the standard deviation of returns measured in the ten days *before* the filing ([-1, -10] interval with day 0 being the 10-K filing date).

Figure 1
Number of CAMs

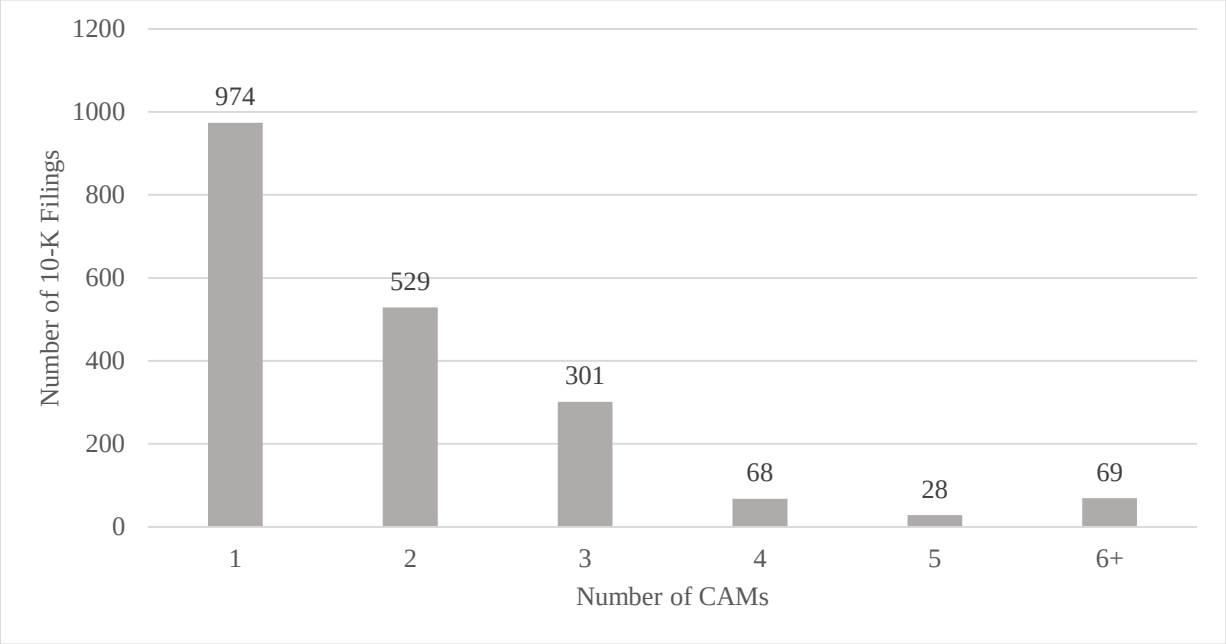

Figure 1 plots the number of firm filings and the corresponding count of CAMs for the sample period. The sample consists of 10-K filings by large accelerated filers in the period from July 2019 to May 2020.

Figure 2
Number of Distinct Audit Procedures

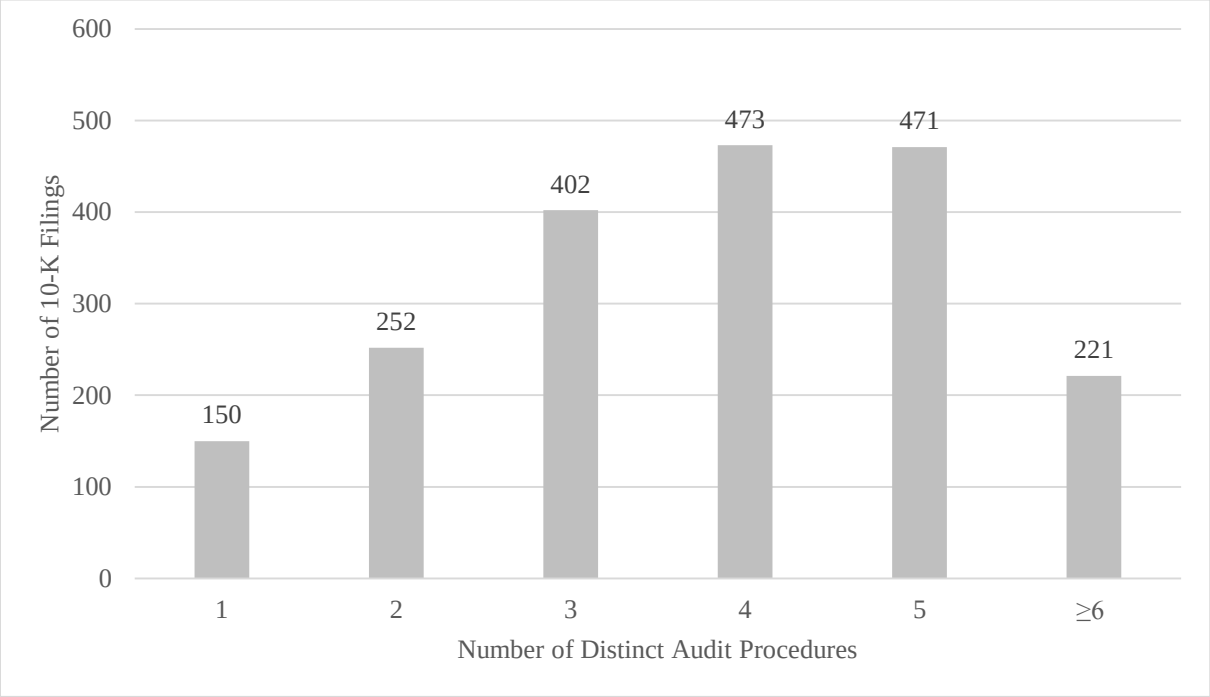

Figure 2 plots the number of firms and the corresponding number of distinct audit procedures indicated by auditors in the CAM section of the 10-K filings for the sample period.

TABLE 1

Summary Statistics

Variable	N	Mean	Std Dev	P1	P25	Median	P75	P99
CAM Measures:								
CHAR_COUNT	1,969	5922.74	2981.75	2265.00	3596.00	5145.00	7490.00	13617.00
WORD_COUNT	1,969	864.31	435.85	335.00	528.00	747.00	1084.00	2011.00
VERB_COUNT	1,969	109.01	55.71	38.00	65.00	95.00	138.00	254.00
CAM_COUNT	1,969	2.11	2.08	1.00	1.00	2.00	2.00	13.00
AUDIT_COUNT	1,969	3.78	1.50	0.00	3.00	4.00	5.00	7.00
AUDIT_SUM	1,969	9.96	7.63	0.00	4.00	8.00	14.00	34.00
10-K Controls:								
10-K AUDIT	1,969	1.68	4.50	0.00	0.00	0.00	2.00	16.00
10-K CAM	1,969	9.20	3.71	0.00	7.00	9.00	12.00	18.00
10-K UNCERT	1,969	0.02	0.01	0.01	0.02	0.02	0.02	0.03
10-K LITIG	1,969	0.02	0.01	0.01	0.02	0.02	0.03	0.04
10-K LENGTH	1,969	24532	14252	2243	16149	22241	29824	69202
Firm Characteristics:								
CALL_TONE	1,658	0.50	0.23	-0.10	0.35	0.53	0.67	0.89
SUE	1,502	0.00	0.02	-0.03	0.00	0.00	0.00	0.05
ACCRUAL	1,952	-0.02	0.03	-0.13	-0.03	-0.02	0.00	0.06
ASSETS	1,963	27456.23	150839.29	208.25	1794.80	4931.06	13989.74	338516.00
N_ANALYST	1,502	5.52	5.10	1.00	2.00	4.00	7.00	24.00
STD_FORECAST	1,236	0.08	0.28	0.00	0.01	0.03	0.07	0.81
ANALYST_DISP	1,459	0.01	0.02	0.00	0.00	0.01	0.01	0.10
CH_ANALYST_DISP	1,442	0.01	0.02	-0.03	0.00	0.00	0.01	0.12
XRET_0	1,905	0.00	0.07	-0.24	-0.03	0.00	0.03	0.21
STD_RET	1,905	0.04	0.03	0.00	0.02	0.03	0.05	0.15
CH_STD_RET	1,905	0.01	0.03	-0.07	0.00	0.01	0.02	0.09

This table reports summary statistics for variables used in the paper. The sample consists of all US firms that had CAM disclosures in their 10-K filings from July 2019 to May 2020. Individual variable definitions are outlined in Appendix 2.

TABLE 2
Correlations

Panel A: CAM Measures and Firm Controls

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	*CAM_LENGTH*	1.00												
2	*CAM_COUNT*	**0.66**	1.00											
3	*AUDIT_COUNT*	**0.49**	**0.44**	1.00										
4	*AUDIT_SUM*	**0.61**	**0.50**	**0.83**	1.00									
5	*CALL_TONE*	0.01	-0.01	-0.01	-0.02	1.00								
6	*SUE*	0.02	-0.01	**0.07**	**0.07**	**0.03**	1.00							
7	*ACCRUAL*	0.03	-0.03	**-0.06**	-0.02	**0.06**	**0.06**	1.00						
8	*ASSETS*	**0.29**	**0.16**	**0.15**	**0.19**	-0.02	0.01	**0.24**	1.00					
9	*N_ANALYST*	**0.10**	**0.05**	**0.07**	**0.09**	-0.03	**-0.11**	-0.02	**0.48**	1.00				
10	*ANALYST_DISP*	**0.06**	**0.04**	**0.06**	**0.10**	**-0.14**	**-0.17**	**-0.15**	0.02	**0.19**	1.00			
11	*CH_ANALYST_DISP*	0.03	0.02	**0.06**	**0.08**	**-0.09**	-0.04	-0.03	0.01	**0.10**	**0.25**	1.00		
12	*XRET_0*	**-0.06**	**-0.07**	**-0.06**	**-0.06**	**0.06**	**0.11**	0.02	0.02	**-0.05**	**-0.10**	**-0.09**	1.00	
13	*STD_RET*	0.02	0.02	-0.01	0.01	-0.04	-0.01	**-0.04**	**-0.16**	**-0.08**	0.01	**0.07**	**-0.05**	1.00
14	*CH_STD_RET*	-0.03	-0.03	-0.03	-0.04	0.01	**-0.05**	**0.09**	-0.02	**-0.04**	-0.01	0.01	-0.01	**0.66**

Panel B: CAM and 10-K Textual Measures

	CAM_LENGTH	*CAM_COUNT*	*AUDIT_SUM*
10-K UNCERT	**0.08**	**0.04**	**0.08**
10-K LITIG	**0.04**	0.01	**0.04**
10-K CAM	**0.09**	**0.11**	**0.08**
10-K AUDIT	-0.02	-0.03	-0.00
10-K LENGTH	**0.06**	0.01	0.03

This table provides Spearman correlation coefficients for the variables used in the analyses to the relation between the CAM measures and market participant reaction. Individual variable definitions are outlined in Appendix 2. Boldface represents a significance level of 0.10.

TABLE 3
Stock Volatility and CAM Disclosures

	Dependent Variable = *STD_RET*		
Variables	[1]	[2]	[3]
CAM_LENGTH	0.011***		
	(3.92)		
CAM_COUNT		0.006***	
		(2.87)	
AUDIT_SUM			0.009***
			(3.90)
10-K AUDIT	-0.002	-0.002	-0.002
	(-0.66)	(-0.62)	(-0.75)
10-K CAM	0.001	0.001	0.001
	(0.31)	(0.29)	(0.44)
10-K UNCERT	0.006**	0.006**	0.006**
	(2.09)	(2.14)	(2.09)
10-K LITIG	-0.003	-0.003	-0.003
	(-1.00)	(-1.02)	(-0.90)
Log (*10-K LENGTH*)	0.002*	0.002*	0.002
	(1.90)	(1.77)	(1.44)
CALL_TONE	-0.004	-0.004	-0.004
	(-1.39)	(-1.23)	(-1.34)
ABS_SUE	0.014***	0.014***	0.014***
	(4.95)	(4.99)	(4.94)
STD_FORECAST	-0.001	-0.001	-0.003
	(-0.26)	(-0.28)	(-0.57)
Log (*ASSETS*)	-0.004***	-0.003***	-0.003***
	(-5.71)	(-5.28)	(-5.54)
LOSS	0.006*	0.006*	0.007**
	(1.97)	(1.98)	(2.19)
No. Obs.	1,107	1,107	1,107
Industry FE	Yes	Yes	Yes
Auditor FE	Yes	Yes	Yes
Adj. R-squared	26.11%	25.40%	26.11%

This table reports estimation results from regressing the standard deviation of market returns (*STD_RET*) on the measures of CAM disclosures and other control variables. The dependent variable, *STD_RET*, is the standard deviation of returns for days [+1, +10], where day 0 is the 10-K filing date. For regression analyses, all textual variables are normalized between -0.5 and 0.5 by ranking them, dividing the rank by the highest rank number, and subtracting 0.5. *AUDIT_SUM*, *10-K AUDIT*, and *10-K CAM* are ranked into quartiles, *CAM_COUNT* is ranked into terciles, and *CAM_LENGTH*, *10-K UNCERT*, *10-K LITIG*, *10-K LENGTH*, *CALL_TONE*, *ABS_SUE*, and *ACCRUAL* are ranked into deciles. Individual variable definitions are provided in Appendix 2. T-statistics are reported in parentheses. Industry fixed effect is at Fama and French's 48-industries classification. Significance level: *** p < 0.01, ** p < 0.05, * p <0.1.

TABLE 4
Change in Stock Volatility and CAM Disclosures

	Dependent Variable = *CH_STD_RET*		
Variables	[1]	[2]	[3]
CAM_LENGTH	0.004		
	(1.49)		
CAM_COUNT		0.002	
		(0.98)	
AUDIT_SUM			0.005**
			(2.09)
10-K AUDIT	-0.001	-0.001	-0.001
	(-0.09)	(-0.01)	(-0.14)
10-K CAM	-0.001	-0.001	-0.001
	(-0.15)	(-0.15)	(-0.12)
10-K UNCERT	0.005*	0.005*	0.005*
	(1.77)	(1.80)	(1.75)
10-K LITIG	0.004	0.004	0.004
	(1.37)	(1.33)	(1.42)
Log (10-K *LENGTH*)	0.000	0.000	-0.001
	(0.08)	(0.11)	(-0.31)
CALL_TONE	0.004	0.004	0.004
	(1.38)	(1.51)	(1.40)
ABS_SUE	0.003	0.003	0.002
	(0.97)	(1.00)	(0.93)
STD_FORECAST	-0.001	0.001	-0.001
	(-0.03)	(0.01)	(-0.17)
Log (*ASSETS*)	-0.001	-0.001	-0.001*
	(-1.63)	(-1.37)	(-1.67)
LOSS	0.004	0.003	0.004
	(1.32)	(1.19)	(1.43)
No. Obs.	1,107	1,107	1,107
Industry FE	Yes	Yes	Yes
Auditor FE	Yes	Yes	Yes
Adj. R-squared	14.05%	13.84%	14.15%

This table reports estimation results from regressing changes in standard deviation of market returns (*CH_STD_RET*) on the measures of CAM disclosures and other control variables. The dependent variable, *CH_STD_RET*, is the difference between the standard deviation of returns for days [+1, +10] and the standard deviation of returns for days [-1, -10], with day 0 being the 10-K filing date. For regression analyses, all textual variables are normalized between -0.5 and 0.5 by ranking them, dividing the rank by the highest rank number, and subtracting 0.5. *AUDIT_SUM*, *10-K AUDIT*, and *10-K CAM* are ranked into quartiles, *CAM_COUNT* is ranked into terciles, and *CAM_LENGTH*, *10-K UNCERT*, *10-K LITIG*, *10-K LENGTH*, *CALL_TONE*, *ABS_SUE*, and *ACCRUAL* are ranked into deciles. Individual variable definitions are provided in Appendix 2. T-statistics are reported in parentheses.

TABLE 5
Analyst Dispersion and CAM Disclosures

	Dependent Variable = *ANALYST_DISP*		
Variables	[1]	[2]	[3]
CAM_LENGTH	0.004**		
	(2.47)		
CAM_COUNT		0.002*	
		(1.88)	
AUDIT_SUM			0.005***
			(3.29)
10-K AUDIT	-0.001	-0.001	-0.001
	(-0.43)	(-0.44)	(-0.47)
10-K CAM	0.000	-0.000	0.000
	(0.08)	(0.11)	(0.04)
10-K UNCERT	0.001	0.001	0.001
	(0.19)	(0.23)	(0.15)
10-K LITIG	-0.001	-0.001	-0.001
	(-0.68)	(-0.65)	(-0.56)
Log (*10-K LENGTH*)	0.002***	0.002***	0.002***
	(3.18)	(3.08)	(2.92)
CALL_TONE	-0.005***	-0.005***	-0.005***
	(-2.85)	(-2.75)	(-2.84)
ABS_SUE	0.327***	0.331***	0.328***
	(8.13)	(8.22)	(8.16)
Log (N_ANALYST)	0.001	0.001	0.001
	(1.52)	(1.50)	(1.50)
LOSS	0.003*	0.003*	0.004**
	(1.97)	(1.98)	(2.09)
No. Obs.	1,184	1,184	1,184
Industry FE	Yes	Yes	Yes
Auditor FE	Yes	Yes	Yes
Adj. R-squared	22.25%	22.12%	22.58%

This table reports estimation results from regressing the contemporaneous analyst dispersion measure (*ANALYST_DISP*) on the measures of CAM disclosures. The dependent variable, *ANALYST_DISP*, is the standard deviation of annual analyst earnings forecasts in the 365 days preceding the end of the month in which the 10-K was filed, scaled by price three days before the earnings announcement preceding the 10-K filing. For regression analyses, all textual variables and *ABS_SUE* are normalized between -0.5 and 0.5 by ranking them, dividing the rank by the highest rank number, and subtracting 0.5. *AUDIT_SUM* is ranked into quartiles, *CAM_COUNT* is ranked into terciles, and *CAM_LENGTH*, *10-K UNCERT*, *10-K LITIG*, *10-K LENGTH*, *CALL_TONE*, and *ABS_SUE* are ranked into deciles. Individual variable definitions are provided in Appendix 2. T-statistics are reported in parentheses. Industry fixed effect is at Fama and French's 48-industries classification. Significance level: *** p < 0.01, ** p < 0.05, * p <0.1.

TABLE 6
Change of Analyst Dispersion and CAM Disclosures

	Dependent Variable = *CH_ANALYST_DISP*		
Variables	[1]	[2]	[3]
CAM_LENGTH	0.003**		
	(2.29)		
CAM_COUNT		0.003***	
		(2.95)	
AUDIT_SUM			0.003**
			(2.09)
10-K AUDIT	-0.001	-0.001	-0.001
	(-0.11)	(-0.14)	(-0.14)
10-K CAM	-0.001	-0.001	-0.001
	(-0.47)	(-0.65)	(-0.34)
10-K UNCERT	0.001	0.000	0.001
	(0.09)	(0.12)	(0.09)
10-K LITIG	-0.001	-0.001	-0.001
	(-0.39)	(-0.34)	(-0.30)
Log (*10-K LENGTH*)	0.002***	0.002***	0.002***
	(3.05)	(2.98)	(2.85)
CALL_TONE	-0.002	-0.002	-0.002
	(-1.47)	(-1.46)	(-1.42)
ABS_SUE	0.051	0.053	0.052
	(1.40)	(1.47)	(1.43)
Log (N_ANALYST)	0.000	0.000	0.000
	(0.03)	(0.05)	(0.44)
LOSS	-0.004**	-0.004**	-0.004**
	(2.53)	(2.47)	(2.49)
No. Obs.	1,184	1,184	1,184
Industry FE	Yes	Yes	Yes
Auditor FE	Yes	Yes	Yes
Adj. R-squared	9.64%	9.87%	9.57%

This table reports estimation results from regressing the change in the analyst dispersion measure (*CH_ANALYST_DISP*) on the measures of CAM disclosures. The dependent variable, *CH_ANALYST_DISP*, is the difference between *ANALYST_DISP* in the month after the 10-K filing date and *ANALYST_DISP* in the month before the 10-K filing. For regression analyses, all textual variables and *ABS_SUE* are normalized between -0.5 and 0.5 by ranking them, dividing the rank by the highest rank number, and subtracting 0.5. *AUDIT_SUM* is ranked into quartiles; *CAM_COUNT* is ranked into terciles; *CAM_LENGTH*, *10-K UNCERT*, *10-K LITIG*, *10-K LENGTH*, *CALL_TONE*, and *ABS_SUE* are ranked into deciles. Individual variable definitions are defined in Appendix 2. T-statistics are reported in parentheses. Significance level: *** p < 0.01, ** p < 0.05, * p <0.1.

TABLE 7
Market Returns and CAM Disclosures

	Dependent Variable = *XRET_0*		
Variables	[1]	[2]	[3]
CAM_LENGTH	-0.026***		
	(-3.83)		
CAM_COUNT		-0.019***	
		(-3.69)	
AUDIT_SUM			-0.021***
			(-3.44)
10-K AUDIT	0.000	0.001	0.001
	(0.00)	(0.01)	(0.09)
10-K CAM	-0.003	-0.003	-0.004
	(-0.57)	(-0.50)	(-0.74)
10-K UNCERT	-0.002	-0.002	-0.002
	(-0.32)	(-0.20)	(-0.32)
10-K LITIG	0.002	0.002	0.001
	(0.34)	(0.30)	(0.18)
Log (*10-K LENGTH*)	-0.003	-0.002	-0.002
	(-0.95)	(-0.72)	(-0.62)
CALL_TONE	0.022***	0.024***	0.022***
	(3.09)	(3.13)	(3.04)
SUE	0.033***	0.033***	0.033***
	(5.06)	(5.01)	(5.08)
ACCRUAL	-0.006	-0.005	-0.006
	(-0.84)	(-0.73)	(-0.80)
Log (*ASSETS*)	0.001	0.001	0.001
	(0.83)	(0.75)	(0.53)
No. Obs.	1,359	1,359	1,359
Industry FE	Yes	Yes	Yes
Auditor FE	Yes	Yes	Yes
Adj. R-squared	12.56%	12.64%	12.36%

This table reports estimation results from regressing the immediate abnormal market returns (*XRET_0*) on the measures of CAM disclosures, risk and uncertainty measures reported in the MD&A and Risk sections of the 10-K, and other control variables. For regression analyses, all textual variables, *SUE*, and *ACCRUAL* are normalized between -0.5 and 0.5 by ranking them, dividing the rank by the highest rank number, and subtracting 0.5. *AUDIT_SUM*, *10-K AUDIT*, and *10-K CAM* are ranked into quartiles, *CAM_COUNT* is ranked into terciles, and *CAM_LENGTH*, *10-K UNCERT*, *10-K LITIG*, *10-K LENGTH*, *CALL_TONE*, *SUE*, and *ACCRUAL* are ranked into deciles. Individual variable definitions are provided in Appendix 2. T-statistics are reported in parentheses. Industry fixed effect is at Fama and French's 48-industries classification. Significance level: *** p < 0.01, ** p < 0.05, * p <0.1.