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The Auditor's Application of Professional Judgment: Evidence from M&A-related Critical Audit Matters

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I am submitting herewith a dissertation written by Xi Ai entitled "The Auditor's Application of Professional Judgment: Evidence from M&A-related Critical Audit Matters." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

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The Auditor's Application of Professional Judgment: Evidence from M&A-related Critical Audit Matters

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DEDICATIONS

This work is dedicated to my parents, Siyu Ai and Man Wang. I could not have achieved this degree without your unconditional love and never-ending support.

This work is also dedicated to my fiancé, Simon Yu. Thank you for always believing in me especially during times I doubt myself. I am excited for the adventures to come.

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ABSTRACT

In this study, I examine the extent to which auditor attributes affect the auditor's decision to communicate a Critical Audit Matter (CAM) in the expanded auditor's report. I expect the CAM communication decision to be adversely affected by threats to independence and by auditor overconfidence. I focus on a sample of companies that completed material mergers and acquisitions because these are likely to be considered as potential CAMs by meeting the minimal requirements of a CAM (i.e., material accounts or disclosures that involve especially challenging, subjective, or complex auditor judgment). Contrary to expectations, I find that the auditor's CAM communication decision is influenced by the complexity of the M&A transaction and operations – a rather objective reason for communicating a CAM. While I find variation in CAM communication frequencies by the audit firm, I find little evidence suggesting that auditor attributes at the office- and firm-level affect the auditor's CAM communication decision.

TABLE OF CONTENTS

LIST OF TABLES

SECTION I. INTRODUCTION

Auditors must exercise judgment in nearly every aspect of the audits they perform, from risk assessment through audit documentation.[1] In 2017, the Public Company Accounting Oversight Board (PCAOB) released a new auditing standard to expand the auditor's report, *Auditing Standard (AS) 3101 The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion*. This new standard requires auditors to identify and communicate Critical Audit Matter (CAM) that relates to material accounts or disclosures and that involves "especially challenging, subjective, or complex auditor judgment" (PCAOB 2017). As the PCAOB states in its *2019 Staff Guidance*, the Board expects that auditor judgment will influence the determination and communication of CAMs (PCAOB 2019). In this study, I use the mergers and acquisitions (M&A) setting to examine the determinants of an auditor's CAM communication decision. Specifically, I use a sample of companies that completed material acquisitions in the initial year that is subject to *AS 3101* and examine whether engagement-specific auditor attributes influence the auditor's decision to communicate M&A-related CAMs while controlling for the complexity of the audit matter and the complexity of the company's operations and accounting systems.

Although CAMs span a variety of topics, I focus on the M&A setting for several reasons. First, it is reasonable to assume that auditors will consider accounts or disclosures related to material M&As as potential CAMs and must exercise professional judgment in their CAM communication decision. The communication of a CAM is the joint product of the underlying audit matter meeting the PCAOB's definition of a CAM and the auditor exercising professional

[1] The use of professional judgment is discussed in the auditing standards published by the Public Company Accounting Oversight Board (PCAOB). See *AS 1001 Responsibilities and Functions of the Independent Auditor*, AS *1015 Due Professional Care in the Performance of Work*, and *AS 1215 Audit Documentation*.

judgment to communicate the identified CAM in the expanded auditor's report. Because M&As are inherently risky and complex transactions, auditors need to apply substantial professional judgment when auditing the combined entity, especially in the audits of material accounts or disclosures arising from the M&A. As auditors develop a list of potential CAMs,[2] accounts or disclosures related to material M&A transactions are very likely to be considered as potential CAMs. Therefore, by focusing on audit matters that are highly likely to meet the definition of a CAM and by controlling for the complexity of the audit and operations, my setting allows me to more cleanly explore the factors associated with the professional judgment that auditors apply in their decision to communicate a CAM.

Moreover, restricting the focus to M&A-related audit matters ensures that the type of auditor judgment involved in auditing the underlying audit matter is consistent across audit engagements. All acquiring companies, regardless of the industry they are in, are required to record all acquired assets and liabilities at fair values on the acquisition date in accordance with *Accounting Standards Code (ASC) 805 Business Combinations*. Therefore, the auditor judgment involved in auditing companies that recently completed material acquisitions relates primarily to assessing the fair values of the accounts and disclosures that arise from the transaction. Because auditing different accounts and disclosures will require different types of auditor judgment and the type of auditor judgment required in auditing M&A-related accounts and disclosures are consistent across audit engagements, limiting the scope to M&A-related CAMs allows me to focus on the factors that influence auditor judgment involved in communicating CAMs. Additionally, M&A-related CAMs are regularly referred to in professional publications when

[2] See the comment letter submitted by Grant Thornton, available at https://pcaobus.org/EconomicAndRiskAnalysis/pir/PostImplementationReviewAS3101UnqualifiedOpinion/8_GT.pdf.

providing implementation guidance on the expanded auditor's report.[3] It is not surprising, then, that M&A is one of the topics with the highest number of CAMs among the initial adopters of *AS 3101*.

Auditors create communicative value to financial statement users by disclosing information about the audit engagement in the auditor's report (Coram et al. 2011). To improve the relevance and informativeness of the auditor's report, *AS 3101* requires auditors to not only identify CAM(s) but also explain why auditors determined that an audit matter qualified as a CAM. The standard also requires auditors to provide additional discussions around how they addressed the CAM in the audit, including a brief overview of the procedures performed and an indication of the outcomes of the audit procedures. On the one hand, auditors have incentives to communicate CAMs when they believe the communicated CAM improves the usefulness of the auditor's report, which can demonstrate the quality of their service especially in complex situations such as M&As. Post-implementation comments from investors confirm that CAM communications benefit them with more constructive conversations with management because they are able to better understand the auditor's work.[4] On the other hand, auditors may feel pressured to minimize the number of CAMs reported. Some companies argue that the communication of CAMs will allow auditors to provide information that has not been made publicly available or may contradict the information already provided by management, adding

[3] Examples include the PCAOB's response to public comments on the proposed auditor reporting standard in May 2016, a discussion by the Center for Audit Quality in December 2018, and the PCAOB's implementation guidance in May 2019, available at https://pcaobus.org/Rulemaking/Docket034/Release-2016-003-ARM.pdf, https://www.thecaq.org/wp-content/uploads/2019/03/caq_critical_audit_matters_lessons_questions_example_2018-12.pdf, and https://pcaobus.org/Standards/Documents/Implementation-Critical-Audit-Matters-Deeper-Dive-Communication-of-CAMs.pdf.

[4] See the comment letter submitted by the Council of Institutional Investors, available at https://pcaobus.org/EconomicAndRiskAnalysis/pir/PostImplementationReviewAS3101UnqualifiedOpinion/5_CII.pdf.

unnecessary tension to the auditor-client relationship.[5] Some auditors reveal that they are hesitant to communicate a CAM because they incur additional costs in drafting, reviewing, and communicating each CAM and they do not believe that the expanded auditor's report benefits financial statement users.[6]

I expect two key attributes of the auditor to affect the auditor's CAM communication decision – threats to independence and overconfidence. Threats to independence, proxied for by client importance and by the ratio of total fees generated from non-audit services, arise from economic incentives for the auditor to maintain its relationship with the client, thus making auditors more likely to report in alignment with their clients' preference. Overconfidence, proxied for by the auditor's tenure and by the auditor's prior experience with M&As, could allow the auditor to underweight the complexity of the audit matter and thus be less likely to communicate a CAM. Because the PCAOB notes in its final rule that the determination and communication of CAMs depend on the nature and complexity of the audit, which in turn depends on the complexity of the operations and accounting systems of the company, I also include factors related to M&A deal characteristics and company characteristics to isolate the influence of auditor characteristics on the auditor's CAM communication decision.

I manually collect a sample of initial adopters of *AS 3101* (i.e., large accelerated filers with fiscal year-ends on or after June 30, 2019) that have completed at least one material M&A in the fiscal year subject to the new auditor reporting standard. For the 621 initial adopters that

[5] See the comment letters submitted by ConocoPhillips Company, Pfizer Inc., and CA Technologies, Inc., available at https://pcaobus.org/Rulemaking/Docket034/05c_ConocoPhillips-Audit-Committee.pdf, https://pcaobus.org/Rulemaking/Pages/Docket034Comments.aspx, and https://pcaobus.org/Rulemaking/Docket034/052c_CA-Technologies.pdf.

[6] See the comment letters submitted by Mazars USA and Grant Thornton, available at https://pcaobus.org/EconomicAndRiskAnalysis/pir/PostImplementationReviewAS3101UnqualifiedOpinion/19_MAZARS_USA_LLP.pdf and https://pcaobus.org/EconomicAndRiskAnalysis/pir/PostImplementationReviewAS3101UnqualifiedOpinion/8_GT.pdf.

completed material M&As, 292 auditors communicate M&A-related CAMs in auditors' reports (47 percent). I find that the total number of CAMs in the auditor's report and the frequency of M&A-related CAMs vary by the audit firm, suggesting that firm-specific policies and training affect auditors' judgment in the CAM communication decision. However, after controlling for deal and company characteristics that capture the complexity of the audit matter and the complexity of the company's operations and accounting systems, I fail to find a significant association between auditor characteristics and M&A-related CAMs communicated in the expanded auditor's report. It suggests that neither threats to independence, nor overconfidence, significantly affect the auditor's professional judgment involved in the decision to communicate a CAM. Consistent with the PCAOB's statement, I find that the decision is driven by M&A deal characteristics (deal size, whether the company completed multiple acquisitions in the fiscal year, and whether the company is a serial acquirer) and company characteristics (e.g., the number of business and geographic segments, international operations). Taken together, these results suggest that the auditor's CAM communication decision is not random and that it is driven by the complexity of the audit matter and operations, rather than the engagement-specific auditor attributes.

My study contributes to the literature on auditor judgment. Experimental studies directly observe the factors that affect auditor judgment and document the consequences of inappropriate judgment (Leung and Trotman 2005, Bratten et al. 2013, Griffith et al. 2015). My study adds to the line of prior empirical studies that draw indirect inferences about auditor judgment based on publicly observable auditor characteristics. Several studies find evidence of auditor characteristics affecting auditor judgment observed indirectly through goodwill impairment (Carcello et al. 2020), asset impairment (Stein 2019), and going concern opinions (Blay and

Geiger 2013). I observe auditor judgment through CAMs communicated in the auditor's report and find that auditor characteristics do not significantly influence the professional judgment auditors apply when making reporting decisions.

I also contribute to the growing literature on the expanded auditor's report, including CAMs in the United States (U.S.) and Key Audit Matters (KAMs) internationally. Experimental studies show that CAMs/KAMs influence how financial statement users view the information provided in the auditor's report (Christensen et al. 2014, Boolaky and Quick 2016, Sirois et al. 2018, Kachelmeier et al. 2019). Empirical studies generally explore the overall impact of the expanded auditor's report and find mixed evidence (Gutierrez et al. 2018, Goh et al. 2019, Reid et al. 2019, Lennox et al. 2019, Liao et al. 2019, Burke et al. 2020, Drake et al. 2020). My study is among the first to examine CAMs in a specific category, which allows me to focus on audit matters meeting the minimal requirement of a CAM and draw inferences on the factors that influence auditor judgment. My findings indicate that the auditor's decision to communicate a CAM is driven by the complexity of the underlying audit matter rather than auditor characteristics expected to proxy for potential biases or judgment tendencies.

My study responds to the PCAOB's call for more information to fully understand the auditor's communication of CAMs following the implementation of *AS 3101*.[7] Specifically, my study concludes that the auditor's decision to communicate a CAM is driven by the complexity of the underlying audit matter and the company's operations, rather than engagement-specific auditor attributes or firm-level policies and training. These findings should also be of interest to

[7] See "Post-Implementation Review of AS 3101, The Auditor's Report on an Audit of Financial Statements When the Auditor Expresses an Unqualified Opinion," available at https://pcaobus.org/EconomicAndRiskAnalysis/pir/Pages/Post-Implementation-Review-AS-3101-Auditors-Report-Audit-Financial-Statements-When-Auditor-Expresses-Unqualified-Opinion.aspx.

audit committees responsible for overseeing the audit engagement and to investors relying on the auditor's report.

The remainder of the paper is organized as follows. Section II discusses my expectations and presents my research design. Section III describes my sample. Section IV provides empirical results, and Section V concludes.

SECTION II. EXPECTATIONS DEVELOPMENT AND RESEARCH DESIGN

Critical Audit Matters

Although companies' operations have become more complex and auditors have been required to perform procedures involving more challenging judgment, the format of the auditor's report has changed little since the 1940s (PCAOB 2017). In the auditor's report, the auditor expresses his or her opinions on the financial statements. Unqualified opinions provide reasonable assurance that the financial statements are free from material misstatements in accordance with the Generally Accepted Accounting Principles (GAAP), whereas qualified and adverse opinions suggest at least one material departure from GAAP.[8] Because a vast majority of public companies receive unqualified opinions (Lennox 2005, Gray et al. 2011) and because auditors use standardized language in the auditor's report, investors argue that the auditor's report provides little information when opinions are unqualified and meaningful information only in extreme circumstances.[9] To increase the informativeness and relevance of the auditor's report, the PCAOB proposed significant changes to the auditor reporting model in May 2016 and adopted the final standard, *AS 3101*, in June 2017 (PCAOB 2017). The newly adopted standard retains the traditional types of audit opinions while requiring auditors to provide new information about the audit by communicating CAMs in the auditor's report.

In its final rule, the PCAOB defines CAMs as "matters communicated or required to be communicated to the audit committee and that (1) relate to accounts or disclosures that are material to the financial statements, and (2) involve especially challenging, subjective, or complex auditor judgment (PCAOB 2017)." CAMs cover a wide range of topics – revenue,

[8] Another type of audit opinions is disclaimers, indicating that the auditor is unable to form opinions due to insufficient audit evidence.

[9] See "Improving the Auditor's Report," available at https://pcaobus.org/News/Events/Documents/03162011_IAGMeeting/Role_Of_The_Auditor.pdf.

intangible assets, contingent liabilities, income taxes, and many others. In my study, I focus specifically on M&A-related CAMs because accounts or disclosures related to material M&As are most likely to qualify as CAMs. Prior to the adoption of *AS 3101*, auditors were not able to provide information about the M&A transaction in the traditional binary "pass/fail" auditor reporting model. In the expanded auditor's report, auditors have the opportunity to provide information about their audit of a newly combined entity, especially about the accounts or disclosures related to M&As, if the audit matter meets the definition of a CAM, regardless of the type of opinion they issue. For example, WestRock Company, a large accelerated filer based in Atlanta, Georgia, completed its acquisition of KapStone Paper and Packaging Corporation in the company's first fiscal quarter. EY issued an unqualified opinion with three CAMs ("Accounting for the Acquisition of KapStone Paper and Packaging Corporation," "Test of Goodwill for Impairment," and "Uncertain Tax Positions"), one of which is an M&A-related CAM. Specifically, in the auditor's report, EY states that its audit of the purchase price allocation involved "especially subjective and complex judgments" and provides a discussion about how the auditor addressed this CAM in its audit, which includes testing the controls related to the accounting for the acquisition, engaging valuation specialists to assist with its evaluation of management assumptions, and performing sensitivity analyses of several accounts involved in the transaction. Appendix A provides EY's audit report for WestRock Company issued on November 15, 2019.

Literature Review on CAMs

To improve the informativeness and relevance of the auditor's report, regulators and standard setters worldwide adopted an expanded auditor reporting model requiring auditors to report CAMs/KAMs (Financial Reporting Council 2013, IAASB 2015, PCAOB 2017).

Experimental studies find that the information communicated in CAMs/KAMs alters the behavior of management (Bentley et al. 2020) and audit committees (Kang 2019), the decisions of financial statement users (Christensen et al. 2014, Boolaky and Quick 2016, Ozlanski 2019, Rapley et al. 2018), and the perceived liability of auditors (Brasel et al. 2016, Gimbar et al. 2016, Kachelmeier et al. 2019). Several empirical studies use the U.K. setting to assess the information content of the new auditor's report and its impact on the stock and debt markets. Gutierrez et al. (2018) conclude that investors do not find the expanded auditor's report incrementally informative and Lennox et al. (2019) document that the lack of incremental information is due to companies disclosing information in other channels before the release of the auditor's report. Porumb et al. (2019) show that the expanded auditor's report improves lending terms by reducing information asymmetry. Reid et al. (2019) and Smith (2019) examine the overall impact of adopting the new auditor's reporting model and find that both the readability of the auditor's report (Smith 2019) and the client's financial reporting quality (Reid et al. 2019) improves. Empirical studies outside of the U.K. find that the expanded auditor's report provides incremental information to investors in China (Goh et al. 2019), although investors in France (Bedard et al. 2019) and Hong Kong (Liao et al. 2019) do not find the expanded auditor's report incrementally informative.

After CAM reporting became effective for large accelerated filers in the U.S. on June 30, 2019, several studies have explored the impact of the expanded auditor reporting model. Although the PCAOB intended to improve the relevance and informativeness of the auditor's report, Files and Gencer (2020) and Luo (2021) document that investors in the U.S. do not find CAMs informative. Klevak et al. (2020) find that greater amounts of CAM disclosures indicate greater uncertainty. Burke et al. (2020) document that management improves its disclosures as

an indirect benefit of the new auditor reporting standard. Drake et al. (2020) document that tax-related CAMs indirectly benefit investors by constraining tax-related earnings management. My study is among the first to focus on CAMs in a specific category. By examining audit matters that are highly likely to meet the definition of a CAM, I study the factors that determine the auditor's decision to communicate a CAM in the auditor's report.

Expectations Development

A long line of experimental research shows that auditor-specific attributes are associated with auditor judgment. Several studies investigate auditor judgment in the engagement planning stage and find that auditor judgment of fraud risk is influenced by the auditor's fraud knowledge (Hammersley 2011), internal controls knowledge (Hammersley et al. 2011), planning stage effort (Hammersley et al. 2010), and brainstorming sessions (Carpenter 2007, Hoffman and Zimbelman 2009). Other studies examine auditor judgment in the audits of complex estimates and find that auditor judgment is influenced by the auditor's mindset (Griffith et al. 2015), attitude (Nolder and Kadous 2018), and use of specialists (Griffith 2018). Bratten et al. (2013) document that environmental factors and task factors also influence auditor judgment in the audits of complex estimates.

Although prior experimental studies examine various aspects of auditor judgment, it is nonetheless difficult to observe and measure empirically. Following prior literature and the CAQ's *Professional Judgment Resources,*[10] I develop a set of auditor characteristics that I expect to affect the auditor's decision to communicate a CAM.

[10] See "Professional Judgment Resources", available at https://www.thecaq.org/wp-content/uploads/2019/03/professional-judgment-resource.pdf.

Threats to Independence

As stated by the PCAOB in *AS 1005 Independence,* it is critically important for auditors to be independent because public confidence in the profession will be impaired if independence is lacking.[11] Auditors have economic incentives to grow their business through retaining existing clients and gaining new clients. These economic incentives could pose threats to auditor independence when auditors try to please their clients, which further hinders auditors from appropriately applying professional judgment. Many companies opposed the CAM reporting requirements arguing that the communication of CAMs in the auditors' report would blur the responsibilities of management and auditors (PCAOB 2017). In addition, some auditors expressed concerns that CAMs would increase the perceived liability of auditors and that they would incur additional costs while experiencing little improvement in the usefulness of the auditor's report (PCAOB 2017). Therefore, given that companies pushed back on CAM reporting requirements and that auditors had their own hesitations, auditors have incentives to avoid communicating CAMs, particularly in situations where they face pressure from their clients and their independence is threatened. I posit that threats to independence will make the auditor less likely to communicate CAMs, ceteris paribus.

In my setting, I use two separate proxies for threats to independence. The first one is client importance. DeAngelo (1981) suggests that audit fees create an economic bond between auditor and client. Consistent with this notion, prior studies show that the importance of a particular client relative to an auditor's client portfolio in an office influences the incentive alignment between auditor and client (Craswell et al. 2002, Reynold and Francis 2000, Francis and Yu 2009). When auditors have incentives to bond with economically important clients, they

[11] See "AS 1005: Independence," available at https://pcaobus.org/Standards/Auditing/Pages/AS1005.aspx.

face challenges in maintaining an independent mindset needed to exercise due professional care. Therefore, I posit that a client's importance at the office level poses threats to independence, which can adversely affect the auditor's CAM communication decision.

The second one is the ratio of total fees generated from non-audit services. Regulators generally view the auditor's provision of non-audit services as a threat to auditor independence, arguing that it enlarges the economic bonding between the two parties (SEC 2002, PCAOB 2011). Prior studies find that the provision of non-audit services hinders auditors from appropriately applying professional judgment in audit engagements, observed through a lower likelihood of the clients recording goodwill impairment (Carcello et al. 2000), the auditor's failure to issue going-concern opinions to financially distressed clients (Blay and Geiger 2013), and the auditor' failure to detect material weaknesses in the clients' internal controls (Rice and Weber 2012). Because CAM reporting decision is in the list of auditor reporting decisions that auditors are required to make, I posit that the provision of non-audit services poses a threat to independence, which can adversely affect the auditor's decision to communicate a CAM.

Overconfidence

In the audit context, overconfidence is the tendency that an auditor overestimates his or her ability to perform tasks or make decisions (CAQ 2019). Prior experimental studies document that overconfidence exists in the auditing profession (Owhoso and Weickgenannt 2009) and varies with task difficulty (Han et al. 2011). By definition, CAMs are audit matters that require auditors to exercise especially complex and challenging judgment when auditing the related accounts and disclosures. Because overconfident auditors can overestimate their abilities, they will be less likely to determine that the level of judgment involved is especially challenging or

complex, thus reducing the likelihood of them identifying an audit matter as a CAM. Therefore, I posit that overconfidence will make auditors less likely to communicate CAMs, ceteris paribus.

In my setting, I use two separate proxies for overconfidence. The first one is auditor M&A expertise. A long line of studies explores the relation between various types of auditor expertise and find that expert auditors provide high-quality audits (Dunn and Mayhew 2004, Knechel et al. 2007, Reichelt and Wang 2010, McGuire et al. 2012, Christensen et al. 2016, Haislip et al. 2016, Ahn et al. 2020). In the context of M&As, Gal-Or et al. (2019) find that companies audited by M&A expert auditors exhibit higher financial reporting quality in the post-acquisition period. Auditors with M&A expertise are familiar with the accounting standards around business combinations and have experience evaluating the management assumptions and estimates in M&As. Therefore, I posit that auditor M&A expertise creates a potential judgment tendency of overconfidence that can affect the auditor's judgment in the decision to communicate an M&A-related CAM. Specifically, if auditors with M&A expertise already exhibit higher audit quality over the accounts and disclosures related to M&As, they may be less likely to determine that the judgment or difficulties involved arise to a "critical" audit matter.

The second one is the auditor's client-specific knowledge, which the auditor accumulates from serving as the client's auditor over a period of time. The PCAOB perceives long auditor-client tenure as a threat to audit quality, arguing that long tenure breeds familiarity (PCAOB 2011, 2017). However, most empirical studies find that client-specific knowledge from long auditor tenure helps auditors constrain management's discretion in financial reporting because client-specific knowledge leads to more effective engagement planning and execution (Geiger and Raghunandan 2002, Johnson et al. 2002, Myers et al. 2003). I posit that client-specific knowledge from long auditor tenure creates a potential judgment tendency of overconfidence

that can negatively affect the auditor's judgment in the auditor's decision to communicate an M&A-related CAM. Specifically, if auditors accumulate a substantial understanding of the client's risk, operations, and accounting systems from serving as the client's auditor, they may be less likely to determine that the judgment involved arise to a "critical" audit matter.

Research Design

To examine the factors that influence the auditor's decision to communicate an M&A-related CAM, I estimate the following logistic model:

$$\begin{aligned} CAM_{it} = {} & \alpha_1 IMPORTANCE_{it} + \alpha_2 NAS_{it} + \alpha_3 ACQ\_EXPERT_{it} + \alpha_4 TENURE_{it} + \alpha_5 DEAL\_SIZE_{it} + \\ & \alpha_6 MULTIPLE\_ACQ_{it} + \alpha_7 GOODWILL_{it} + \alpha_8 SERIAL_{it} + \alpha_9 INTAN\_GROW_{it} + \\ & \alpha_{10} RESTATE_{it} + \alpha_{11} ARC_{it} + \alpha_{12} SIZE_{it} + \alpha_{13} LEV_{it} + \alpha_{14} MTB_{it} + \alpha_{15} LOSS_{it} + \\ & \alpha_{16} FOREIGN_{it} + \alpha_{17} SEG_{it} + \alpha_{18} INTAN_{it-1} + \alpha_{19} TOTAL\_CAM_{it} + \\ & \text{Auditor Fixed Effects} + \text{Industry Fixed Effects} + \varepsilon_{it} \end{aligned} \quad (1)$$

where *i* and *t* represent the audited company and fiscal year, respectively.

CAM is an indicator variable equal to one if the auditor communicates a CAM related to M&As in the expanded auditor's report, and zero otherwise. The Audit Analytics CAMs dataset provides the topics of CAMs and I use CAMs categorized under the topic of "business combinations" to construct this variable.[12]

My first set of determinants relates to the factors associated with auditor characteristics. I use two auditor characteristics to proxy for threats to independence – client importance and the proportion of fees from non-audit services. Following Francis and Yu (2009), I define client importance (*IMPORTANCE*) as the ratio of the client's total fees to the sum of fees for all clients in the audit office. Following Carcello et al. (2020), I use the ratio of non-audit service fees to total fees (*NAS*) to measure auditor independence.[13] I use two auditor characteristics to proxy for

[12] Prior to the availability of this dataset, I hand collected 132 M&A-related CAMs and find that Audit Analytics' classification of "business combinations" CAMs agrees with my hand collected data in all cases.
[13] Inferences remain unchanged when I use the natural log of NAS fees instead of the ratio of NAS fees.

overconfidence – auditor M&A expertise and tenure. Following Gal-Or et al. (2019), I define auditor M&A expertise (*ACQ_EXPERT*) as an indicator variable set equal to one if at least 30 percent of all clients at an audit office completed an acquisition in the current or prior two fiscal years, and zero otherwise.[14] I use auditor tenure (*TENURE*) to measure the auditor's client-specific knowledge and define it as the natural log of the auditor's tenure measured in years.[15]

In its final rule, the PCAOB states that the determination of CAM will depend on the nature and complexity of the audit, which in turn depends on the complexity of the company's operations and accounting systems (PCAOB 2017). Therefore, I posit that, in addition to the auditor characteristics, the complexity of the M&A transaction, operations, and accounting systems will also influence the auditor's decision to communicate an M&A-related CAM.

My second set of determinants relates to M&A deal characteristics that proxy for the complexity of the audit matter. CAMs are audit matters related to accounts or disclosures that are material to financial statements and my discussions with audit partners confirm that deal size is the first factor they consider when determining whether to communicate an M&A-related CAM.[16] Because deal size is the most important factor in determining an M&A-related CAM, I find that the strongest relation between the set of determinants and the likelihood of the auditor communicating an M&A-related CAM exists when I measure deal size using quintile ranks. Specifically, I first compute the materiality of the deal (*DEAL_MATERIALITY*), defined as the

[14] Inferences remain unchanged when I follow Gal-Or et al. (2019) and define auditor M&A expertise as an indicator variable set equal to one if the auditor audit 30 clients that completed M&As in the current and previous two years, and zero otherwise.

[15] One auditor characteristic commonly used in prior audit studies is auditor office size (e.g., Choi et al. 2010). Consistent with Francis and Yu (2009), I find that client importance is highly correlated with office size. Because including both variables raises the concern of multicollinearity, I only include client importance in my model. I find, untabulated, that my inferences remain unchanged when I include office size as an additional auditor characteristic in the model.

[16] I thank one anonymous Big4 audit partner and one anonymous non-Big4 audit partner for discussions about CAMs.

transaction value of the M&A deal scaled by total assets at the beginning of the fiscal period.[17] I then construct deal size (*DEAL_SIZE*) based on the quintile of *DEAL_MATERIALITY*. *DEAL_SIZE* takes the value of 1 through 5, with 5 indicating the largest deals (i.e., deals in the top quintile based on *DEAL_MATERIALITY*). Moreover, companies can engage in multiple acquisitions in a fiscal year. Integrating business operations and accounting systems multiple times in one fiscal year could prove difficult for the combined entity, which can also create challenges for the auditor. Therefore, I include whether the company completed multiple acquisitions in a fiscal year (*MULTIPLE_ACQ*) as a deal characteristic. In addition, one key component in acquisition accounting is goodwill. Li et al. (2011) suggest that goodwill is attributable to overpayment for the target and that investors perceive goodwill impairments negatively because they indicate declines in future profitability. I include the percentage of the purchase price allocated to goodwill (*GOODWILL*) as a deal characteristic. Furthermore, companies differ in M&A strategies: some complete frequent M&As as a primary way to expand their operations, whereas others engage in M&As only when they find a suitable target. The management of serial acquirers is more experienced at developing estimates and fair values for the targets, possibly by engaging valuation experts that they are familiar with. Therefore, I include serial acquirer (*SERIAL*) as a deal characteristic. Additionally, *ASC 805 Business Combinations* requires the acquirer to record the net identifiable assets of the target at the fair values on the acquisition date. Unlike tangible assets, intangible assets (e.g., customer relationships, trademarks) do not have readily available fair market values. Management must estimate the fair values of these intangible assets and auditors must assess the management's estimates in the audits of the combined entity. Because auditing intangible assets involve

[17] When the company completed multiple acquisitions in the fiscal period, I use the sum of the transaction value from all M&A deals to compute *DEAL_MATERIALITY*.

substantial auditor judgment, I include growth in intangible assets (excluding goodwill) as a deal characteristic (*INTAN_GROW*).

My last set of determinants relates to company characteristics that proxy for the complexity of operations and accounting systems. Because companies that announce restatements of their financial statements are scrutinized by investors and analysts (Palmrose et al. 2004), I include a restatement announcement indicator (*RESTATE*). Because CAMs depend on the complexity of the accounting system of the company (PCAOB 2017), I control for the accounting reporting complexity (*ARC*) following Hoitash and Hoitash (2018). Because the determination and communication of CAMs also depend on the complexity of the operations of the company, I control for the size (*SIZE*, *FOREIGN*, *SEG*), financial condition (*LEV*, *LOSS*), and growth (*MTB*) of the company. In addition, I control for the ratio of intangible assets to total assets at the beginning of the period (*INTAN*) and the total number of CAMs communicated by the auditor (*TOTAL_CAM*).

I define industries based on the division classification provided by the North America Industry Classification System (NAICS) Association. Due to the small number of non-Big4 auditors in my sample, I combine all non-Big4 auditors into one auditor category when constructing auditor fixed effects, and each of the Big4 auditors is in its own auditor category. All variables are measured as defined in Appendix B.

SECTION III. DATA AND SAMPLE CHARACTERISTICS

Sample

To examine my research question, I restrict the sample to the initial adopters of PCAOB *AS 3101* (i.e., large accelerated filers with fiscal year-ends on or after June 30, 2019, and on or before June 30, 2020). I then manually search the annual financial statements of these companies to determine whether they have completed at least one material acquisition in the fiscal year subject to the CAM reporting requirements. I identify M&As by searching their 10-K filings for "acquisition(s)", "merger(s)", and "business combination(s)". Because CAMs relate to accounts or disclosures that are material to the financial statements, I remove M&A deals that these companies identified as "immaterial" in the 10-Ks.[18] For this sample of companies completing at least one material acquisition, I use the Audit Analytics CAMs dataset to identify whether the auditor communicates a CAM related to M&As in the auditor's report. I define M&A-related CAMs as CAMs categorized under the topic of "business combinations". I eliminate observations where I could not identify auditor, deal, or company characteristics. I first run equation (1) using a Linear Probability Model to identify influential observations. Following Leone et al. (2019), I remove 47 influential observations identified using influence diagnostics (Cook's Distance). My final sample consists of 621 large accelerated filers that are initial

[18] A commonly used database for M&A deals is the SDC Mergers and Acquisitions database. Because it does not differentiate between material and immaterial acquisitions and because immaterial acquisitions do not meet the definition of a CAM, I manually search the 10-Ks to identify material acquisitions instead of using the SDC Mergers and Acquisitions database. For example, Walmart Inc. completed the acquisition of Flipkart, a foreign eCommerce business, in the second quarter of fiscal 2020 for cash consideration of $16 billion and identified the Flipkart acquisition as immaterial in the 10-K (https://www.sec.gov/Archives/edgar/data/104169/000010416920000011/wmtform10-kx1312020.htm). I exclude this deal from my sample because the company identified it as an immaterial acquisition in the 10-K.

adopters of *AS 3101* and that completed material M&As in the initial year subject to PCAOB *AS 3101*. I report my sample construction procedures in Table 1 Panel A.

Table 1 Panel B reports the sample distribution by industry following the industry division classification by the NAICS Association. Auditors, on average, report 1.8 CAMs, consistent with the early evidence in Hollie (2019). The industry with the largest number of completed material acquisitions is the manufacturing industry. Significant variation across industries exists in the likelihood of the auditor communicating an M&A-related CAM in the auditor's report.

Table 1 Panel C reports the sample distribution by auditor. EY has the largest presence in my sample with the highest number of clients that completed material acquisitions, the highest number of CAMs per client, and the frequency of M&A-related CAMs.

Descriptive Statistics

Table 2 Panel A reports descriptive statistics of my initial sample. Table 2 Panel B reports descriptive statistics of my final sample after removing influential observations. The variable exhibiting the largest difference between Panel A and Panel B is *DEAL_MATERIALITY*. The mean (standard deviation) decreases from 0.1 to 0.096 (from 0.182 to 0.148).

As reported in Table 2 Panel B, fees from a specific client are 12.4 percent of total fees from all clients in an engagement office and 15.4 percent of total fees are from non-audit services on average. Consistent with Gal-Or et al. (2019), 4 percent of auditors are M&A experts. Auditors have a mean tenure of 15 years. Regarding M&A deal characteristics, the M&A deal value is 14.8 percent of the acquirer's total assets at the beginning of the year and 34 percent of companies completed more than one acquisition in the initial year subject to PCAOB *AS 3101*. Companies allocate 46.1 percent of the total purchase price to goodwill on average and

23.5 percent of sample companies completed at least one acquisition in each of the current and previous two fiscal years. The acquiring companies grow the intangibles assets 1 percent after acquisition completion on average.

Table 2 Panel C reports the tests of difference in means between companies with and without an M&A-related CAM. In univariate tests, I do not find significant differences in the auditor characteristics. Regarding M&A deal characteristics, companies with M&A-related CAMs engage in larger deals. Regarding company characteristics, companies with M&A-related CAMs are smaller in size, more likely to have a loss, have a lower market-to-book ratio, are less likely to have foreign operations, report a smaller number of business and geographic segments, and report a higher proportion of intangible assets. For companies with M&A-related CAMs, auditors communicate significantly more CAMs in the auditor's report.

SECTION IV. EMPIRICAL RESULTS

Determinants of M&A-related CAMs

Table 3 reports the relation between auditor and deal characteristics and the communication of M&A-related CAMs. I examine whether auditor characteristics determine the auditor's decision to communicate an M&A-related CAM excluding and including audit firm indicators in Columns (1) and (2) respectively. In Column (1), I fail to find that auditor characteristics are significantly associated with the likelihood of the auditor communicating an M&A-related CAM at conventional levels. These results suggest that threats to independence and overconfidence at the office level do not significantly influence the auditor's CAM communication decision. In Column (2), I fail to find that auditor characteristics at both office and firm levels are significantly associated with the auditor's CAM communication decision at conventional levels, except for one audit firm. Although audit firms have firm-specific policies and implemented firm-wide training to comply with the CAM reporting requirements,[19] my results suggest that firm-specific characteristics do not significantly influence the auditor's CAM communication decision. The area under the ROC curve is 0.534 and 0.596 respectively in Columns (1) and (2). I examine whether M&A deal characteristics determine the auditor's decision to communicate an M&A-related CAM in Column (3). I find that deal size and whether the company completed multiple acquisitions in the initial year subject to *AS 3101* are significantly associated with the likelihood of the auditor communicating an M&A-related CAM (*p-value* < 0.01). The area under the ROC curve is 0.899. In Column (4), I include auditor

[19] See the comment letters submitted by Deloitte and EY, available at https://pcaobus.org/EconomicAndRiskAnalysis/pir/PostImplementationReviewAS3101UnqualifiedOpinion/6_Deloitte-Touche-LLP.pdf and https://pcaobus.org/EconomicAndRiskAnalysis/pir/PostImplementationReviewAS3101UnqualifiedOpinion/20_EY.pdf.

characteristics, audit firm indicators, and M&A deal characteristics. I consistently find that M&A deal characteristics are significantly associated with the auditor's decision to communicate an M&A-related CAM and fail to find that auditor characteristics are significantly associated with the auditor's CAM communication decision, except for one audit firm. The area under the ROC curve is 0.908. Overall, these results suggest that the auditor's decision to communicate an M&A-related CAM is not random and that it is driven by the complexity of the underlying audit matter rather than engagement-specific auditor attributes.

Table 4 reports the relation between the auditor, deal, and company characteristics and the communication of M&A-related CAMs without fixed effects in Column (1), with audit firm fixed effects in Column (2), and with audit firm fixed effects and industry fixed effects in Column (3). I consistently fail to find that auditor characteristics are significantly associated with the auditor's decision to communicate an M&A-related CAM at conventional levels. Regarding M&A deal characteristics, I consistently find that deal size and whether the company completed multiple acquisitions in the fiscal year are significantly associated with the auditor's decision to communicate an M&A-related CAM (*p-value* < 0.01, *p-value* < 0.05 respectively). I find some evidence that whether the company is a serial acquirer significantly influences the auditor's CAM communication decision. Regarding company characteristics, I consistently find that restatement announcement, size, and the number of segments are negatively associated with the likelihood of the auditor communicating an M&A-related CAM (*p-value* < 0.1, *p-value* < 0.05, and *p-value* < 0.05, respectively). I find some evidence that leverage and whether the company has foreign operations significantly influence the auditor's CAM communication decision. The area under the ROC curve is above 0.96 in all three columns. Taken together, these results

suggest that the auditor's decision to communicate an M&A-related CAM is driven by M&A deal characteristics and company characteristics.

In Table 5, I use stepwise logit regression to investigate the optimal combination of factors that influence the auditor's decision to communicate an M&A-related CAM. By systematically eliminating variables that are the least helpful in explaining the outcome, stepwise logit regression is particularly helpful when there is a potential multicollinearity problem (Ou and Penman 1989, Charitou et al. 2004). Specifically, I estimate a stepwise logit regression using a backward elimination technique with all of the variables in my determinants model (i.e. auditor characteristics, deal characteristics, company characteristics, audit firm indicators, and industry indicators) and set the significance level for elimination at the 15 percent level following Dechow et al. (2011). Consistent with the results in Table 3 and Table 4, I fail to find that auditor characteristics determine the auditor's CAM communication decision. However, I find that one audit firm is positively associated with the probability of communicating an M&A-related CAM (*p-value* < 0.05). Regarding M&A deal characteristics, I consistently find that multiple acquisitions is negatively associated with the communication of an M&A-related CAM (*p-value* < 0.1) and that deal size and serial acquirer are positively associated with the communication of an M&A-related CAM (*p-value* < 0.01 and *p-value* < 0.1 respectively). Regarding company characteristics, I find that restatement announcement, size of the company, foreign operations, and the number of segments are negatively associated with the communication of M&A-related CAMs (*p-value* < 0.05) and that the total number of CAMs is positively associated with the communication of an M&A-related CAM (*p-value* < 0.01). It suggests that auditors are less likely to communicate an M&A-related CAM when clients are larger and more complex. In addition, three industries are positively associated with the auditor's decision to communicate an

M&A-related CAM. The area under the ROC curve is 0.968. Results consistently support that the auditor's CAM communication decision is explained by the complexity of audit matter and operations rather than the auditor attributes.

Robustness Test – Deal Size

As outlined by the PCAOB, CAMs are audit matters that relate to material accounts or disclosures. In my main analyses, I restrict the sample to M&A deals that management identifies as material in the annual financial statements. Larger deals are generally more complex, involve a higher degree of uncertainty, and receive more public scrutiny. Because CAMs are intended to provide more informative and relevant information to investors, auditors can become more likely to communicate M&A-related CAMs when deals are more material. Smaller deals should require less challenging audit judgment, which reduces the likelihood of the auditor identifying the audit matter as a CAM. To explore the influence of deal size, I re-estimate equation (1) by restricting the sample to deals to the middle three quintiles and the middle two quartiles based on deal size respectively.[20] In untabulated tests, I consistently find that auditor characteristics do not influence the auditor's decision to communicate a CAM and that the decision is driven by the complexity of the audit matter and operations.

Robustness Test – M&As as the Primary Business

Whereas most companies engage in M&As when they find a target that suits their strategy, some companies frequently complete M&As as their primary business. Because these companies have different operations, the judgment that auditors exercise in the CAM communicating decision could be substantially different from the rest. In untabulated tests, I remove companies that frequently complete M&As as their primary business (in SIC 6211

[20] I include *DEAL_MATERIALITY* instead of *DEAL_SIZE* to proxy for the size of the deal.

Security Brokers, Dealers, and Flotation Companies, SIC 6282 Investment Advice, SIC 6500 Real Estate, SIC 6512 Operators of Nonresidential Buildings, and SIC 6798 Real Estate Investment Trusts), and consistently find that the auditor's CAM communication decision is driven by the complexity of the audit matter and operations rather than the auditor attributes.

Robustness Test – Initial-year Audits

Although initial-year audits typically involve substantial effort from the auditor and impose extra costs, auditors generally lowball to gain the client's business (Huang et al. 2009). As auditors face different economic incentives in the initial year audits, it can further affect the professional judgment they apply in the decision to communicate CAMs. In untabulated tests, I remove companies audited by auditors in their initial two years with the clients and consistently find that the auditor's CAM communication decision is driven by deal and company characteristics.

Additional Analysis – Predicted and Actual CAMs

Financial statement users only observe the CAMs communicated in the auditor's report. However, it does not provide information about whether the auditors appropriately identified audit matters as CAMs. The PCAOB notes in its final rule that the determination of CAMs depends on the complexity of the audit and the complexity of the operations and accounting systems. Therefore, I first predict the likelihood of an M&A-related audit matter meeting the definition of a CAM (*Probability_CAM*) using deal and company characteristics that capture the complexity of the audit and the complexity of operations and accounting systems using the full sample. In Table 6 Panel A, I find that the mean probability of an M&A-related audit matter meeting the definition of a CAM is 46.9 percent. I define observations with a predicted probability above 0.7 as the cases where the auditor should communicate an M&A-related CAM

in the auditor's report (*Predict_CAM*) and classify observations into four groups: consistent CAMs (*CAM* = 1 and *Predict_CAM* = 1), consistent non-CAMs (*CAM* = 0 and *Predict_CAM* = 0), conservative CAMs (*CAM* = 1 and *Predict_CAM* = 0), and aggressive CAMs (*CAM* = 0 and *Predict_CAM* = 1). In Table 6 Panel B, I find that 80.5 percent of sample observations involve CAMs that are consistent between the predictions and the actual CAMs communicated in the auditor's report. 14.8 (4.6) percent of sample observations involve auditors that are more conservative (aggressive) in their decision to report M&A-related CAMs. Because each audit firm has its own firm-wide policies and training, I explore whether the auditor's CAM communication decision varies across audit firms. In Table 6 Panel C, I find that the frequency of CAMs in each group varies across audit firms. PwC is the auditor with the highest frequency of consistent CAMs. Among the Big4 audit firms, EY is the most conservative in communicating M&A-related CAMs. I next explore whether the auditor characteristics vary based on the auditor's CAM communication decision. In Table 6 Panel D, I find some variation in the auditor characteristics across the four groups of auditors based on their CAM reporting behavior. However, the difference is not significant between any two groups. Taken together, these results suggest that the M&A-related CAMs communicated in the auditor's report are generally consistent with the M&A-related audit matters that are predicted to meet the definition of CAMs and that audit firms exhibit systematic differences in their decision to communicate M&A-related CAMs.

SECTION VI. CONCLUSION

To increase the informativeness and relevance of the auditor's report, the PCAOB adopted *AS 3101* in 2017, requiring auditors to communicate CAMs that relate to material accounts or disclosures of the financial statements and involve especially challenging, subjective, or complex auditor judgment. The communication of CAMs, including the identification of CAMs and the description of how the auditors addressed the CAMs in the audit, allows auditors to provide new information to financial statement users about how they exercise professional judgment in the audit. I use a sample of initial adopters of *AS 3101* that completed material M&As to examine the factors that influence the auditor's CAM communication decision.

After controlling for M&A deal characteristics and company characteristics, I fail to find that auditor characteristics at the office- and firm-level significantly influence the auditor's CAM communication decision. Instead, the decision is driven by the complexity of the underlying audit matter and the complexity of operations. By documenting these results, I extend the literature on auditor judgment and on expanded auditor's report. My study provides insights for the PCAOB, audit committees, and investors.

Importantly, my setting allows me to observe the auditor's decision to communicate a CAM and empirically examine the factors that influence the auditor's judgment in the CAM communication decision. However, the communication of a CAM does not provide evidence regarding whether the auditors deliver high-quality audits. As the PCAOB conduct inspections of audit firms and perform post-implementation reviews of the recently adopted standard, the PCAOB will provide more information on whether auditors have appropriately identified and communicated CAMs in the expanded auditor's report.

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APPENDICES

Appendix A. Example of Critical Audit Matters related to Mergers and Acquisitions

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of
WestRock Company

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of WestRock Company (the Company) as of September 30, 2019 and 2018, the related consolidated statements of income, comprehensive income**,** equity and cash flows for each of the three years in the period ended September 30, 2019, and the related notes (collectively referred to as the "consolidated financial statements"). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company at September 30, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended September 30, 2019, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (PCAOB), the Company's internal control over financial reporting as of September 30, 2019, based on criteria established in Internal Control-Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework), and our report dated November 15, 2019 expressed an unqualified opinion thereon.

Adoption of New Accounting Standards

As discussed in Note 2 to the consolidated financial statements, the Company changed its method of accounting for revenue from contracts with customers and certain fulfillment costs in 2019 due to the adoption of ASC 606, *Revenue from Contracts with Customers*.

As discussed in Note 1 to the consolidated financial statements, the Company changed its classification of cash receipts on the deferred purchase price receivable on asset-backed securitization transactions in 2019 due to the adoption of ASU No. 2016-15, *Statement of Cash Flows: Classification of Certain Cash Receipts and Cash Payments*.

As discussed in Note 1 to the consolidated financial statements, the Company changed its presentation of non-service components of pension and other postretirement income (expense) in 2019 due to the adoption of ASU No. 2017-07, *Compensation – Retirement Benefits (Topic 715): Improving the Presentation of Net Periodic Cost and Net Periodic Postretirement Benefit Cost*.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the PCAOB and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Accounting for the Acquisition of KapStone Paper and Packaging Corporation

Description of the Matter

During 2019, the Company completed its acquisition of KapStone Paper and Packaging Corporation (KapStone) for net consideration of $4.9 billion including debt assumed (the "Transaction"), as disclosed in Note 3 to the consolidated financial statements. The Transaction is accounted for as a business combination and the Company preliminarily allocated $1,303.0 million of the purchase price to the fair value of the acquired customer relationship intangible assets. The Company is in the process of analyzing the estimated values of all assets acquired and liabilities assumed including, among other things, finalizing third-party valuations of certain tangible and intangible assets, as well as the fair value of certain contracts and the determination of certain tax balances, therefore, the allocation of the purchase price is preliminary and subject to revision as of September 30, 2019.

Auditing management's preliminary allocation of purchase price for its acquisition of KapStone involved especially subjective and complex judgements due to the significant estimation required in determining the fair value of customer relationship intangible assets. The significant estimation was primarily due to the complexity of the valuation models used to measure that fair value as well as the sensitivity of the respective fair values to the underlying significant assumptions. The significant assumptions used to estimate the fair value of the customer relationship intangible assets and subsequent amortization expense included discount rates, customer attrition rates and economic lives. These significant assumptions are forward-looking and could be affected by future economic and market conditions.

How We Addressed the Matter in Our Audit

We tested the design and operating effectiveness of the Company's controls related to the accounting for the KapStone acquisition. For example, we tested controls over the recognition and measurement of customer relationship intangible assets in the acquisition, including the Company's controls over the valuation model, the mathematical accuracy of the valuation model and development of underlying assumptions used to develop such fair value measurement estimates.

To test the fair value of the Company's customer relationship intangible assets, our audit procedures included, among others, evaluating the Company's valuation model, the method and significant assumptions used and testing the completeness and accuracy of the underlying data supporting the significant assumptions and estimates. We involved our valuation specialists to assist with our evaluation of the valuation model and certain significant assumptions. For example, we reconciled the discount rates to the projected internal rate of return for the Transaction and compared the attrition rates to industry data.

In addition, to evaluate the effect of changes in assumptions, we performed sensitivity analysis of the fair value of customer relationship intangible assets, and of amortization expense to the economic lives assigned to the customer relationship intangible assets.

Test of Goodwill for Impairment

Description of the Matter

At September 30, 2019, the Company's goodwill is $7,285.6 million. As discussed in Note 1 of the consolidated financial statements, goodwill is tested for impairment at least annually at the reporting unit level. This requires management to estimate the fair value of the reporting units with goodwill allocated to them.

Auditing management's goodwill impairment tests involved especially subjective judgements due to the significant estimation required in determining the fair value of the reporting units. In particular, the estimates for the fair values of the Company's reporting units are sensitive to assumptions such as the discount rate and expected future net cash flows, including projected operating results, capital expenditures and tax rates, which are affected by expectations about future market or economic conditions.

How We Addressed the Matter in Our Audit

We obtained an understanding, evaluated the design and tested the operating effectiveness of controls over the Company's goodwill impairment review process. For example, we tested controls over the estimation of the fair values of the reporting units, including the Company's controls over the valuation models, the mathematical accuracy of the valuation models and development of underlying assumptions used to develop such fair values of the reporting units. We also tested management's review of the reconciliation of the aggregate estimated fair value of the reporting units to the market capitalization of the Company.

To test the estimated fair values of the Company's reporting units, our audit procedures included, among others, assessing the valuation methodology and the underlying data used by the Company in its analysis, including testing the significant assumptions discussed above. We compared the significant assumptions used by management to current industry and economic trends, changes to the Company's business model and other relevant factors. We assessed the historical accuracy of management's assumptions of future expected net cash flows and performed sensitivity analyses of significant assumptions to evaluate the changes in the fair values of the reporting units that would result from changes in the assumptions. We involved valuation specialists to assist in our evaluation of the valuation methodology and the significant assumptions, including the discount rate used in determining the fair values of the reporting units. We also tested the reconciliation of the aggregate estimated fair value of the reporting units to the market capitalization of the Company.

Uncertain Tax Positions

Description of the Matter

As discussed in Note 6 to the consolidated financial statements, the Company has unrecognized income tax benefits of $224.3 million related to its uncertain tax positions at September 30, 2019. The Company uses significant judgment in determining (1) whether a tax position, based solely on its technical merits, is more likely than not to be sustained upon examination, and (2) measuring the tax benefit as the largest amount of benefit which is more likely than not to be realized upon ultimate settlement. The Company does not record any benefit for the tax positions that do not meet the more-likely-than-not initial recognition threshold.

Auditing management's analysis of its uncertain tax positions and resulting unrecognized income tax benefits involved especially subjective and complex judgements because each tax position carries unique facts and circumstances that require interpretation of laws, regulations and legal rulings, and other factors.

How We Addressed the Matter in Our Audit

We tested the Company's controls that address the risks of material misstatement relating to uncertain tax positions. For example, we tested controls over management's identification of uncertain tax positions and application of the two-step recognition and measurement principles, including management's review of the inputs and resulting calculations of unrecognized income tax benefits.

To test the Company's measurement and recording of its uncertain tax positions, our audit procedures included, among others, inspecting the Company's analysis and related tax opinions to evaluate the assumptions the Company used to develop its uncertain tax positions and related unrecognized income tax benefit amounts by jurisdiction. We also tested the completeness and accuracy of the underlying data used by the Company to calculate its uncertain tax positions. For example, we compared the unrecognized income tax benefits to similar positions in prior periods and assessed management's consideration of current tax controversy and litigation trends in similar positions challenged by tax authorities. In addition, we involved tax subject matter resources to evaluate the application of relevant tax laws in the Company's recognition determination. We also evaluated the Company's income tax disclosures in relation to these matters included in Note 6 to the consolidated financial statements.

/s/ Ernst & Young LLP

We have served as the Company's or its predecessor's auditor since at least 1975, but we are unable to determine the specific year.

Atlanta, Georgia

November 15, 2019

Appendix B
Variable Definitions and Sources

Variable	Definition [Sources]
Dependent Variable	
CAM	Indicator variable equal to 1 if the auditor communicates a CAM under the topic of "business combinations", and 0 otherwise [Audit Analytics]
Auditor Characteristics	
IMPORTANCE	The ratio of a client's total fees to the sum of total fees for all clients in an office [Audit Analytics]
NAS	The sum of non-audit fees divided by total fees paid to the auditor [Audit Analytics]
ACQ_EXPERT	Indicator variable equal to 1 if at least 30% of all clients at an audit office completed an acquisition in the current or prior two fiscal years, and 0 otherwise [Audit Analytics and SDC]
TENURE	The natural log of the tenure of the auditor measured in years [Audit Analytics]
Deal Characteristics	
DEAL_SIZE	The quintile of total deal value scaled by lagged total assets (*DEAL_MATERIALITY*), with a larger number indicating larger deals [Hand collection and Compustat]
MULTIPLE_ACQ	Indicator equal to 1 if the client completed more than one acquisition, and 0 otherwise [Hand collection]
GOODWILL	Goodwill scaled by total deal value [Hand collection]
SERIAL	Indicator equal to 1 if the client completed an acquisition in each of the current and prior two years, and 0 otherwise [SDC]
INTAN_GROW	Growth in definite-lived and indefinite-lived intangible assets, excluding goodwill, divided by total assets [Compustat]
Company Characteristics	
RESTATE	Indicator equal to 1 if the client announced a restatement, and 0 otherwise [Audit Analytics]
ARC	Accounting Reporting Complexity of the company constructed based on the count of accounting items (XBRL) tags disclosed in the annual financial statements [XBRL Research Data by Hoitash and Hoitash]
SIZE	The log of total assets [Compustat]
LEV	Book value of debt divided by book value of assets [Compustat]
MTB	Market-to-Book ratio [Compustat]
LOSS	Indicator equal to 1 if the client reports a loss, and 0 otherwise [Compustat]
FOREIGN	Indicator equal to 1 if the client has foreign operations, and 0 otherwise [Compustat]
SEG	The sum of business segments and geographic segments [Compustat]
INTAN	The sum of definite-lived intangible assets, indefinite-lived intangible assets, and goodwill divided by total assets [Compustat]
TOTAL_CAM	The total number of CAMs in the auditor's report [Audit Analytics]

TABLE 1
Sample Selection and Composition
Panel A. Sample Selection

Description	Number of Observations
Large accelerated filers with fiscal years ending on or after 6/30/2019 and before 6/30/2020	2005
Companies identified in Compustat	1990
Companies audited by auditors located in the United States	1880
Companies completed material acquisitions	675
Companies with non-missing auditor characteristics	673
Companies with non-missing deal characteristics	673
Companies with non-missing company characteristics	668
Initial Sample	668
Influential Observations based on Cook's Distance	(47)
Final Sample	621

Panel B. Observations by Industry

Industry	N	*TOTAL_CAM*	Percentage (*CAM*=1)
1-Agriculture, Forestry, Fishing, Mining, and Construction	19	1.842	0.474
2-Manufacturing	252	1.754	0.448
3-Transportation, Communication, Electric, Gas, and Sanitary Services	45	2.022	0.622
4-Wholesale Trade	17	1.824	0.353
5-Retail Trade	22	1.591	0.273
6-Finance, Insurance, and Real Estate	100	1.830	0.540
7-Services	166	1.765	0.458
Total	621		
Average		1.787	0.470

Panel C. Observations by Auditor

Auditor	N	*TOTAL_CAM*	Percentage (*CAM*=1)
1-PwC	150	1.713	0.453
2-EY	170	2.041	0.565
3-Deloitte	132	1.538	0.348
4-KPMG	112	1.777	0.473
5-Non Big4	57	1.825	0.509
Total	621		
Average		1.787	0.470

Notes: This table reports the sample selection and distribution. Panel A reports the results of the sample selection. I remove 47 influential observations identified using influence diagnostics with a Cook's Distance greater than 4/n. Panel B reports the distribution of observations by industry. I define industry following the classification provided by the NAICS Association. I combine companies in Division A (SIC 01-09 Agriculture, Forestry, and Fishing), Division B (SIC 10-14 Mining), and Division C (SIC 15-17 Construction) into one industry because each industry has a small number of observations. Panel C reports the distribution of observations by the auditor. All variables are defined in Appendix B.

TABLE 2
Descriptive Statistics
Panel A. Descriptive Statistics of the Initial Sample

Variable	N	Mean	Std Dev	P10	P25	P50	P75	P90
Auditor characteristics								
IMPORTANCE	668	0.131	0.179	0.013	0.025	0.063	0.156	0.324
NAS	668	0.153	0.129	0.006	0.047	0.129	0.229	0.332
ACQ_EXPERT	668	0.051	0.220	0	0	0	0	0
TENURE	668	2.708	0.924	1.609	2.079	2.833	3.296	3.912
Deal characteristics								
DEAL_MATERIALITY	668	0.100	0.182	0.004	0.013	0.037	0.114	0.254
MULTIPLE_ACQ	668	0.332	0.471	0	0	0	1	1
GOODWILL	668	0.462	0.264	0.091	0.282	0.476	0.641	0.776
SERIAL	668	0.232	0.422	0	0	0	0	1
INTAN_GROW	668	0.011	0.091	-0.022	-0.010	-0.001	0.003	0.038
Company characteristics								
RESTATE	668	0.091	0.288	0	0	0	0	0
ARC	668	457.413	138.798	304	357	431	545	640
SIZE	668	8.666	1.422	6.979	7.628	8.517	9.521	10.696
LEV	668	0.326	0.208	0.046	0.166	0.322	0.459	0.571
MTB	668	0.030	174.541	0.846	1.508	2.880	6.033	14.196
LOSS	668	0.295	0.456	0	0	0	1	1
FOREIGN	668	0.552	0.498	0	0	1	1	1
SEG	668	9.039	5.724	2	5	8	12	17
INTAN	668	0.327	0.232	0.035	0.107	0.307	0.517	0.656
TOTAL_CAM	668	1.801	0.777	1	1	2	2	3

Panel B. Descriptive Statistics of the Final Sample

Variable	N	Mean	Std Dev	P10	P25	P50	P75	P90
Auditor characteristics								
IMPORTANCE	621	0.124	0.172	0.013	0.025	0.059	0.151	0.297
NAS	621	0.154	0.130	0.006	0.046	0.132	0.236	0.333
ACQ_EXPERT	621	0.040	0.197	0	0	0	0	0
TENURE	621	2.704	0.914	1.609	2.079	2.833	3.296	3.871
Deal characteristics								
DEAL_MATERIALITY	621	0.096	0.148	0.004	0.012	0.037	0.113	0.251
MULTIPLE_ACQ	621	0.338	0.473	0	0	0	1	1
GOODWILL	621	0.461	0.263	0.100	0.282	0.476	0.638	0.773
SERIAL	621	0.235	0.424	0	0	0	0	1
INTAN_GROW	621	0.011	0.093	-0.022	-0.010	-0.002	0.003	0.040

TABLE 2 continued

Company characteristics								
RESTATE	621	0.085	0.280	0	0	0	0	0
ARC	621	455.768	135.196	306	357	429	540	640
SIZE	621	8.637	1.401	6.981	7.623	8.502	9.502	10.614
LEV	621	0.322	0.207	0.047	0.164	0.314	0.454	0.565
MTB	621	6.600	20.862	0.846	1.520	2.953	6.066	14.196
LOSS	621	0.287	0.453	0	0	0	1	1
FOREIGN	621	0.562	0.497	0	0	1	1	1
SEG	621	9.077	5.756	2	5	8	12	17
INTAN	621	0.331	0.232	0.038	0.111	0.310	0.523	0.658
TOTAL_CAM	621	1.787	0.766	1	1	2	2	3

Panel C. Tests of Differences in Means

Variable	CAM = 1		CAM = 0		Difference
	N	Mean	N	Mean	
Auditor characteristics					
IMPORTANCE	292	0.12	329	0.13	-0.005
NAS	292	0.15	329	0.16	-0.012
ACQ_EXPERT	292	0.03	329	0.05	-0.018
TENURE	292	2.68	329	2.73	-0.050
Deal characteristics					
DEAL_SIZE	292	0.17	329	0.03	0.146***
MULTIPLE_ACQ	292	0.34	329	0.33	0.008
GOODWILL	292	0.45	329	0.47	-0.021
SERIAL	292	0.26	329	0.21	0.048
INTAN_GROW	292	0.01	329	0.01	-0.002
Company characteristics					
RESTATE	292	0.08	329	0.09	-0.012
ARC	292	449.54	329	461.29	-11.754
SIZE	292	8.46	329	8.79	-0.324***
LEV	292	0.32	329	0.32	-0.004
MTB	292	5.93	329	7.20	-1.274
LOSS	292	0.32	329	0.26	0.067*
FOREIGN	292	0.49	329	0.62	-0.130***
SEG	292	8.58	329	9.52	-0.947**
INTAN	292	0.36	329	0.30	0.061***
TOTAL_CAM	292	2.24	329	1.39	0.854***

Notes: Panel A reports the descriptive statistics of the initial sample. Panel B reports the descriptive statistics of the final sample after removing influential observations. I remove 47 influential observations identified using influence

diagnostics with a Cook's Distance greater than 4/n. Panel C reports the tests of differences in means and p-values are based on two-tailed tests. All variables are defined in Appendix B.

TABLE 3
Auditor Characteristics, Deal Characteristics, and M&A-related CAMs

	CAM			
	(1)	(2)	(3)	(4)
IMPORTANCE	0.210	0.072		0.468
	(0.700)	(0.904)		(0.571)
NAS	-0.787	-0.689		0.401
	(0.214)	(0.291)		(0.681)
ACQ_EXPERT	-0.599	-0.529		-0.315
	(0.220)	(0.283)		(0.678)
TENURE	-0.049	-0.047		0.097
	(0.584)	(0.606)		(0.466)
AUDITOR_1		-0.207		-0.486
		(0.542)		(0.313)
AUDITOR_2		0.223		0.128
		(0.510)		(0.789)
AUDITOR_3		-0.653*		-1.382***
		(0.063)		(0.005)
AUDITOR_4		-0.154		-0.461
		(0.662)		(0.365)
DEAL_ SIZE			1.561***	1.663***
			(0.000)	(0.000)
MULTIPLE_ACQ			-0.660***	-0.621**
			(0.007)	(0.014)
GOODWILL			-0.586	-0.506
			(0.195)	(0.271)
SERIAL			-0.148	-0.207
			(0.579)	(0.469)
INTAN_GROW			0.595	0.068
			(0.720)	(0.970)
Constant	0.131	0.278	-4.334***	-4.603***
	(0.617)	(0.457)	(0.000)	(0.000)
N	621	621	621	621
AUC	0.534	0.596	0.899	0.908

Notes: This table reports the results for the determinants of an M&A-related CAM using Logit Regression. P-values appear in parentheses below the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, 1 percent levels, respectively. Variables are defined in Appendix B.

TABLE 4
The Determinants of M&A-related CAMs

	CAM					
	(1)		(2)		(3)	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
IMPORTANCE	-0.411	(0.691)	-0.259	(0.825)	0.734	(0.575)
NAS	1.007	(0.430)	0.910	(0.482)	0.771	(0.575)
ACQ_EXPERT	-0.536	(0.590)	-0.651	(0.530)	-1.032	(0.382)
TENURE	0.093	(0.581)	0.082	(0.633)	0.134	(0.468)
DEAL_SIZE	1.886***	(0.000)	1.922***	(0.000)	2.131***	(0.000)
MULTIPLE_ACQ	-0.826**	(0.011)	-0.849**	(0.011)	-0.971***	(0.006)
GOODWILL	-0.292	(0.632)	-0.354	(0.564)	-0.282	(0.668)
SERIAL	0.604	(0.105)	0.670*	(0.080)	0.689*	(0.085)
INTAN_GROW	1.612	(0.512)	1.710	(0.485)	2.206	(0.436)
RESTATE	-1.270**	(0.025)	-1.447**	(0.015)	-1.210*	(0.062)
ARC	0.002	(0.128)	0.002	(0.185)	-0.000	(0.870)
SIZE	-0.313**	(0.041)	-0.331**	(0.040)	-0.540***	(0.003)
LEV	-1.282*	(0.096)	-1.440*	(0.070)	-1.011	(0.273)
MTB	-0.007	(0.323)	-0.009	(0.229)	-0.008	(0.422)
LOSS	-0.556	(0.143)	-0.490	(0.204)	-0.120	(0.777)
FOREIGN	-0.723**	(0.039)	-0.898**	(0.014)	-0.526	(0.215)
SEG	-0.050**	(0.010)	-0.048**	(0.013)	-0.054***	(0.007)
INTAN	-0.431	(0.585)	-0.574	(0.473)	0.240	(0.797)
TOTAL_CAM	2.741***	(0.000)	2.729***	(0.000)	2.877***	(0.000)
AUDITOR_1			0.811	(0.214)	1.594**	(0.028)
AUDITOR_2			0.248	(0.691)	0.825	(0.223)
AUDITOR_3			-0.270	(0.674)	0.496	(0.481)
AUDITOR_4			-0.024	(0.972)	0.370	(0.608)
IND_2					-0.183	(0.879)
IND_3					0.632	(0.630)
IND_4					-1.815	(0.265)
IND_5					-0.281	(0.852)
IND_6					2.255*	(0.078)
IND_7					-1.116	(0.356)
Constant	-7.215***	(0.000)	-7.010***	(0.000)	-6.545***	(0.000)
N	621		621		621	
AUC	0.963		0.964		0.970	

Notes: This table reports the results for the determinants of an M&A-related CAM using Stepwise Logit Regression. Regarding auditor and industry indicators, *AUDITOR_5* and *IND_1* are in the intercept. P-values appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, 1 percent levels. Variables are defined in Appendix B.

TABLE 5
The Determinants of M&A-related CAMs using Stepwise Logit Regression

	CAM	
	Coeff.	p-value
AUDITOR1	0.934**	(0.018)
DEAL_SIZE	2.084***	(0.000)
MULTIPLE_ACQ	-0.915***	(0.007)
SERIAL	0.701*	(0.064)
SIZE	-0.463***	(0.001)
RESTATE	-1.215**	(0.038)
FOREIGN	-0.627*	(0.088)
SEG	-0.053***	(0.005)
TOTAL_CAM	2.902***	(0.000)
INDUSTRY4	-1.733	(0.113)
INDUSTRY6	2.115***	(0.000)
INDUSTRY7	-1.185***	(0.003)
constant	-6.557***	(0.000)
Observations	621	
AUC	0.968	

Notes: This table reports the results for the determinants of an M&A-related CAM using Stepwise Logit Regression. P-values appear in parentheses next to the coefficient estimates. *, **, and *** denote two-tailed statistical significance at the 10, 5, 1 percent levels. Variables are defined in Appendix B.

TABLE 6
Predicted and Actual CAMs
Panel A. Descriptive Statistics of Predicted CAMs

Variable	N	Mean	Std Dev	P10	P25	P50	P75	P90
Probability_CAM	668	0.469	0.368	0.028	0.087	0.438	0.863	0.966
Predict_CAM	668	0.367	0.482	0	0	0	1	1

Panel B. Predicted and Actual M&A-related CAMs

Variable	Consistent CAMs	Consistent Non-CAMs	Conservative CAMs	Aggressive CAMs	Total
N	214	324	99	31	668
Percentage	0.320	0.485	0.148	0.046	1

Panel C. Percentage of Predicted and Actual M&A-related CAMs by Auditor

Variable	Consistent CAMs	Consistent Non-CAMs	Conservative CAMs	Aggressive CAMs	Total
1-PwC	0.333	0.509	0.119	0.038	159
2-EY	0.400	0.394	0.167	0.039	180
3-Deloitte	0.197	0.585	0.156	0.061	147
4-KPMG	0.331	0.500	0.136	0.034	118
5-Non Big4	0.328	0.422	0.172	0.078	64

Panel D. The Means of Auditor Characteristics by CAM Reporting Decision

Variable	Consistent CAMs	Consistent Non-CAMs	Conservative CAMs	Aggressive CAMs
IMPORTANCE	0.126	0.128	0.109	0.106
NAS	0.143	0.160	0.162	0.164
ACQ_EXPERT	0.037	0.050	0.013	0.000
TENURE	2.649	2.729	2.754	2.686

VITA

Xi Ai obtained her Bachelor's and Master's degree in Accountancy from the University of Arkansas. Prior to starting her doctoral program, she worked in the International Accounting Division of Tyson Foods' global headquarters in Springdale, Arkansas. She is a licensed CPA in the state of Arkansas. She started the doctoral program at the University of Tennessee in 2017 with research and teaching interests in auditing and financial accounting. Xi is excited to begin her career as an assistant professor at the University of Louisville in August 2021.