

The effect of audit engagement partner rotation on CAM disclosure

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Track: Accounting & Auditing

Master thesis in

Accounting, Auditing & Control

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Abstract: I examine whether there is a significant difference in the number of Critical Audit Matters (CAMs) before and after audit engagement partner rotation. U.S. listed companies are mandated to rotate every five years from audit engagement partner but may choose to rotate earlier. Using a sample of U.S. listed firms that switch audit engagement partners from 2020 until 2022, we find that auditors disclose significantly fewer CAMs in the first year after audit engagement partner rotation in comparison to the last year before the rotation. This relation is only present for large accelerated filers, but not for non-large accelerated filers. Lastly, the relation between the different types of rotations and the number of CAMs disclosed is pronounced. The results suggest that the number of CAMs disclosed is negatively related to mandatory and voluntary rotations after one or three years, but not related to voluntary rotations after two or four years.

Keywords: Critical audit matters, audit engagement partner rotation, audit quality, AS 3101

Table of contents

1. Introduction	3
2. Theoretical Background	5
2.1. Critical Audit Matters.....	5
2.2. Audit Engagement Partner Rotation	6
3. Literature Review and Hypothesis Development.....	7
3.1. Informativeness of CAMs	7
3.2. CAMs and auditor liability.....	8
3.3. CAM disclosure and financial reporting quality	9
3.4. Hypotheses Development.....	9
4. Research Design and Sample Selection.....	11
4.1. Research Design.....	11
4.2. Sample Selection	11
5. Empirical Results.....	12
5.1. Descriptive Statistics	12
5.2. Test of Hypothesis	13
5.3. Additional Analysis	14
5.4. Sensitivity Analysis	16
5.4.1 Excluding Manufacturing firms.....	16
5.4.2 Client Firm Size.....	16
6. Conclusion.....	17

1. Introduction

Audit Standard 3101 (AS 3101) represents one of the most important changes to the auditors' reports. The new AS 3101 requires auditors to determine whether there are any Critical Audit Matters (CAMs) arising from the audit of the financial statements. The standard became effective first for audits of large accelerated filers whose fiscal years end on or after June 30, 2019.¹ Later, AS 3101 became effective for all other firms whose fiscal year ends on or after December 15, 2020 (PCAOB, n.d.). In this study, I will examine whether there is a significant difference in the number of CAMs before and after audit engagement partner rotation for U.S. listed firms. Opposing views exist on whether there will be more CAMs in the last year before audit engagement partner rotation or the first year after audit engagement partner rotation. Some prior studies argue that client-specific knowledge improves audit reporting quality (Geiger & Raghunandan, 2002; Ghosh & Moon, 2005). Client-specific knowledge is more present in the last year before the rotation than in the first year after the rotation, and is an important aspect of audit quality. Improved audit reporting quality could eventually lead to the identification of more CAMs. Other papers suggest that longer tenure decreases audit reporting quality (Chu et al., 2016; Singer & Zhang, 2018). Meaning that auditors will identify more CAMs in the first year of the engagement in comparison to the last year of the engagement.

AS 3101 requires auditors to identify risks that arise from the audit that are material to the financial statements and involve especially challenging, subjective, or complex auditor judgment. There are some guidelines for identifying CAMs, but there is no general rule for identifying CAMs. The risks identified by the auditor that arise from the audit that are material and involve especially challenging, subjective, or complex auditor judgment, in other words, the number of CAMs, is dependent on the willingness of the auditor to be transparent about the risks they faced during the audit. Auditors could have incentives to provide less CAMs for some clients, while for other firms they could have incentives to provide more CAMs. The theory of Hogarth can be used to explain how auditors come to their professional judgment and select CAMs. According to the Hogarth theory, the system where judgment takes place consists of three elements: the person, the task environment, and the resulting actions. The person's task environment is created by the characteristics of the judgmental task and the person's memory. This theory can be expanded to auditors. In determining CAMs, the auditor uses judgment. The auditor uses experience, the audit strategy, and the entity's characteristics to form his judgment (Sierra-García et al., 2019). Extant literature proposes two opposing views on the relation between auditor tenure and audit quality. First, a longer auditor tenure could increase audit quality. Some researchers argue that longer tenure increases audit quality, as more client-specific knowledge is present (Geiger & Raghunandan, 2002; Ghosh & Moon, 2005). On the other side, a longer auditor tenure could decrease audit quality. Some researchers argue that longer tenure decreases audit quality. In

¹ A large accelerated filer is a company (1) with a public float of \$700 million or more on the last business day of the issuer's most recently completed second fiscal quarter, (2) that has been filing periodic reports for at least 12 months, (3) has filed minimal one 10-K, and (4) that is not a smaller reporting company (*SEC.gov | Accelerated Filer And Large Accelerated Filer Definitions*, 2020).

situations where the litigation risk for an auditor is higher, the positive relation between audit quality and audit tenure could be reversed. Resulting in a lower audit quality with a longer auditor tenure (Chu et al., 2016; Singer & Zhang, 2018). Transparent CAM disclosure can be seen as part of audit quality (Li et al., 2022). While keeping transparent CAM disclosure as part of audit quality, the relation between audit quality and auditor tenure can be expanded. On the one hand, a longer tenure can increase audit quality, and thereby increase transparent CAM disclosure. This means that there will be more CAMs in the last year before audit engagement partner rotation in comparison to the first year after audit engagement partner rotation. On the other hand, a longer tenure can decrease audit quality. A decreased audit quality decreases transparent CAM disclosure, resulting in fewer CAMs in the last year before the rotation in comparison to the first year after the rotation. Studies on large accelerated filers showed mixed evidence for the effect of audit tenure on CAM disclosure. Li et al., (2022) showed that a longer auditor tenure is negatively associated with the total number of CAMs disclosed, while Elshafie (2023) showed that auditors in the first year after rotation have less tendency to report CAMs. Consequently, I hypothesize that there will not be a significant difference in the number of CAMs disclosed in the last year of the engagement in comparison to the first year after audit engagement partner rotation.

To empirically test my prediction, I identify firms switching audit engagement partner from the Audit Opinions dataset from the Audit Analytics database. The number of CAMs are collected from the Critical Audit Matters dataset also from the Audit Analytics database. The remaining control variables which were not present in the Audit Opinions dataset are added via the Fundamentals Annual dataset from the Compustat database. The sample consists of 501 audit engagement partner rotations in 2021 or 2022. Inconsistent with my prediction, I find that audit engagement partner rotation is significantly and negatively related to the number of CAMs disclosed, indicating that audit engagement partners disclose more CAMs in the last year of the engagement than in the first year of the engagement. To gain more insight into the relation between audit engagement partner rotation and the number of CAMs disclosed, I make a distinction between the types of rotations. A rotation is mandatory if the audit engagement partner was on the engagement for five consecutive years. However, if a firm decides to rotate their audit engagement partner within five years, it is a voluntary rotation. Voluntary rotations can occur after one, two, three, or four years. Additional analyses are performed on the five different types of rotations. My findings suggest that mandatory rotations, voluntary rotations after one year, and voluntary rotations after 3 years are significantly and negatively related to the number of CAMs disclosed. Voluntary rotations after two or four years are not related to the number of CAMs disclosed. The sensitivity analysis shows that the relation between audit engagement partner rotations and the number of CAMs disclosed stays consistent when I exclude firms active in the manufacturing industry. Firms in the manufacturing industry account for 57.1% of the sample. The relation does not hold when I split the sample to firms classified as large accelerated filers and non-large accelerated filers. In the sample of large accelerated filers, audit engagement partner rotation is significantly and negatively related to the number of CAMs disclosed. However, this is not the

case in the sample of non-large accelerated filers. Indicating that the results may possible be driven by client firm size.

This study contributes to the existing literature in several ways. First, this study expands the existing literature between CAM disclosure and audit engagement partner rotation. Prior literature offers mixed evidence if at the end of the audit engagement more or less CAMs are disclosed. My study shows that audit engagement partners disclose less CAMs in the first year of the audit engagement in comparison to the last year of the audit engagement. Second, this study provides evidence on the different types of audit engagement partner rotations and CAM disclosure. This study shows that mandatory and voluntary rotations after one or three years are negatively related to CAM disclosure. Third, this study contributes to the existing literature by providing evidence that the results are potentially driven by client firm size. The results for the sample with large accelerated filers are significant, while the results for the sample with non-large accelerated filers is not significant. This is in line with Li et al. (2022), who argue that large accelerated filers have more negotiation power over their audit firms.

This study holds regulatory implications, in addition to its contribution to the existing academic literature. First, in 2021 and 2022 COVID-19 played a crucial role in the world. This could potentially impact the results. Second, as I have only data of audit engagement partner rotations in 2021 and 2022, the results may not be applicable when more data is collected and audit engagement partners gather more experience in choosing and disclosing CAMs.

2. Theoretical Background

2.1. *Critical Audit Matters*

The global financial crisis of 2008 has resulted in changes for auditors. Investors, analysts, and other users of the financial statements called for more informative audit reports. These audit reports did not face many changes for decades (Jermakowicz et al., 2018). Besides, unqualified audit opinions are received by more than 98% of publicly listed companies, and hence the variation between audit reports is very little. There is not only limited variation between the contents of the audit report, but also limited variation in the wording. This results in the fact that most of the analysts, investors, and other users of the financial statements do not bother to read the audit report (Klevak et al., 2020). To make the unqualified audit reports more informative, CAMs were introduced by the PCAOB (Gimbar et al., 2016).

CAMs are defined as “any matter arising from the audit of financial statements that was communicated or required to be communicated to the audit committee and that relates to accounts or disclosures that are material to the financial statements and involved especially challenging, subjective, or complex auditor judgment” (“PCAOB Release No. 2017-001,” 2017, P.16). For audits of large accelerated filers of fiscal years ending on or after June 30, 2019, AS 3101 first became effective. Then AS 3101 became effective for audits of other companies ending on or after December 15, 2020 (PCAOB, n.d.). Auditors need to consider multiple factors in determining whether a matter involves especially challenging, subjective, or complex auditor judgment. The auditors need to consider:

- a. “The auditor’s assessment of the risks of material misstatements, including significant risks;
- b. the degree of auditor judgment related to areas in the financial statements that involved the application of significant judgment or estimation by management, including estimates with significant measurement uncertainty;
- c. the nature and timing of significant unusual transactions and the extent of audit effort and judgment related to these transactions;
- d. the degree of auditor subjectivity in applying audit procedures to address the matter or in evaluating the results of those procedures;
- e. the nature and extent of audit effort required to address the matter, including the extent of specialized skill or knowledge needed or the nature of consultations outside the engagement team regarding the matter; and
- f. the nature of audit evidence obtained regarding the matter” (“PCAOB Release No. 2017-001,” 2017, P26-27).

Auditors are required to communicate the CAMs they identified in the auditor’s report. Communication of the CAMs is important, as the PCAOB believes that the CAMs will be identified in areas that are of interest to investors. Communication of CAMs could be potentially valuable information for investors that they did not have access to in the past (Li et al., 2022).

For each CAM, the auditor must:

- a. “Identify the critical audit matter;
- b. describe the principal considerations that led the auditor to determine that the matter is a critical audit matter;
- c. describe how the critical audit matter was addressed in the audit; and
- d. refer to the relevant financial statement accounts or disclosures that relate to the critical audit matter” (“PCAOB Release No. 2017-001,” 2017, P126-127).

2.2. Audit Engagement Partner Rotation

For over 40 years, “partner rotation has been a component of quality control processes for a vast majority of the accounting firms that audit Securities and Exchange Commission (SEC) registrants” (*Final Rule: Strengthening the Commission’s Requirements Regarding Auditor Independence*, 2003). The intention of audit engagement partner rotation is to bring a fresh look to the audit engagement and to uphold auditor independence, while keeping audit quality and continuity (Laurion et al., 2017). Auditors build a relation with their clients during the audits. This relation is necessary, but could also be harmful. The American Institute of Certified Public Accountants (AICPA) identified familiarity as one of the main threats to independence for auditors (“Conceptual Framework Toolkit for Independence,” 2022). However, familiarity is necessary in planning and performing an efficient audit as familiarity helps the auditor to understand the client (Bamber & Iyer, 2007). Audit engagement partner rotation was first introduced in 1978 by the AICPA. At that time, the audit engagement partner was allowed to engage in the audit engagement

of SEC registrants for 7 consecutive years. After these 7 years, “cooling off” period followed. A period of at least 2 years in which the audit engagement partner was not allowed to engage again in the audit engagement with the same client. In 2003, the SEC adopted a new rule. This new rule requires audit engagement partner rotation after 5 consecutive years. Also, the cooling off period was changed. The cooling off period changed from 2 years to 5 years. This new rule was not only applicable for audit engagement partners but was also applicable for concurring partners (Laurion et al., 2017).² According to Gipper et. al. (2021), 62% of all audit engagement partner rotations are mandatory rotations. Meaning that the partner engaged for 5 years in the audit engagement. 38% of the rotations are voluntary. This could be either rotations after 1,2,3, or 4 years (Gipper et al., 2021).

3. Literature Review and Hypothesis Development

CAM disclosures provide additional information to users of the financial statements about reporting risks. This additional information could be valuable information for users of the financial statements that they did not have access to in the past. Researchers have examined the informativeness of CAMs, the effect of CAM disclosure on auditor liability, and the effect of CAM disclosure on financial reporting quality.

3.1. *Informativeness of CAMs*

CAMs were introduced by the PCAOB to make unqualified audit reports, received by more than 98% of the firms, more informative (Gimbar et al., 2016). The communication of identified CAMs in the audit report could be of valuable information for investors. It is information that they did not have access to in the past (Li et al., 2022). Many studies agree that CAM disclosure is informative to the market. Klevak et al. (2020) argue that a greater number of CAMs disclosed is an indicator of greater uncertainty. The disclosure of more CAMs resulted in more negative market reactions. Some of the negative market reactions are a more volatile stock price, the dispersion of analysts’ forecasts or analyst reduce earnings forecasts. This view that the greater number of CAMs disclosed is an indicator of greater uncertainty is consistent with a more recent paper of Klevak et al. (2022). In this more recent paper they add that the new available information of CAM disclosures is used by market participants in their investment decisions. Chan and Liu (2023) argue that CAM disclosure adds to the total mix of information investors have. The disclosure of CAMs helps investors to assess the investment risk. CAM disclosure also helps the investor inferring audit effort, which is an important aspect in reducing investment risk. Auditors can prevent a bad

² A concurring audit partner is an additional independent reviewer within the accounting firm who contributes with an objective review of significant accounting, auditing, and financial reporting matters. The concurring partner does not have first-hand knowledge of the client’s business environment, the benefit of discussion with personnel and management, or the opportunity to review client documents. Therefore, the responsibilities of the concurring audit partner are not equivalent to those of the audit engagement partner, as the concurring audit partner is not in a position to make informed judgments on significant issues (*Concurring Partner Review Requirement*, n.d.).

investment by detecting misstatements. Studies specifically focused on non-professional investors agree that CAM disclosure is informative. Rapley et al. (2021) show that non-professional investors change their investment intentions based on CAM disclosure. The disclosure of one or more CAMs reduces the investment intention of a non-professional investor in comparison to disclosing no CAMs. Christensen et al. (2014) find that non-professional investors are more likely to change their investment decision if they receive a CAM paragraph in the audit report, compared to non-professional investors who did receive a standard report. This effect is less significant when the CAM paragraph is followed by a paragraph which offers resolution of the CAM. On the other hand, Burke et al. (2022) concludes that on average CAM disclosure does not provide incremental information to the market, meaning that CAMs are not informative. Following the U.S. CAM regulation, they do not find a significant market reaction.

3.2. CAMs and auditor liability

The PCAOB believed that the new AS 3101 would provide investors with more actionable information. Nonetheless, concerns arose about the auditor's liability. Legal costs could be significantly increased, as with the new AS 3101 there came an extra area of attack for potential plaintiffs. Richard Murray, attorney, and former head of legal affairs for Ernst & Young, added: "the CAM proposal would create a new and more extensive risk of exposure to private rights of action for auditors (Gaetano, 2014). So, on the one hand, CAM disclosure could be used against the auditor if a misstatement arises, as the auditor was aware of the risks in that area of the financial statements. On the other hand, CAM disclosure could be used as a "warning label" for users of the financial statements. Users of the financial statements are warned of reporting risks, and this can (partially) protect the auditor if a misstatement arises. Studies on this topic collectively show that CAM disclosure reduces or does not influence auditor liability. Sulcaj (2020) finds a positive association between the number of CAMs disclosed and litigation risk. This suggests an auditor reports more CAMs to preempt the negative consequences from lawsuits from shareholders. Suggesting that an auditor discloses more CAMs to reduce litigation risk is also shown by Brasel et al. (2016). Brasel et al. (2016) suggest that auditors could have incentives to disclose innocuous CAMs, as auditor liability is reduced in situations where an auditor discloses any CAMs relative to situations an auditor states that there were no CAMs. Kachelmeier et al. (2017) show that disclosing a CAM on a certain audit area reduces perceived assurance in that audit area. This ultimately lowers perceived auditor responsibility when a misstatement is discovered in that audit area. This is broadly consistent with the conclusion reached by Brasel et al. (2016). In a second study, Kachelmeier et al. (2020) find results consistent with their first study. Kachelmeier et al. (2020) show us that they observe a lower perception of auditor fault in situations where a measurement uncertainty issue is involved in the CAM disclosure. An example of a measurement uncertainty issue is lease liability valuation. Brasel et al. (2016) and Gimbar et al. (2016) argue that jurors and plaintiffs discover that the disclosure of CAMs boosts their conviction that the auditors should have foreseen the misstatements during the audit. This results in elevated evaluations of negligence liability.

3.3. CAM disclosure and financial reporting quality

On average, CAM disclosure affects the users of the financial statements, as it provides them with information they previously did not have access to (Li et al., 2022). Researchers agree that CAM disclosure is informative to the market (Chan & Liu, 2023; Christensen et al., 2014; Klevak et al., 2020; Rapley et al., 2021). However, CAM disclosure has not only impact for users of the financial statements, but also to the preparers of it. Burke et al. (2022) argue that CAM disclosure has a positive effect on the audit and financial reporting quality. They find that CAM disclosure is associated with changes to management's disclosure. Managers alter disclosures in order to evade the attention or scrutiny brought about by CAMs. Drake et al. (2020) investigates changes in earnings management following CAM disclosure. In their paper the focus of attention is aimed at tax-related earnings management and tax-related CAMs. They find that when an auditor discloses a tax-related CAM, this is associated with a lower possibility that management uses tax expenses to meet analysts' forecasts. Showing that management is unlikely to manage earnings in areas that are highlighted by CAMs. This is conflicting with Burke et al. (2022). They did not find any changes in earnings quality resulting from CAM disclosure. No significant changes in discretionary accruals were found, and also no significant changes were found in the probability of meeting/beating analyst forecasts. These opposite views are also present in studies using UK data on Key Audit Matters (KAMs).³ Reid et al. (2019) conclude that KAMs disclosure improves financial reporting quality. They measured financial reporting quality using the absolute value of discretionary accruals, propensity to meet or beat analysts' forecasts and lastly the earnings response coefficients. This increase in financial reporting quality was present without finding a significant increase in audit costs. On the other hand, Gutierrez et al. (2018) do not find an effect of the additional disclosure requirements on audit quality. According to the examination of prior literature, no clear consensus has yet been reached on this topic.

3.4. Hypotheses Development

The new AS 3101 is one of the most significant expansions to the auditor's report. The new auditing standard required auditors to disclose "any matter arising from the audit of financial statements that was communicated or required to be communicated to the audit committee and that relates to accounts or disclosures that are material to the financial statements and involved especially challenging, subjective, or complex auditor judgment" ("PCAOB Release No. 2017-001," 2017, P.16). Auditors need to consider multiple factors in determining whether a matter involves especially challenging, subjective, or complex auditor judgment. This implies that the number of disclosed CAMs is dependent on the willingness of the auditor to supply users of the

³ KAMs were introduced by the International Auditing and Assurance Standards Board (IAASB) to increase the informativeness of audit reports. KAMs are defined as: "Those matters that, in the auditor's professional judgment, were of most significance in the audit of the financial statements of the current period. Key audit matters are selected from matters communicated with those charged with governance" ("Communicating Key Audit Matters in the Independent Auditor's Report," 2022, P.5).

financial statements with risks identified during the audit. Most of the recent studies on informativeness of CAM disclosure show that CAM disclosure is indeed informative to users of the financial statements. It helps investors make investment decisions (Klevak et al., 2022), and negative market reactions were observed after the disclosure of more CAMs (Klevak et al., 2020). Existing literature on CAM disclosure and auditor liability collectively show that CAM disclosure reduces or does not increase auditor liability. Auditors have the incentive to disclose any CAM, as litigation risk is lower in a situation in which any CAM is identified in comparison with a situation where no CAM is identified (Brasel et al., 2016; Sulcaj, 2020). Lastly, the relation between financial reporting quality and CAM disclosure is still unclear, with some studies arguing that financial reporting quality increased (Drake et al., 2020; Reid et al., 2019), and some studies arguing that financial reporting quality does not change (Burke et al., 2022; Gutierrez et al., 2018).

Transparent CAM disclosure can be seen as part of audit quality (Li et al., 2022). Audit quality can be impacted by audit engagement partner rotation in two different ways. A longer tenure could increase audit quality, as more client-specific knowledge is present (Geiger & Raghunandan, 2002; Ghosh & Moon, 2005). This means that in the first year after audit engagement partner rotation, less client-specific knowledge is present, resulting in lower audit quality. On the contrary, a longer auditor tenure could decrease audit quality. In situations where the litigation risk for an auditor is higher, the positive relation mentioned before could be reversed. Resulting in a lower audit quality with a longer auditor tenure (Chu et al., 2016; Singer & Zhang, 2018). This means that in the first year after audit engagement partner rotation the audit quality will be higher if litigation risk is also high.

Research on audit tenure and CAM disclosure also show mixed evidence. Elshafie (2023) reports that auditors in the first year of the engagement have less tendency to report CAMs. This would imply that in the first year after audit engagement partner rotation auditors have the incentive to identify less CAMs. On the other hand, Li et al. (2022) show that there is a negative relation with auditor tenure and CAM disclosure, resulting in the fact that less CAMs are disclosed if the auditor has a longer tenure.⁴ This would imply that in the first year after audit engagement partner rotation auditors have the incentive to identify more CAMs. It is *ex ante* unclear what the relation is between audit engagement partner rotation and CAM disclosure. Consequently, I hypothesize that there will not be a significant difference in the number of CAMs disclosed in the last year of the engagement in comparison to the first year after audit engagement partner rotation. This prediction leads to the following hypothesis in null form:

H1: The number of CAMs is not associated with audit engagement partner rotation.

⁴ Li et al. (2022) uses a dummy variable for long auditor tenure. The dummy variable equals to 1 if the auditor has served the client for more than 3 years.

4. Research Design and Sample Selection

4.1. Research Design

To investigate whether auditor rotation has an effect on the number of CAMs disclosed, I estimate the following logistic regression model, based from (Li et al., 2022):

$$\begin{aligned} \# \text{ of CAMs} = & \beta_0 + \beta_1 \text{Rotation}_{it} + \beta_2 \text{BIG4}_{it} + \beta_3 \text{LitigationRisk}_{it} + \beta_4 \text{GC}_{it} + \beta_5 \text{Leverage}_{it} + \beta_6 \text{Loss}_{it} \\ & + \beta_7 \text{ROA}_{it} + \beta_8 \text{LogTA}_{it} + \beta_9 \text{LogINV}_{it} + \beta_{10} \text{LogGOODWILL}_{it} + \beta_{11} \text{MTB}_{it} \\ & + \beta_{12} \text{InherentRisk}_{it} + \beta_{13} \text{BusySeason}_{it} + \beta_{14} \text{IntanIntangibles}_{it} + \varepsilon_{it} \end{aligned}$$

(1)

Where the dependent variable *# of CAMs* is equal to the number of CAMs identified for a firm in a fiscal year. For example, in the annual report of AGCO Corp. of 2021, 3 CAMs are reported. A CAM is reported for Assessment of the reserve and allowances for volume discount and sales incentive programs in certain geographic regions, for Assessment of gross unrecognized income tax benefits in certain jurisdictions, and the third CAM for Assessment of goodwill impairment for certain reporting units (“AGCO Annual Report 2021,” 2022). In this case, the variable *#_of_CAMs* will take the value of 3. Appendix 1A shows how the three CAMs of AGCO are reported in the Annual Report of 2021. Appendix 1B shows CAM disclosure of Dell Technologies in 2022, and Appendix 1C shows CAM disclosure of Alphabet Inc. in 2022. The variable of interest, *Rotation*, is an indicator variable that equals 1 in the first year after audit engagement partner rotation, and 0 otherwise. For example, from 2017 until 2021 was Scott Cornelius McGee the engagement partner of AGCO Corp. Since 2022 is Matthew Edward Zinkus the new engagement partner. In this case, the observation of 2021 will receive the value of 0, while the observation of 2022 will receive the value of 1. Definitions for the control variables are presented in appendix 2.

4.2. Sample Selection

AS 3101 became effective for audits of all U.S. listed companies ending on or after December 15, 2020. Therefore, my sample includes all audit engagement partner rotations in fiscal year 2021 or 2022. I obtain the data from three different sources. (1) To measure *Rotation* the Audit Opinions dataset from the Audit Analytics database is used. This dataset shows for each fiscal year the assigned audit engagement partner, and by this way rotations can be observed. This dataset also includes some control variables. This dataset included the date of the end of the fiscal year, used for *BusySeason*. It also included if a firm received a going concern opinion, used for *GC*. Furthermore it included for which audit firm the audit engagement partner worked, used for *BIG4*. Lastly the dataset included the Standard Industrial Classification (SIC) Codes for all firms, used to determine *LitigationRisk*.⁵ (2) To measure *# of CAMs* the Critical Audit Matters dataset from Audit Analytics is used. This dataset shows all disclosed CAMs available for each U.S. listed firm

⁵ The Standard Industrial Classification Codes indicate the company’s type of business (*SEC.gov / Division of Corporation Finance: Standard Industrial Classification (SIC) Code List*, 2021). For example, a firm with a SIC code between 1000 and 1499 is assigned to the mining industry.

in each fiscal year. (3) For all other control variables, the Fundamental Annual dataset from Compustat is used.

The Audit Opinions dataset consisted of 6869 audit engagement partner rotations between 2016 and 2022. Next, I exclude 4652 audit engagement partner rotations prior to 2021. Then, 4652 audit engagement partner rotations missing Compustat data are excluded. Lastly, 73 audit engagement partner rotations were excluded where either data before or after rotation was missing. This resulted in a sample of 501 audit engagement partner rotations in 2021 or 2022, where for all firms in the sample an observation before and after the rotation is presented. Therefore, the sample consists of 1002 observations. The sample selection process is summarized in Table 1. All continuous variables are winsorized at 1% and 99%.

5. Empirical Results

5.1. Descriptive Statistics

The sample includes 1002 observations. The sum of *#_of_CAMs* for all 1002 observations is equal to 1405. The average *#_of_CAMs* per observation is 1.402. The maximum *#_of_CAMs* disclosed is 4, and the minimum is 1, so in each observation the audit engagement partner disclosed minimal 1 CAM. The median is 1.

Table 3, Panel A, provides the distribution of disclosed CAMs per audit firm. In this table a distinction is made between PwC, EY, Deloitte, KPMG, and other audit firms that are all classified as ‘other’. Among 1405 CAMs disclosed, 265 CAMs are disclosed by audit engagement partners working for Deloitte. Audit engagement partners working for EY disclosed a total of 405 CAMs, audit engagement partners working for KPMG disclosed a total of 202 CAMs, audit engagement partners working for PwC disclosed a total of 253 CAMs, and the remaining 280 CAMs are disclosed by audit engagement partners not working for a Big 4 company. A difference is noticed within the average *#_of_CAMs* disclosed per audit firm. An audit engagement partner of Deloitte discloses on average 1.338 CAMs. An audit engagement partner working for EY disclose on average 1.473 CAMs, an audit engagement partner working for KPMG disclose on average 1.384 CAMs, an audit engagement partner working for PwC disclose on average 1.332 CAMs, and audit engagement partners working for non-Big 4 companies disclose on average 1.451 CAMs.

Table 3, Panel B provides the distribution of disclosed CAMs per industry. Firms in the U.S. are divided across ten different industries (*SIC Manual | Occupational Safety and Health Administration*, n.d.). Firms in the sample are divided across nine industries, as there are no firms in the sample from the Public Administration industry. Firms active in the Manufacturing industry represent the largest part of the sample, as 790 of the 1405 CAMs are assigned to them. Firms active in the Agriculture industry represent the smallest portion of the sample, as only 2 CAMs are assigned to them. On average, the most CAMs are assigned to firms in the Mining industry, with an average of 1.650 CAMs per observation. The least CAMs on average are assigned to firms in the Agriculture Industry, with an average of only 1 CAMs per observation. However, as only 2

observations from this industry are present, this is mainly due to the fact of a small number of observations.

Table 4 provides summary statistics for all variables used. The sample includes 1002 observations. As *Rotation* is a dummy variable, the minimum value is 0 and the maximum value is 1. After excluding firm year observations before 2021 and observations missing Compustat data, the sample consisted of 501 observations where *Rotation* has the value of 1, and 501 observations where *Rotation* has the value of 0. Resulting in an average value for *Rotation* of 0.5. *BIG4* averages a value of 0.807, indicating that 80.7% of all observations are audited by a Big 4 company. *BusySeason* averages 0.756. This means that almost 76% of all observations have their fiscal year ending on December 31. On average, 18.0% of all observations are from firms operating within an industry characterized by high litigation risk. The mean of *GC* is equal to 0.019. This indicates that in the sample, 1.9% of the observations received a going concern opinion. *InherentRisk* is a value varying between 0.011 and 0.763, with a mean of 0.238, and a median of 0.210. Indicating that the distribution of the data is skewed to the right. Companies within the sample have on average a *Leverage* of 0.603. A *Leverage* of 0.603 means that 60.3% of the assets is financed by liabilities. *Loss* is a dummy variable that equals 1 if the Net Income of a company is negative in a given year. The mean *Loss* is equal to 0.284, resulting in the fact that in the sample 28.4% of the observations have experienced a negative Net Income. *MTB* varies from -20.793 to 48.085, showing the large differences within the sample. *ROA* averages 0.011, indicating that the average firm within the sample is earn a positive return on assets.

Table 5 provides the correlation matrix. Multicollinearity does not appear to be an important concern as most of the correlation coefficients between control variables are lower than 0.2.

5.2. Test of Hypothesis

Table 4 presents the result of the test of the hypothesis. I predict that the number of CAMs is not associated with audit engagement partner rotation. Table 5 presents the results. After controlling for other variables, *Rotation* (coefficient = -0.141 p-value 0.038) is negative and significant at the 1% level. This indicates that there is a significant difference in *#_of_CAMs* disclosed before and after audit engagement partner rotation. In the first year after audit engagement partner rotation, the audit engagement partner discloses 0.141 less CAMs than in the last year prior to audit engagement partner rotation. Due to the fact that a significant difference in the number of CAMs before and after audit engagement partner rotation for U.S. listed firms has been identified, H1 is rejected.

These results are inconsistent with the results of Li et al. (2022). They showed that less CAMs are disclosed at the end of the engagement. Instead, the results are in line with Elshafie (2023), who argues that auditors in the first year of the engagements have less tendency to report CAMs.

5.3. *Additional Analysis*

The variable of interest, *Rotation*, is an indicator variable that equals 1 in the first year after audit engagement partner rotation, and 0 otherwise. However, a distinction can be made between the audit engagement partner rotations in the sample. Take the example of AGCO Corp. For years 2017 until 2021 was Scott Cornelius McGee the audit engagement partner of AGCO Corp. Since 2022 is Matthew Edward Zinkus the new audit engagement partner. Scott Cornelius McGee was the audit engagement partner for five consecutive year, which is the maximum number an audit engagement partner is allowed to be engaged in the audit engagement of SEC registrants. This audit engagement partner rotation can be considered as a mandatory rotation. A company may also choose to rotate their audit engagement partner earlier than after five years. Dell Technologies experienced a voluntary audit engagement partner rotation after four years. In 2017 was John Christopher Perkins the audit engagement partner. From 2018 until 2021 was Richard Carroll Puccio the audit engagement partner, and since 2022 is Kristine Frances Benefield the audit engagement partner. Richard Carroll Puccio was the audit engagement partner for four consecutive years. This audit engagement partner rotation can be considered as a voluntary rotation after four years. Within the sample, there are also situations present after which a rotations is experienced after three, two, or even one year. For most of the companies in the sample, data on the audit engagement partner is present since 2016 or 2017. This means that because of a lack of data, I cannot determine for all rotations if it can be considered as a mandatory or voluntary rotation.

From the 501 rotations in the sample, 268 rotations are mandatory, 42 are voluntary rotations after four years, 44 are voluntary rotations after three years, 49 are voluntary rotations after two years, and 52 are voluntary rotations after one year. 46 rotations are left and from those it cannot be determined to which class they belong to.

Five additional analyses are executed. First, I examine the effect of mandatory rotations on CAM disclosure. The following logistic regression model is used based on Equation (1).

$$\begin{aligned} \# \text{ of CAMs} = & \beta_0 + \beta_1 \text{Mandatory}_{it} + \beta_2 \text{BIGA}_{it} + \beta_3 \text{LitigationRisk}_{it} + \beta_4 \text{GC}_{it} + \beta_5 \text{Leverage}_{it} \\ & + \beta_6 \text{Loss}_{it} + \beta_7 \text{ROA}_{it} + \beta_8 \text{LogTA}_{it} + \beta_9 \text{LogINV}_{it} + \beta_{10} \text{LogGOODWILL}_{it} \\ & + \beta_{11} \text{MTB}_{it} + \beta_{12} \text{InherentRisk}_{it} + \beta_{13} \text{BusySeason}_{it} + \beta_{14} \text{IntanIntangibles}_{it} + \varepsilon_{it} \end{aligned}$$

(2)

A new variable *Mandatory* is created which is an indicator variable that equals 1 in the first year after mandatory audit engagement partner rotation, and 0 otherwise. Table 6 column 1 shows that *Mandatory* (coefficient = -0.111 p-value 0.050) is negatively associated with *#_of_CAMs* at the 5% level. This suggests that the audit engagement partner discloses less CAMs in the first year after a mandatory rotation than in the last year before a mandatory rotation.

Second, I examine the effect of voluntary one year rotations on CAM disclosure. The following logistic regression model is used based on Equation (1).

$$\begin{aligned} \# \text{ of CAMs} = & \beta_0 + \beta_1 \text{Voluntary1}_{it} + \beta_2 \text{BIG4}_{it} + \beta_3 \text{LitigationRisk}_{it} + \beta_4 \text{GC}_{it} + \beta_5 \text{Leverage}_{it} \\ & + \beta_6 \text{Loss}_{it} + \beta_7 \text{ROA}_{it} + \beta_8 \text{LogTA}_{it} + \beta_9 \text{LogINV}_{it} + \beta_{10} \text{LogGOODWILL}_{it} \\ & + \beta_{11} \text{MTB}_{it} + \beta_{12} \text{InherentRisk}_{it} + \beta_{13} \text{BusySeason}_{it} + \beta_{14} \text{IntanIntangibles}_{it} + \varepsilon_{it} \end{aligned}$$

(3)

Where *Voluntary1* is an indicator variable that equals 1 in the first year after voluntary one year audit engagement partner rotation, and 0 otherwise. Table 6 column 2 presents the results. *Voluntary1* (coefficient = -0.239 p-value 0.131) is negatively associated with #_of_CAMs at the 10% level. This indicates that an audit engagement partner discloses more CAMs in the last year before a voluntary one year rotation than in the first year after a voluntary one year rotation.

Next, I examine the effect of voluntary two year rotations on CAM disclosure. The following logistic regression model is used based on Equation (1).

$$\begin{aligned} \# \text{ of CAMs} = & \beta_0 + \beta_1 \text{Voluntary2}_{it} + \beta_2 \text{BIG4}_{it} + \beta_3 \text{LitigationRisk}_{it} + \beta_4 \text{GC}_{it} + \beta_5 \text{Leverage}_{it} \\ & + \beta_6 \text{Loss}_{it} + \beta_7 \text{ROA}_{it} + \beta_8 \text{LogTA}_{it} + \beta_9 \text{LogINV}_{it} + \beta_{10} \text{LogGOODWILL}_{it} \\ & + \beta_{11} \text{MTB}_{it} + \beta_{12} \text{InherentRisk}_{it} + \beta_{13} \text{BusySeason}_{it} + \beta_{14} \text{IntanIntangibles}_{it} + \varepsilon_{it} \end{aligned}$$

(4)

Voluntary2 is an indicator variable that equals 1 in the first year after voluntary two year audit engagement partner rotation, and 0 otherwise. Table 6 column 3 shows that *Voluntary2* (coefficient = 0.024 p-value 0.134) is not significantly related with #_of_CAMs. This suggests that there is no difference between the number of CAMs disclosed before or after a voluntary two year rotation.

Then, I examine the effect of voluntary three year rotations on CAM disclosure. The following logistic regression model is used based on Equation (1).

$$\begin{aligned} \# \text{ of CAMs} = & \beta_0 + \beta_1 \text{Voluntary2}_{it} + \beta_2 \text{BIG4}_{it} + \beta_3 \text{LitigationRisk}_{it} + \beta_4 \text{GC}_{it} + \beta_5 \text{Leverage}_{it} \\ & + \beta_6 \text{Loss}_{it} + \beta_7 \text{ROA}_{it} + \beta_8 \text{LogTA}_{it} + \beta_9 \text{LogINV}_{it} + \beta_{10} \text{LogGOODWILL}_{it} \\ & + \beta_{11} \text{MTB}_{it} + \beta_{12} \text{InherentRisk}_{it} + \beta_{13} \text{BusySeason}_{it} + \beta_{14} \text{IntanIntangibles}_{it} + \varepsilon_{it} \end{aligned}$$

(5)

Voluntary3 is an indicator variable that equals 1 in the first year after voluntary three year audit engagement partner rotation, and 0 otherwise. Table 6 column 4 shows that *Voluntary3* (coefficient = -0.318 p-value 0.120) is negatively associated with #_of_CAMs at the 5% level. This indicates that an audit engagement partner discloses less CAMs in the first year after a voluntary three year than in the last year before a voluntary three year rotation.

Lastly, I examine the effect of voluntary four year rotations on CAM disclosure. The following logistic regression model is used based on Equation (1).

$$\begin{aligned} \# \text{ of CAMs} = & \beta_0 + \beta_1 \text{Voluntary4}_{it} + \beta_2 \text{BIG4}_{it} + \beta_3 \text{LitigationRisk}_{it} + \beta_4 \text{GC}_{it} + \beta_5 \text{Leverage}_{it} \\ & + \beta_6 \text{Loss}_{it} + \beta_7 \text{ROA}_{it} + \beta_8 \text{LogTA}_{it} + \beta_9 \text{LogINV}_{it} + \beta_{10} \text{LogGOODWILL}_{it} \\ & + \beta_{11} \text{MTB}_{it} + \beta_{12} \text{InherentRisk}_{it} + \beta_{13} \text{BusySeason}_{it} + \beta_{14} \text{IntanIntangibles}_{it} + \varepsilon_{it} \end{aligned}$$

(5)

Where *Voluntary4* is an indicator variable that equals 1 in the first year after voluntary four year audit engagement partner rotation, and 0 otherwise. Table 6 column 5 shows that *Voluntary4* (coefficient = -0.160 p-value 0.136) is not significantly related with *#_of_CAMs*. This suggests that there is no difference between the number of CAMs disclosed before or after a voluntary four year rotation.

5.4. Sensitivity Analysis

5.4.1 Excluding Manufacturing firms

My sample distribution in Table 2 Panel B shows that firms in the manufacturing industry account for the largest percentage of my sample (about 57.1%). I perform a sensitivity test to see if the results are driven by firms in the manufacturing industry. Firms in the manufacturing industry are dropped to re-estimate Equation (1). Table 7 shows that the *Rotation* (coefficient = -0.153 p-value 0.060) is negatively associated with *#_of_CAMs* at the 5% level. This suggests that the results are not driven by firms active in the manufacturing industry.

5.4.2 Client Firm Size

Li et al. (2022) provided early evidence on the effect of auditor tenure on CAM disclosure. In their study, only data of U.S. large accelerated filers is used, as they were the first group of firms AS 3101 was applicable to. They stated the warning that their results may not be generalizable to smaller companies. As in this study, rotations for both large accelerated filers and smaller companies are present in the sample, a comparison can be made. From the initial sample of 501 rotations, 353 rotations are from firms which are classified as large accelerated filers. 118 rotations are from firms not classified as large accelerated filers. 30 rotations are left, these are from firms that switched either from large accelerated filer to another filer status, or vice versa.

I perform a sensitivity analysis to see if the results are driven by firm size. Equation (1) is re-estimated on both the sample of large accelerated filers and the sample of smaller companies. Table 8 column 1 presents the results of the firms in the smaller companies sample. *Rotation* (coefficient = -0.038 p-value 0.074) is not associated with *#_of_CAMs*. Table 8 column 2 presents the results of the sample with large accelerated filers. *Rotation* (coefficient = -0.177 p-value 0.046) is negatively associated with *#_of_CAMs* at the 1% level. The effect of *Rotation* on *#_of_CAMs* is significant for large accelerated filers, but not for smaller companies. This indicates that the results are possibly driven by the size of U.S. listed firms. According to Li et al. (2022), large accelerated

filers have a rich information environment and strong negotiation power over their audit firms, which could be a possible explanation of the observed results.

6. Conclusion

This study investigates whether audit engagement partner rotation is related to the number of CAMs disclosed. My results show that audit engagement partner rotation is negatively related with the number of CAMs disclosed. I also found that this relation is only present for large accelerated filers, but not present for non-large accelerated filers. Lastly, the relation between the different types of rotations and the number of CAMs disclosed is pronounced. The number of CAMs disclosed is negatively related to mandatory and voluntary rotations after one or three years, but not related to voluntary rotations after two or four years.

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Appendix 1: Examples of CAM disclosure

1A: AGCO Corp. 2021

Critical Audit Matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated 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 consolidated 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.

Assessment of the reserve and allowance for volume discount and sales incentive programs in certain geographic regions

As discussed in Note 1 to the consolidated financial statements, the Company provides various volume discount and sales incentive programs with respect to its products. As of December 31, 2021, the Company had accrued volume discounts and sales incentives of approximately \$602.3 million and an allowance for sales incentive discounts of approximately \$8.0 million. Sales incentive programs include reductions in invoice prices, reductions in retail financial rates, dealer commissions and dealer incentive allowances. Volume discounts and sales incentives are recorded at the time of sale as a reduction of revenue using the expected value method.

We identified the assessment of the reserve and allowance for volume discount and sales incentive programs in certain geographic regions as a critical audit matter. **Auditor judgment was required to evaluate certain assumptions which had a higher degree of measurement uncertainty**. Significant assumptions included estimated incentive rates, which were the estimated rates at which programs were applied to eligible products, and estimated achievement by dealers of specified cumulative targeted purchase levels.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's reserve and allowance for volume discount and sales incentive process, including controls related to the development of the significant assumptions. For certain volume discount and sales incentive programs, we compared the program details to dealer communications and the significant assumptions to historical results for similar programs. We assessed the Company's historical ability to estimate significant assumptions by comparing the prior year estimated amounts to actual discounts and sales incentives realized by the customers. We evaluated the significant assumptions by comparing them to actual results, including the results of transactions occurring after year-end.

Assessment of gross unrecognized income tax benefits in certain jurisdictions

As discussed in Note 6 to the consolidated financial statements, the Company has recorded a liability for gross unrecognized income tax benefits of approximately \$246.4 million as of December 31, 2021. The Company recognizes income tax benefits from uncertain tax positions only when there is a more than 50% likelihood that the tax positions will be sustained upon examination by the taxing authorities based on the technical merits of the positions.

We identified the assessment of gross unrecognized income tax benefits in certain jurisdictions as a critical audit matter. **Complex auditor judgment and specialized skills were required in evaluating the Company's interpretation and application of tax laws and the estimate of the amount of tax benefits expected to be realized.**

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's gross unrecognized income tax benefit process. This included controls related to the Company's consideration of information that could affect the recognition or measurement of income tax benefits from uncertain tax positions and the interpretation and application of tax laws. **We involved tax professionals with specialized skills and knowledge, who assisted in:**

- evaluating the Company's interpretation and application of tax laws
- developing an expectation of the Company's tax positions and comparing the results to the Company's assessment

Assessment of goodwill impairment for certain reporting units

As discussed in Note 1 to the consolidated financial statements, the Company evaluates goodwill for impairment annually as of October 1 and when events or circumstances indicate that fair value of a reporting unit may be below its carrying value. As of December 31, 2021, the Company has \$1,280.8 million of goodwill. The Company performs its goodwill impairment analyses using either a qualitative or a quantitative assessment. The fair values of the reporting units are determined based on a combination of valuation techniques, including an income approach and guideline public company method. Based on the Company's analysis, the Company determined that the fair values of certain reporting units were in excess of the carrying values and therefore did not record any goodwill impairment for these reporting units.

We identified the assessment of goodwill impairment for certain reporting units as a critical audit matter because **a high degree of subjective auditor judgment was required to evaluate the fair value of the reporting units.** The fair value model used the following significant assumptions for which there was limited observable market information: forecasted revenue growth and discount rates. The determined fair values were sensitive to changes in these significant assumptions.

The following are the primary procedures we performed to address this critical audit matter. We evaluated the design and tested the operating effectiveness of certain internal controls over the Company's goodwill impairment process, including controls over the significant assumptions. We performed sensitivity analyses over the significant assumptions to assess their

impact on the Company's fair value determination. We compared the Company's forecasted revenue growth used in the valuation model against underlying business strategies and growth plans. We compared the Company's historical revenue forecasts to actual results to assess the Company's ability to forecast. In addition, **we involved valuation professionals with specialized skills and knowledge who assisted in:**

- comparing the Company's discount rate inputs to publicly available information for comparable entities to test the selected discount rate
- recomputing the estimate of fair value for the reporting units using the Company's significant assumptions and comparing the result to the Company's fair value estimate⁶

⁶ Adopted from ("AGCO Annual Report 2021," 2022)

1B: Dell Technologies 2022

Critical Audit Matters

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) **relates to accounts or disclosures that are material to the consolidated financial statements** and (ii) **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 matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Revenue Recognition - Identification of Performance Obligations in Revenue Contracts

As described in Notes 2 and 19 to the consolidated financial statements, the Company's contracts with customers often include the promise to transfer multiple goods and services to a customer. Distinct promises within a contract are referred to as performance obligations and are accounted for as separate units of account. Management assesses whether each promised good or service is distinct for the purpose of identifying the performance obligations in the contract. This assessment involves subjective determinations and requires management to make judgments about the individual promised goods or services and whether such goods or services are separable from the other aspects of the contractual relationship. The Company's performance obligations include various distinct goods and services such as hardware, software licenses, support and maintenance agreements, and other service offerings and solutions. For the year ended February 3, 2023, a significant portion of the \$38.4 billion Infrastructure Solutions Group ("ISG") reportable segment net revenues relate to contracts with multiple performance obligations.

The principal considerations for our determination that performing procedures relating to the identification of performance obligations in revenue contracts is a critical audit matter are the significant judgment by management in identifying performance obligations in revenue contracts, **which in turn led to a high degree of auditor judgment**, subjectivity and effort in performing procedures to evaluate whether performance obligations in revenue contracts were appropriately identified by management.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to the revenue recognition process, including controls related to the proper identification of performance obligations in revenue contracts. These procedures also included, among others, testing the completeness and accuracy of management's identification of performance obligations by examining revenue contracts on a test basis.⁷

⁷ Adopted from (*Dell Annual Report 2022, 2023*)

1C: Alphabet Inc. 2022

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) **relates to accounts or disclosures that are material to the financial statements** and (2) **involved our especially challenging, subjective or complex judgments**. The communication of the critical audit matter 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 matter below, providing a separate opinion on the critical audit matter or on the account or disclosure to which it relates.

Loss Contingencies

The Company is regularly subject to claims, lawsuits, regulatory and government investigations, other proceedings, and consent orders involving competition, intellectual property, data privacy and security, tax and related compliance, labor and employment, commercial disputes, content generated by its users, goods and services offered by advertisers or publishers using their platforms, personal injury, consumer protection, and other matters. As described in Note 10 to the consolidated financial statements “Commitments and contingencies” such claims, lawsuits, regulatory and government investigations, other proceedings, and consent orders could result in adverse consequences.

Significant judgment is required to determine both the likelihood, and the estimated amount, of a loss related to such matters. Auditing management’s accounting for and disclosure of loss contingencies from these matters involved challenging and subjective auditor judgment in assessing the Company’s evaluation of the probability of a loss, and the estimated amount or range of loss.

We tested relevant controls over the identified risks associated with management’s accounting for and disclosure of these matters. This included controls over management’s assessment of the probability of incurrence of a loss and whether the loss or range of loss was reasonably estimable and the development of related disclosures.

Our audit procedures included gaining an understanding of previous rulings issued by regulators and the status of ongoing lawsuits, reviewing letters addressing the matters from internal and external legal counsel, meeting with internal legal counsel to discuss the allegations, and obtaining a representation letter from management on these matters. We also evaluated the Company’s disclosures in relation to these matters.⁸

⁸ Adopted from (*Alphabet Annual Report 2022, 2023*)

Appendix 2: Variable Definitions

Variable:	Definition:	Additional: Compustat calculation
<i># of CAMs</i>	The number of CAMs disclosed for a firm in a fiscal year	
<i>BIG4</i>	Indicator variable that equals 1 for Big 4 auditors, 0 otherwise	
<i>BusySeason</i>	Indicator variable that equals 1 if fiscal year ends on December 31	
<i>GC</i>	Indicator variable that equals 1 if the company has received a going-concern modified audit opinion, and 0 otherwise	
<i>InherentRisk</i>	The ratio of the sum of inventory and receivable to total assets	$\frac{INVT + RECT}{AT}$
<i>IntanIntangibles</i>	The ratio of intangibles assets excluding goodwill to total assets excluding goodwill	$\frac{INTAN + GDWL}{AT - GDWL}$
<i>Leverage</i>	The ratio of total liabilities to total assets	$\frac{LT}{AT}$
<i>LitigationRisk</i>	An indicator variable that takes the value of 1 if a company operates within an industry characterized by high litigation risk. High litigation risk industries include those with the Standard Industrial Classification (SIC) codes of 2833–2836, 8731–8734, 3570–3577, 7370–7374, 3600–3674, or 5200–5961 (Francis et al., 1994). The indicator variable takes the value of 0 for companies operating in all other industries.	
<i>LogTA</i>	Natural log of total assets	$\log TA$
<i>LogINV</i>	Natural log of inventory	$\log INV$
<i>LogGoodwill</i>	Natural log of goodwill	$\log GDWL$
<i>Loss</i>	Indicator variable that equals 1 if the net income for the fiscal year are negative, and 0 otherwise	$\frac{PRCC * CSHO}{CEQ + TXDB}$
<i>Mandatory</i>	Indicator variable that equals 1 year after mandatory audit engagement partner rotation, and 0 otherwise	
<i>MTB</i>	The ratio of market-to-book value of equity	$\frac{PRCC * CSHO}{CEQ + TXDB}$
<i>ROA</i>	Income before extraordinary items divided by total assets	$\frac{IBCOM}{(AT + AT_{-1})/2}$
<i>Rotation</i>	Indicator variable that equals 1 in the first year after audit engagement partner rotation, and 0 otherwise	
<i>Voluntary1</i>	Indicator variable that equals 1 in the first year after voluntary 1 year audit engagement partner rotation, and 0 otherwise	

<i>Voluntary2</i>	Indicator variable that equals 1 in the first year after voluntary 2 year audit engagement partner rotation, and 0 otherwise	
<i>Voluntary4</i>	Indicator variable that equals 1 in the first year after voluntary 3 year audit engagement partner rotation, and 0 otherwise	
<i>Voluntary4</i>	Indicator variable that equals 1 in the first year after voluntary 4 year audit engagement partner rotation, and 0 otherwise	

Table 1. Sample Selection

Panel A: Sample Selection for Audit Engagement Partner Rotation Analysis	
Audit engagement partner rotations between 2016 and 2022	6,869
Less: Audit engagement partner rotations prior to 2021	(4652)
Less: Audit engagement partner rotations missing Compustat data	(1910)
Less: Audit engagement partner rotations where either data before or after rotation was missing	(73)
Number of audit engagement partner rotations used in analysis	501

Panel B: Yearly Distribution of Audit Engagement Partner Rotation Sample	
Year	N
2021	215
2022	286
Total	501

Panel A details the sample selection process for audit engagement partner rotations. Panel B provides the yearly distribution of audit engagement partner rotations that is used for testing the hypothesis.

Table 2. Distribution of CAMs by Audit firm and industry

Panel A: By Audit firm

Audit firm	# Of observations	#_of_CAMs	Average #_of_CAMs
Deloitte	198	265	1.338
Ernst & Young	275	405	1.473
KPMG	146	202	1.384
PwC	190	253	1.332
BIG 4	809	1125	1.391
other	192	280	1.451
Total	1002	1405	1.402

Panel B: By Industry

Industry	# Of observations	#_of_CAMs	Average #_of_CAMs
Agriculture	2	2	1
Construction	28	39	1.393
Finance, Insurance, and Real Estate	20	26	1.300
Manufacturing	571	790	1.384
Mining	20	33	1.650
Retail Trade	85	105	1.235
Services	110	165	1.500
Transportation, Communications, Electric, Gas, and Sanitary Services	114	174	1.526
Wholesale Trade	52	71	1.365
Total	1002	1405	1.402

Table 2 panel A reports the distribution of CAMs by Audit firms. Panel B reports the distribution of CAMs by industry. Industry classification are based on Sic codes. Agriculture: 0100-0999, Mining:1000-1499, Construction:1500-1799, Manufacturing: 2000-3999, Transportation, Communication, Electric, Gas and Sanitary Services: 4000-4999, Wholesale Trade: 5000-5199, Retail Trade: 5200-5999, Finance, Insurance, and Real Estate: 6000-6799, Services: 7000-8999, Public Administration: 9100-9999 (*Standard Industrial Classification Manual*, n.d.).

Table 3. Descriptive Statistics

Variable	N	Mean	Min	P25	Median	P75	Max
<i>Rotation</i>	1,002	0.500	0.000	0.000	0.500	1.000	1.000
<i>#_of_CAMs</i>	1,002	1.402	1.000	1.000	1.000	2.000	4.000
<i>BIG4</i>	1,002	0.807	0.000	1.000	1.000	1.000	1.000
<i>BusySeason</i>	1,002	0.756	0.000	1.000	1.000	1.000	1.000
<i>GC</i>	1,002	0.019	0.000	0.000	0.000	0.000	1.000
<i>LitigationRisk</i>	1,002	0.180	0.000	0.000	0.000	0.000	1.000
<i>InherentRisk</i>	1,002	0.238	0.011	0.100	0.210	0.336	0.763
<i>IntanIntangibles</i>	1,002	0.119	0.000	0.016	0.068	0.170	0.627
<i>Leverage</i>	1,002	0.603	0.011	0.445	0.582	0.731	1.453
<i>LogTA</i>	1,002	7.878	3.385	6.720	7.815	9.136	11.756
<i>LogINV</i>	1,002	5.004	-0.916	3.496	5.289	6.547	9.047
<i>LogGoodwill</i>	1,002	5.385	-0.916	3.819	5.571	7.127	10.147
<i>Loss</i>	1,002	0.284	0.000	0.000	0.000	1.000	1.000
<i>MTB</i>	1,002	4.184	-20.793	1.491	2.618	4.999	48.085
<i>ROA</i>	1,002	0.011	-0.717	-0.013	0.034	0.082	0.282

Table 3 provides descriptive statistics for the sample. See Appendix 2 for variable definitions. All of the continuous variables are winsorized at the 1st and 99th percentile of the sample distribution.

Table 4. Correlation Table

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) Rotation	1														
(2) BIG4	0.010	1													
(3) BusySeason	0	-0.070	1												
(4) GC	0.050	-0.140	0.080	1											
(5) LitigationRisk	0.010	0.040	-0.070	0.090	1										
(6) InherentRisk	0.060	-0.110	-0.110	-0.020	-0.060	1									
(7) IntanIntangibles	-0.010	-0.030	-0.030	0.040	0.030	-0.230	1								
(8) Leverage	0.030	0.180	-0.010	0.100	0.030	-0.080	-0.050	1							
(9) LogTA	0.020	0.540	-0.030	-0.230	-0.090	-0.220	0.030	0.260	1						
(10) LogINV	0.050	0.460	-0.170	-0.200	-0.040	0.320	-0.060	0.130	0.740	1					
(11) LogGoodwill	0.010	0.430	-0.100	-0.170	-0.090	-0.220	0.310	0.180	0.800	0.600	1				
(12) Loss	-0.020	-0.170	0.150	0.200	0.080	-0.140	0.110	0.060	-0.300	-0.350	-0.280	1			
(13) ROA	0	0.240	-0.150	-0.450	-0.100	0.180	-0.110	-0.100	0.340	0.400	0.310	-0.670	1		
(14) MTB	-0.050	0.040	-0.010	-0.030	0	-0.080	-0.030	-0.030	0.040	0.010	0.050	-0.120	0.100	1	
(15) #_of_CAMs	-0.110	-0.040	0.020	-0.030	-0.050	-0.080	0.140	0.090	0.140	0.060	0.140	0.160	-0.150	-0.020	1

Table 4 presents the correlation between variables.

Table 5. Regression Analysis

Dependent variable: #_of_CAMs		
	Coeff.	p-value
Rotation	-0.142***	(0.038)
BIG4	-0.214***	(0.058)
BusySeason	-0.030	(0.046)
GC	-0.360**	(0.160)
InherentRisk	0.332*	(0.182)
IntanIntangibles	0.472***	(0.160)
Leverage	0.093	(0.086)
LitigationRisk	-0.052	(0.051)
LogTA	0.111***	(0.028)
LogINV	-0.024	(0.021)
LogGoodwill	0.013	(0.015)
Loss	0.178***	(0.058)
MTB	0.0002	(0.002)
ROA	-0.693***	(0.198)
Constant	0.630***	(0.154)
Observations	1,002	
R ²	0.124	
Adjusted R ²	0.112	

Note: *p<0.1; **p<0.05; ***p<0.01

Table 5 reports regression results of audit engagement partner rotations on the number of CAMs disclosed. The dependent variable is the number of CAMs disclosed. All continuous variables are winsorized at the bottom and top 1%. See Appendix 2 for the variables definitions.

Table 6. Additional Analysis
Effect of type of rotation on the number of CAMs disclosed

	Dependent variable: #_of_CAMs									
	(1)		(2)		(3)		(4)		(5)	
	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
Mandatory	-0.111**	(0.050)								
Voluntary1			-0.239*	(0.131)						
Voluntary2					0.024	(0.135)				
Voluntary3							-0.318**	(0.120)		
Voluntary4									-0.160	(0.136)
BIG4	-0.296***	(0.085)	-0.457**	(0.200)	-0.407**	(0.187)	0.040	(0.154)	0.078	(0.267)
BusySeason	-0.001	(0.073)	0.120	(0.193)	0.366*	(0.185)	-0.135	(0.155)	-0.055	(0.232)
GC	-0.227	(0.375)	-0.956**	(0.436)	-1.042**	(0.425)	-0.515	(0.335)	0.733	(0.540)
InherentRisk	0.273	(0.239)	0.063	(0.793)	-0.489	(0.595)	0.258	(0.624)	-0.195	(0.738)
IntanIntangibles	0.416**	(0.235)	0.525	(0.593)	0.058	(0.478)	1.054*	(0.565)	-0.977	(0.588)
Leverage	0.025	(0.110)	0.566*	(0.328)	0.120	(0.292)	-0.553*	(0.335)	-0.129	(0.474)
LitigationRisk	0.015	(0.070)	-0.044	(0.215)	-0.131	(0.178)	0.025	(0.162)	-0.079	(0.235)
LogTA	0.150***	(0.037)	0.139	(0.121)	0.002	(0.097)	0.029	(0.079)	-0.017	(0.111)
LogINV	-0.019	(0.029)	0.110	(0.075)	-0.009	(0.070)	-0.054	(0.060)	0.018	(0.064)
LogGoodwill	-0.014	(0.019)	-0.117*	(0.058)	0.043	(0.062)	0.057	(0.040)	0.135**	(0.061)
Loss	0.284***	(0.082)	-0.073	(0.206)	0.204	(0.193)	0.397**	(0.178)	0.045	(0.251)
MTB	0.003	(0.003)	0.004	(0.011)	-0.004	(0.011)	0.001	(0.008)	-0.001	(0.004)
ROA	-0.443	(0.312)	-2.068***	(0.713)	-1.016	(0.674)	0.019	(0.471)	-0.760	(0.830)
Constant	0.466**	(0.213)	0.510	(0.596)	1.247***	(0.449)	1.334***	(0.476)	0.975	(0.631)
Observations	536		104		98		88		84	
R ²	0.135		0.344		0.252		0.314		0.280	
Adjusted R ²	0.111		0.241		0.126		0.182		0.134	

Note: *p<0.1; **p<0.05; ***p<0.01

Table 6 reports regression results of the additional analysis. In this analysis all rotations are inspected and classified either as mandatory, voluntary after 1 year, voluntary after 2 years, voluntary after 3 years or voluntary after 4 years. Column (1) represents the results for rotations classified as mandatory rotations. Column (2) represents the results of rotations classified as voluntary rotations after 1 year. Column (3) represents the results of rotations classified as voluntary rotations after 2 years. Column (4) represents the results of rotations classified as voluntary rotations after 3 years. Column (5) represents the results of rotations classified as voluntary rotations after 4 years. The dependent variable is the number of CAMs disclosed. All continuous variables are winsorized at the bottom and top 1%. See Appendix 2 for the variable definitions.

Table 7. Sensitivity Analysis
Test excluding firms in the Manufacturing Industry

Dependent variable: #_of_CAMs

	Coeff.	p-value
Rotation	-0.153**	(0.060)
BIG4	-0.151*	(0.090)
BusySeason	-0.056	(0.086)
GC	-0.472	(0.430)
InherentRisk	-0.202	(0.251)
IntanIntangibles	0.406	(0.280)
Leverage	-0.084	(0.143)
LitigationRisk	-0.168*	(0.090)
LogTA	0.065	(0.042)
LogINV	0.010	(0.029)
LogGoodwill	0.010	(0.021)
Loss	0.042	(0.094)
MTB	0.004	(0.004)
ROA	-1.082***	(0.364)
Constant	1.120***	(0.246)
Observations	428	
R ²	0.118	
Adjusted R ²	0.088	

Note: *p<0.1; **p<0.05; ***p<0.01

Table 7 reports the regression results of the sample that excludes observations from firms active in the manufacturing industry. The dependent variable is the number of CAMs disclosed. All of the continuous variables are winsorized at the bottom and top 1%. See Appendix 2 for the variable definitions.

Table 8. Sensitivity Analysis
Effect of client firm size on the relation between audit engagement partner rotation and number of CAMs disclosed

	Dependent variable: #_of_CAMs			
	(1)		(2)	
	Non-large accelerated filers sample		Large accelerated filers sample	
	Coeff.	p-value	Coeff.	p-value
Rotation	-0.038	(0.074)	-0.177***	(0.046)
BIG4	-0.227**	(0.089)	-0.131	(0.101)
BusySeason	-0.010	(0.095)	-0.054	(0.055)
GC	-0.505***	(0.185)	0.131	(0.377)
InherentRisk	0.410	(0.305)	0.416*	(0.237)
IntanIntangibles	0.249	(0.344)	0.593***	(0.194)
Leverage	0.312*	(0.165)	-0.078	(0.116)
LitigationRisk	-0.035	(0.092)	-0.055	(0.065)
LogTA	0.029	(0.059)	0.153***	(0.036)
LogINV	-0.012	(0.037)	-0.040	(0.026)
LogGoodwill	0.042	(0.030)	0.007	(0.019)
Loss	0.211**	(0.102)	0.155**	(0.078)
MTB	0.009	(0.010)	0.001	(0.003)
ROA	-0.463	(0.291)	-0.821***	(0.325)
Constant	0.804***	(0.290)	0.410*	(0.225)
Observations		236		706
R ²		0.166		0.125
Adjusted R ²		0.113		0.108

Note: * p<0.1; ** p<0.05; *** p<0.01

Table 8 reports the regression results evaluating client firm size on the relation between audit engagement partner rotation and number of CAMs disclosed. The dependent variable is the number of CAMs disclosed. Client firm size is measured by the public float of a company. Firms with a public float of \$700 million or more are classified as large accelerated filers. Column (1) represents the results for firms not classified as large accelerated filer. Column (2) represents the results for firms classified as large accelerated filer. All continuous variables are winsorized at the top and bottom 1%. See Appendix 2 for the variable definitions.