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CRITICAL AUDIT MATTER PERSISTENCE AND FUTURE REPORTING AMENDMENTS: EVIDENCE FROM U.S. 10-K FILINGS

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Abstract:

Critical audit matters are usually read as annual audit-report disclosures. This paper asks whether their wording also matters across years. Using U.S. S&P 500 non-financial firms from 2020 to 2024, CAM persistence is measured as the TF-IDF cosine similarity between adjacent-year CAM sections in original 10-K filings. Future 10-K/A amendments are used as the subsequent reporting outcome, not as evidence of fraud or severe restatement in every case. Firms with more persistent CAM language are more likely to file a future 10-K/A amendment. The association remains after controlling for acquisition-related complexity and internal-control weakness and is supported by bootstrap evidence. Repeated CAM wording is therefore not necessarily empty boilerplate; in some cases, it may point to reporting issues that have not fully cleared.

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10-K/A Amendments; Critical Audit Matters; Financial Reporting Quality; SEC Filings; Textual Persistence



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Introduction

Traditional audit reports have long been criticised for saying too little about where the audit was difficult. The audit opinion remains important, but it does not usually tell readers which accounts involved the most judgement, where management estimates were hardest to assess, or where the auditor had to spend more effort. This is the space in which critical audit matters were introduced.

Under Auditing Standard No. 3101, a critical audit matter is a matter communicated or required to be communicated to the audit committee, related to material accounts or disclosures, and involving especially challenging, subjective, or complex auditor judgement (PCAOB, 2017). The PCAOB later described CAM reporting as the most significant change to the auditor's report in more than 70 years and, in 2024, continued to report deficiencies in how CAMs are identified, communicated, and documented (PCAOB, 2024b). CAMs therefore matter because they point to the audit areas where ordinary pass-or-fail reporting is least informative.

Evidence on expanded audit reporting remains inconclusive. Experimental studies suggest that CAM disclosures can affect investor judgement. They can also affect perceived auditor liability. This is when they make audit difficulty or estimation uncertainty more visible (Brasel et al., 2016; Christensen et al., 2014; Gimbar et al., 2016). Archival evidence is more cautious. In the United Kingdom, expanded audit reports did not generate strong immediate market reactions, partly because many disclosed risks were already known before the report date (Gutierrez et al., 2018; Lennox et al., 2023). This does not mean that CAMs lack value. It suggests that filing-date market reaction may be too narrow a place to look. Existing research still tends to treat expanded audit reports as single-year disclosures. Less is known about whether the same audit matter, repeated across years, reflects reporting issues that remain unresolved.

We follow that cross-year route by asking whether persistent CAM language is associated with future 10-K/A amendments. The setting is U.S. S&P 500 non-financial firms from 2020 to 2024. CAM persistence is measured by comparing the textual similarity of CAM sections across adjacent original 10-K filings for the same firm. Future 10-K/A amendments are then used as the subsequent reporting outcome. A 10-K/A is not treated here as fraud or as a severe restatement in every case. It is used more modestly, as an observable revision to a previously filed annual report. Research on restatements, internal-control weaknesses, and reporting

quality has long treated subsequent corrections and filing irregularities as observable signals of weakness in the financial reporting environment (Dechow et al., 2011; Doyle et al., 2007; Hennes et al., 2008; Hribar & Jenkins, 2004). For a study of auditor reporting language, future 10-K/A amendments provide a closer accounting outcome than short-window price movement. CAM persistence is also difficult to interpret. Repeated wording may simply reflect a stable audit approach or familiar drafting practice. It may also reflect an accounting issue that remains unresolved. Consistency in wording does not automatically imply poor disclosure quality. It may be appropriate when the underlying matter remains relevant. The same wording is used even though the reporting environment has changed, and this is a cause for concern. In that situation, repeated CAM language may carry information. This information is not visible from a single-year reading.

The empirical setting is deliberately conservative. Non-financial firms in the U.S. S&P 500 between 2020 and 2024. These firms are large and closely followed. They are generally audited by major audit firms. The analysis is not based on weak reporting. The scope of the evidence is also limited by this. The paper does not treat CAM persistence as a direct measure of audit effort. It also does not treat it as a direct measure of audit quality. Previous research on audit pricing has shown that effort reflects size, complexity and risk (Bell et al., 2001; Hay et al., 2006; Simunic, 1980).

The paper introduces a cross-year dimension to both CAM research and the boilerplate debate, which is an important development in the field. It asks whether audit reports that are repeated contain information about later changes to the reports. Repetition does not necessarily indicate poor disclosure quality, but it is important to consider whether it is excessive. If the core issue remains the same, it may be sensible to reuse a CAM. Nevertheless, greater concern arises when the verbiage remains constant, yet the reporting environment has undergone a transformation. Figure 1 illustrates this logic.

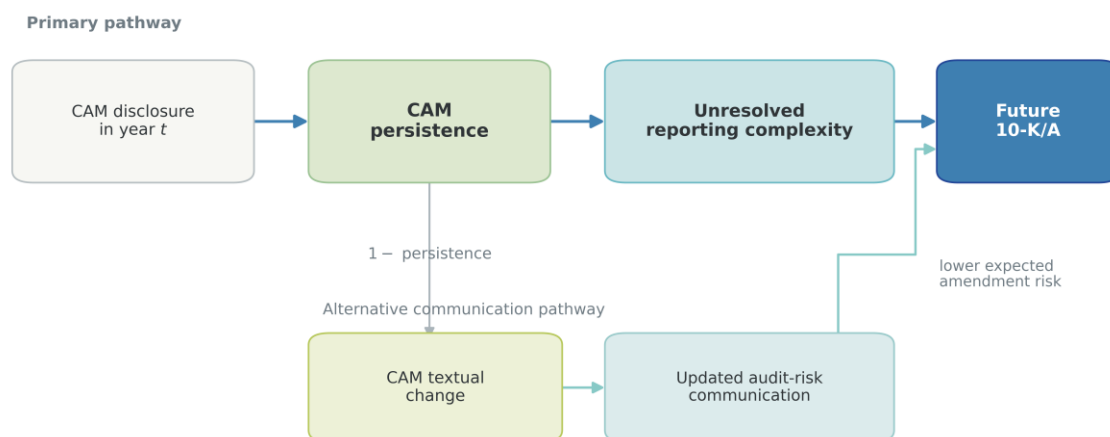


Figure 1: Conceptual Framework

Note: The figure links CAM persistence, unresolved reporting complexity, and future 10-K/A amendments. CAM textual change equals one minus CAM persistence.

Source: Author's own work.

Literature Review

Critical Audit Matters and Audit-Report Informativeness

Critical audit matters were designed to give audit reports more specifically. This was about where the audit was genuinely difficult. According to AS 3101, a CAM is a matter that is either told or must be told to the audit committee. It is about auditor judgement, which is especially difficult, subjective, or complex, related to material accounts or disclosures (PCAOB, 2017). Unlike ordinary management disclosures, CAMs are generated by audit. They are tied to areas where evidence, estimation and professional judgement were not straightforward to settle.

Investor judgement and perceived auditor responsibility can be affected by CAM disclosures, according to prior experimental work (Brasel et al., 2016; Christensen et al., 2014; Gimbar et al., 2016). This is the case when a disclosed matter is made salient. Archival evidence from the United Kingdom is more restrained. Expanded audit reports did not produce strong immediate market reactions. This is partly because many risks were already anticipated (Gutierrez et al., 2018; Lennox et al., 2023). These analyses do not resolve the question of whether CAMs convey data via pathways other than filing-date market reaction.

Recent studies have linked CAM reporting to both internal control quality (Dee et al., 2026) and lower accrual quality (Li et al., 2025). This renders CAM persistence a perspicacious locale for the subsequent examination of reporting outcomes.

Textual Persistence Between Audit Inertia and Risk Continuity

Repeated CAM language is not easy to interpret. Auditors may choose to use wording they are familiar with, since it is already accepted by the client and audit committee. Seebeck (2024) documents this drift. He does so in U.K. KAM reports. Here, language has become increasingly generic over time. However, it should be noted that repetition does not necessarily constitute futile replication. Some accounting problems keep coming back because the basic problem has not been solved. It is not just because auditors repeat old words.

The recognition of revenue, the assessment of goodwill, the evaluation of tax positions and the estimation of fair value are seldom rectified with precision at the close of the fiscal year. In circumstances where the accounting issue endures, the CAM language may also prevail.

Wang et al. (2024) find that KAM boilerplate varies with client financial risk. Ma et al. (2024) link lower boilerplate to audit effort. Huang et al. (2024) connect KAM textual features with restatement risk in Chinese firms. While these settings differ from the US CAM regime, they demonstrate that audit report language can reflect reporting risk.

CAM persistence falls somewhere between an audit routine and an unresolved reporting difficulty. Careless boilerplate is not the only plausible explanation in the case of large, closely monitored firms. The practical test analyses which explanation is more in line with subsequent filing updates.

Future 10-K/A Amendments as Measurable Reporting Outcomes

The outcome variable is future 10-K/A amendments, which are to be used to address any issues that may arise in the future. A 10-K/A is a formal amendment. It is to an annual filing. This filing has already been submitted to the SEC. Fraud is not necessarily indicated by it in every instance, and it does not always indicate a significant departure from the truth. But it does show a clear change to the public filing record, and that's what we're using here.

In the accounting literature, restatements, internal control weaknesses and reporting corrections are standard observable indicators of reporting stress (Ashbaugh-Skaife et al., 2007; Dechow et al., 2011; Doyle et al., 2007; Hennes et al., 2008; Hribar & Jenkins, 2004). Future 10-K/A amendments belong to this family. This means they do not require the inference that every amendment is a case of severe misreporting.

Hypothesis Development

The expected association is positive. CAMs are tied to accounts and disclosures requiring difficult auditor judgement. When similar language persists across years, the underlying accounting issue may not have fully resolved, which could increase the likelihood of a later filing amendment. Both channels can generate the same observed association.

H1. Higher CAM persistence is associated with a higher likelihood of future 10-K/A amendments.

Methodology

Data Collection and Sample Construction

We compile a dataset combining text and financial data from annual reports filed with the U.S. Securities and Exchange Commission (SEC). The filing data are collated from the SEC's EDGAR database, while the structured financial variables are obtained from the SEC company submissions and company facts APIs. These APIs provide filing and extract XBRL data in JSON format (U.S. Securities and Exchange Commission, 2024). The sample begins with S&P 500 constituent firms. Financial firms are excluded because their balance-sheet structure, regulatory environment, and audit-risk profile differ substantially from those of non-financial issues. The remaining firms are matched to SEC Central Index Key identifiers, producing 427 non-financial S&P 500 firms. Original Form 10-K filings from 2020 to 2024 are then retrieved from SEC EDGAR, resulting in an initial corpus of 2,034 annual reports.

The raw filing documents are converted into plain text and processed to isolate the critical audit matter section. The extraction procedure removes structural markup. It also normalises spacing. The procedure identifies variants of the "critical audit matters" heading. And it truncates the section before later financial statement or auditor-report headings. The definition of CAMs under AS 3101 is institutional, and this boundary follows it. CAMs are matters communicated or required to be communicated to the audit committee. These matters involve especially challenging, subjective, or complex auditor judgement related to material accounts or disclosures (PCAOB, 2017). The procedure successfully extracts 2,019 CAM sections from 2,034 original filings.

The CAM corpus is merged with accounting fundamentals. These accounting fundamentals come from SEC structured financial disclosures. The financial variables include total assets, liabilities, net income, revenue, equity, and operating income. This is available where relevant. To minimise measurement loss resulting from alternative US-GAAP tagging, revenue is initially deducted from 'Revenues'. Any residual missing values are then completed using 'SalesRevenueNet'. The final multivariate regression sample contains 1,397 firm-year observations. This sample size reflects the longitudinal structure of the design. CAM persistence requires a non-missing prior-year CAM section for the same firm. It also requires non-missing financial controls.

Variable Measurement

The dependent variable is future 10-K/A amendment. For each firm-year, $Future_{10K/A}_{i,t+1}$ equals one if firm i files a Form 10-K/A in the subsequent report year, and zero otherwise. The search window extends to 2025 so that fiscal-year 2024 observations can still be linked to later amendments. This variable captures observable subsequent revisions to the annual filing record rather than direct evidence of fraud or severe restatement.

The key explanatory variable is CAM persistence. After cleaning the CAM text, the full CAM corpus is transformed into term frequency-inverse document frequency (TF-IDF) vectors using unigrams and bigrams, with English stop words removed. The vectoriser is fitted on the full CAM corpus rather than within each firm, so that inverse document frequency reflects term importance across the broader audit-report corpus. CAM persistence is measured as the cosine similarity between adjacent-year CAM sections for the same firm:

$$CAM_{persistence_{i,t}} = \frac{V_{i,t} \cdot V_{i,t-1}}{|V_{i,t}| |V_{i,t-1}|} \quad (1)$$

where $V_{i,t}$ and $V_{i,t-1}$ are the TF-IDF vectors for firm i 's CAM section in years t and $t-1$. Higher values indicate greater year-to-year similarity in CAM wording. The measure captures persistence in the full CAM section rather than repetition of a single keyword or phrase.

CAM textual change is also constructed as $1 - CAM_{persistence_{i,t}}$, serving as a mirror-image test of the main persistence measure. If CAM persistence is positively associated with future amendments, CAM textual change should move in the opposite direction. CAM specificity serves as a current-year text control, separating cross-year persistence from the level of detail in the current disclosure.

The main financial controls capture firm scale, profitability, and financial condition. Firm size is measured as the natural logarithm of total assets. Return on assets is measured as net income divided by total assets. Loss status is an indicator equal to one when net income is negative. Continuous financial variables are winsorised where applicable to reduce the influence of extreme observations.

Two additional reporting-risk controls are included in extended specifications. First, acquisition-related complexity is measured using the log count of merger, acquisition, divestiture, and business-combination terms in the 10-K text. This control captures transaction-related complexity that may affect both audit reporting and amendment risk. Second, a clean

internal-control weakness proxy is constructed from explicit negative internal-control language, such as ineffective disclosure controls or identified material weaknesses. The measure avoids generic internal-control mentions and excludes negated phrases such as “no material weakness” or statements that controls were effective.

Empirical Specification

The baseline analysis tests whether CAM persistence is associated with future 10-K/A amendments. Because the dependent variable is binary and infrequent, we report both a linear probability model and a logit model. The linear probability model keeps the estimated effect interpretable in percentage-point terms, while the logit model checks whether the result is robust to a binary-response specification. Rare binary outcomes can raise small-sample concerns in logistic models, so bootstrap evidence is also reported as an additional stability check (King & Zeng, 2001).

The baseline linear probability model is specified as follows:

$$\begin{aligned} Future_10KA_{i,t+1} &= \alpha + \beta_1 CAM_Persistence_{i,t} + \beta_2 CAM_Specificity_{i,t} \\ &+ \beta_3 FirmSize_{i,t} + \beta_4 ROA_{i,t} + \beta_5 Loss_{i,t} + \lambda_t + \delta_s + \varepsilon_{i,t}. \end{aligned} \quad (2)$$

The corresponding logit specification is:

$$\begin{aligned} Pr(Future_10KA_{i,t+1} = 1) &= \Lambda(\alpha + \beta_1 CAM_Persistence_{i,t} + \beta_2 CAM_Specificity_{i,t} + \beta_3 FirmSize_{i,t} \\ &+ \beta_4 ROA_{i,t} + \beta_5 Loss_{i,t} + \lambda_t + \delta_s), \end{aligned} \quad (3)$$

where $\Lambda(\cdot)$ is the logistic cumulative distribution function, λ_t denotes report-year fixed effects, and δ_s denotes sector fixed effects. Standard errors are clustered at the firm level to account for within-firm dependence over time (Petersen, 2009). The coefficient of interest is β_1 . A positive β_1 indicates that greater year-to-year CAM persistence is associated with a higher likelihood of future 10-K/A amendments.

Robustness Checks

The robustness checks examine whether the baseline association is absorbed by other dimensions of reporting complexity. The first set of extended models adds the acquisition-related complexity proxy and the clean internal-control weakness proxy. These tests assess whether CAM persistence merely captures transaction intensity or known internal-control problems.

The second test replaces CAM persistence with CAM textual change, defined as $1 - CAM_Persistence_{i,t}$. This test examines the same mechanism from the opposite direction. If persistent CAM language is associated with a higher likelihood of future amendments, greater textual change should be associated with a lower likelihood of future amendments.

The final check uses bootstrap resampling for the baseline linear probability model. In each iteration, the regression sample is resampled with replacement, the baseline model is re-

estimated, and the coefficient on CAM persistence is stored. The bootstrap distribution assesses whether the main coefficient remains stable in a setting where the dependent variable is rare.

Results

Descriptive Evidence

Table 1 reports the sample construction and filing coverage, beginning with 2,034 original 10-K filings collected from SEC EDGAR for S&P 500 non-financial firms from 2020 to 2024. CAM sections are successfully extracted from 2,019 of these filings. The regression sample, which is the main one, contains 1,397 firm-year observations. These were required to include lagged CAM text and non-missing financial controls. The longitudinal design is the reason for this reduction. To measure similarity, you need to use a CAM section from the previous year. However, you cannot use the first usable CAM year for the persistence regression.

Table 1: Sample Construction and Filing Coverage

Sample Construction Step	Observations
Original Form 10-K filings collected from SEC EDGAR, 2020–2024	2,034
Filings with successfully extracted CAM sections	2,019
Filings excluded due to unsuccessful CAM extraction	15
Final CAM textual sample	2,019
Final regression sample after requiring lagged CAM text and financial controls	1,397

Note: The regression sample is smaller because CAM persistence requires prior-year CAM text and non-missing financial controls; observations are not excluded based on future 10-K/A outcomes.

Source: Author's own work.

The descriptive statistics in Table 2 highlight two features of the sample relevant to interpretation. Future 10-K/A amendments are infrequent, with an average rate of about 2.5%, confirming that the outcome captures selective subsequent filing revisions rather than routine annual-report updates. CAM persistence has a mean of 0.395 and a standard deviation of 0.289, indicating meaningful variation in repeated CAM wording. In the baseline linear probability model, this standard deviation implies that a one-standard-deviation increase in CAM persistence is associated with about a 1.3 percentage-point increase in future amendment probability.

Table 2: Descriptive Statistics

Variable	N	Mean	SD	Min	P25	Median	P75	Max
CAM words	2,042	1119.899	877.837	89.000	557.000	809.500	1293.750	4925.000
CAM persistence	1,618	0.395	0.289	0.000	0.139	0.347	0.614	0.968
CAM textual change	1,618	0.605	0.289	0.032	0.386	0.653	0.861	1.000
CAM specificity	2,042	0.000	0.426	-1.045	-0.270	-0.012	0.294	0.960
Future 10-K/A	2,042	0.025	0.156	0.000	0.000	0.000	0.000	1.000
Firm size	2,024	23.833	1.129	21.291	23.042	23.804	24.609	26.624

Variable	N	Mean	SD	Min	P25	Median	P75	Max
ROA	1,787	0.068	0.074	-0.153	0.024	0.053	0.105	0.306
Loss	1,787	0.078	0.269	0.000	0.000	0.000	0.000	1.000
M&A intensity	2,042	4.405	0.837	1.609	3.932	4.564	5.011	6.161
Clean ICW proxy	2,042	0.087	0.281	0.000	0.000	0.000	0.000	1.000

Note: CAM persistence is the cosine similarity between current- and prior-year CAM text; CAM textual change equals one minus CAM persistence. Future 10-K/A, Loss, and Clean ICW proxy are indicator variables. Continuous variables are winsorised where applicable.

Source: Author's own work.

Table 3: CAM Category Distribution and Reporting Outcomes

CAM Category	N	Mean Specificity	Median Specificity	Mean Persistence	Future 10-K/A Rate	Future Loss Rate	Future ROA Decline Rate	Mean Future ROA
Revenue	506	-0.170	-0.197	0.408	0.018	0.070	0.425	0.081
Tax	422	0.197	0.185	0.427	0.036	0.050	0.462	0.085
Goodwill Impairment	/ 366	0.199	0.139	0.408	0.019	0.100	0.401	0.049
Fair Value Valuation	/ 342	-0.002	-0.017	0.365	0.035	0.038	0.450	0.070
Contingency Litigation	/ 174	-0.272	-0.245	0.347	0.011	0.013	0.453	0.094
Inventory	76	0.011	-0.078	0.342	0.039	0.053	0.467	0.134
Receivables Credit	/ 58	-0.020	0.028	0.452	0.017	0.106	0.391	0.064
Lease	44	0.045	0.123	0.395	0.023	0.048	0.405	0.061
Unclassified	29	-0.759	-1.032	0.320	0.034	0.034	0.536	0.087
Going Concern	2	-0.470	-0.470	0.337	0.000	0.500	0.500	-0.057

Note: CAM categories are assigned using keyword-based classification. Rates are reported as proportions. The Going Concern category contains only two observations and is interpreted descriptively.

Source: Author's own work.

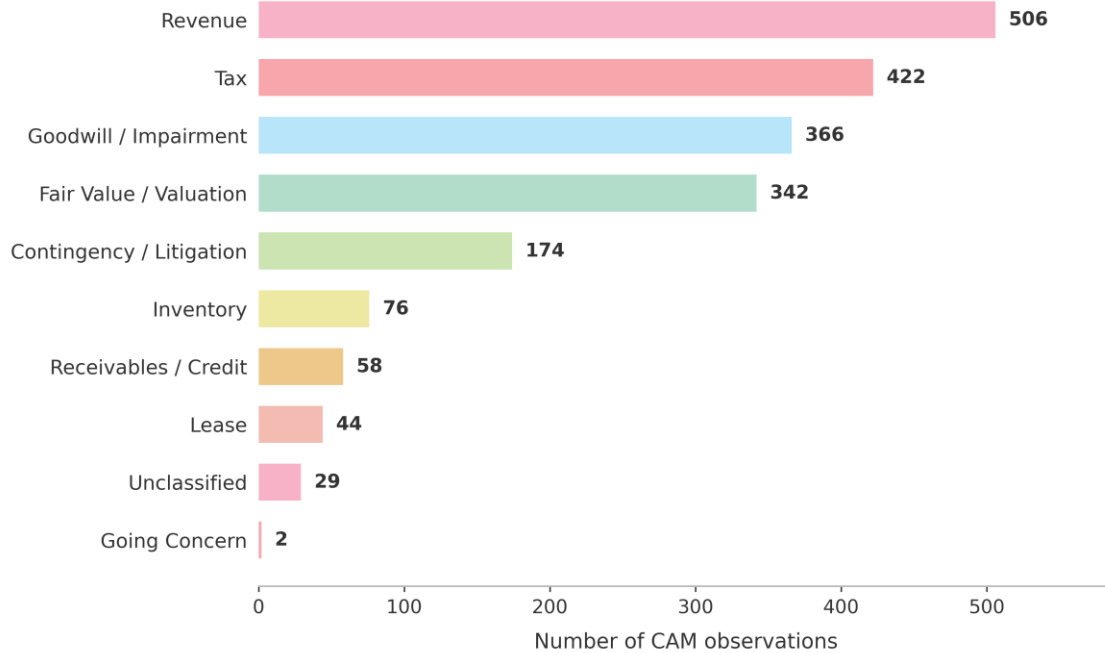


Figure 2: CAM Category Distribution

Source: Author's own work.

Before turning to the regressions, Table 3 and Figure 2 show what kind of audit matters make up the sample. Most CAMs fall in revenue, tax, goodwill or impairment, and fair value or valuation. These are not merely labels in the text. They are accounting areas where estimates, judgement, and audit verification problems often extend beyond a single reporting year. This gives the persistence measure accounting content rather than treating it as only a wording pattern.

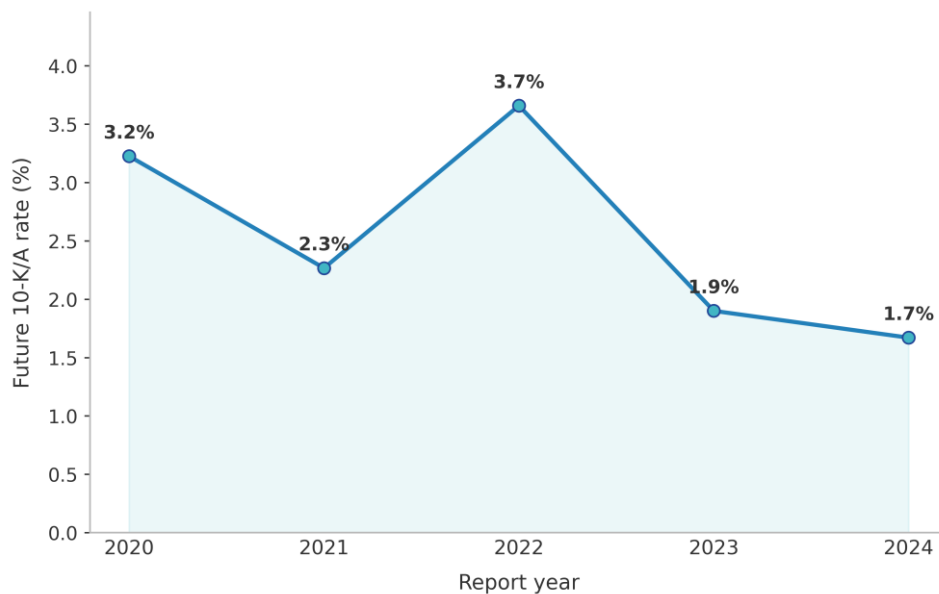


Figure 3: Future 10-K/A Rate by Year

Source: Author's own work.

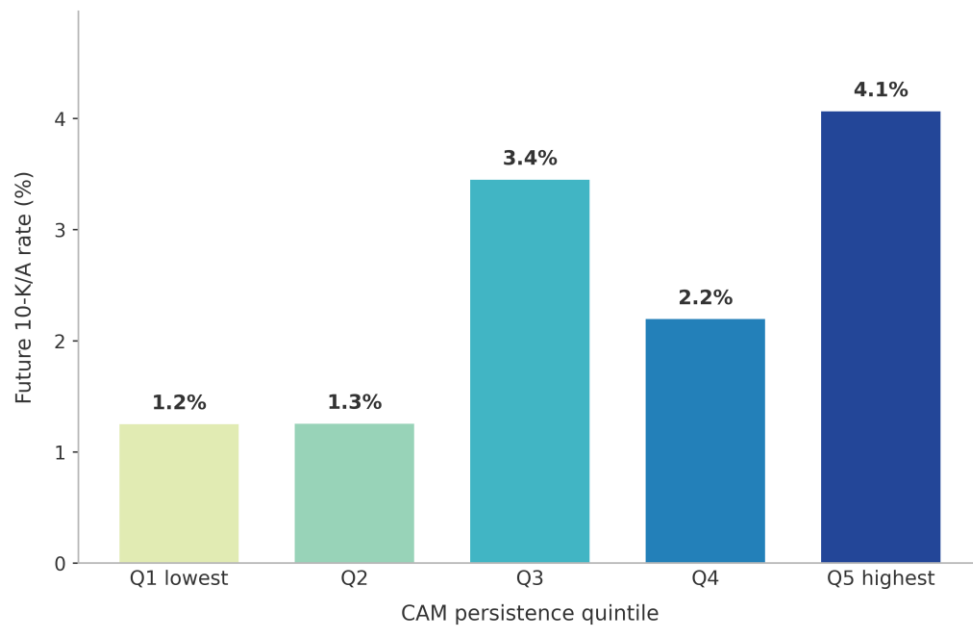


Figure 4: Future 10-K/A Rate by CAM Persistence Quintile

Note: CAM persistence quintiles are formed from year-to-year CAM textual similarity. Bars report the percentage of firm-year observations with a future 10-K/A amendment.

Source: Author's own work.

Figures 3 and 4 provide the descriptive bridge to the regression tests. The future 10-K/A rate moves unevenly across years, so report-year fixed effects are kept in the models. The highest CAM-persistence quintile has the largest future amendment rate, but the middle quintiles do not line up neatly. That unevenness is important. Moderate textual similarity may simply reflect normal reporting continuity, industry wording conventions, or firm-specific complexity. The regression analysis therefore asks whether the upper-tail pattern remains after controls are added.

Baseline Regression Results

The main test is reported in Table 4. CAM persistence carries a positive coefficient in the LPM and remains significant in the logit specification. This consistency is useful because future 10-K/A amendments are rare; in that setting, the result should not rest on one modelling choice alone (King & Zeng, 2001).

Table 4: CAM Persistence and Future 10-K/A Amendments

Variable	LPM	Logit	LPM + M&A	Logit + M&A	LPM + ICW	Logit + ICW
CAM persistence	0.045** (0.018)	1.874*** (0.613)	0.045** (0.018)	1.909*** (0.615)	0.045** (0.018)	1.879*** (0.613)
CAM specificity	-0.011 (0.012)	-0.478 (0.453)	-0.011 (0.012)	-0.499 (0.457)	-0.011 (0.012)	-0.501 (0.453)
Firm size	0.002	0.080	0.002	0.088	0.001	0.051

Variable	LPM	Logit	LPM + M&A	Logit + M&A	LPM + ICW	Logit + ICW
	(0.004)	(0.176)	(0.004)	(0.177)	(0.004)	(0.179)
ROA	-0.065	-3.082	-0.059	-2.838	-0.073	-3.597
	(0.067)	(3.116)	(0.071)	(3.189)	(0.066)	(3.120)
Loss	-0.011	-0.541	-0.010	-0.483	-0.011	-0.608
	(0.019)	(0.882)	(0.019)	(0.889)	(0.019)	(0.889)
M&A intensity	—	—	0.002	0.122	—	—
	—	—	(0.005)	(0.266)	—	—
Clean ICW proxy	—	—	—	—	-0.020*	-1.276
	—	—	—	—	(0.010)	(1.041)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Sector fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,397	1,397	1,418	1,418	1,418	1,418
R-squared / Pseudo R-squared	0.020	0.090	0.021	0.092	0.022	0.098

Note: The dependent variable equals one if the firm files a future 10-K/A amendment, and zero otherwise. Models are estimated using available observations after merging the corresponding control variables. Standard errors are reported in parentheses and clustered at the firm level. Year and sector fixed effects are included. Continuous variables are winsorised where applicable. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Source: Author's own work.

A note on interpretation: the coefficient reflects an association, not a mechanical effect. Most firms do not move from complete dissimilarity to complete similarity across adjacent years, so the more realistic reading is that unusually stable CAM language carries information about future amendment likelihood.

The controls help clarify the interpretation. CAM specificity captures current-year textual detail, while firm size, ROA, loss status, year fixed effects, and sector fixed effects absorb basic accounting and reporting-environment differences. Cross-year audit-report language still appears to contain information beyond these controls, consistent with textual accounting research on disclosure language (Li, 2008; Loughran & McDonald, 2011).

Robustness And Supplementary Tests

The next concern is whether the main result is simply picking up firms with more transactions or weaker controls. Table 5 and Figure 5 address that issue. After adding acquisition-related complexity and the clean internal-control weakness proxy, the coefficient on CAM persistence barely changes. This is useful because M&A activity can make valuation and disclosure work more complicated, while internal-control weakness is already close to reporting quality. The result therefore does not look like a disguised M&A effect or an internal-control effect. It remains tied to the persistence of CAM language itself.

Table 5: Robustness And Supplementary Tests

Test	Model	Dependent Variable	Key Variable	Coefficient	Std. Error	p-value	N	Interpretation
Textual change reverse test	Logit	Future 10-K/A	CAM textual change	-1.8738	0.6133	0.0022	1,397	Negative coefficient supports the persistence interpretation
Bootstrap LPM	LPM bootstrap	Future 10-K/A	CAM persistence	0.0448	—	—	1,397	95% CI [0.0109, 0.0813]; positive share = 0.995
Timing test	Logit	Current 10-K/A	CAM persistence	0.3943	0.5890	0.5032	1,397	Not significant; the association appears for future rather than current amendments
Alternative outcome	LPM	Future loss	CAM specificity	0.0132	0.0164	0.4227	1,387	No robust evidence for broad future loss outcome
Alternative outcome	LPM	Future ROA decline	CAM specificity	-0.0046	0.0325	0.8874	1,387	No robust evidence for broad future ROA decline outcome
Alternative outcome	OLS	Future ROA	CAM specificity	-0.0048	0.0034	0.1615	1,387	No robust evidence for broad future ROA outcome

Note: CAM textual change equals one minus CAM persistence. Bootstrap inference is based on repeated resampling of the baseline LPM sample. Alternative outcomes are reported as supplementary evidence.

Source: Author's own work.

The first robustness test adds acquisition-related complexity and the clean internal-control weakness proxy. M&A activity can increase valuation complexity and amendment risk, while internal-control problems are closely linked to reporting weakness (Ashbaugh-Skaife et al., 2007; Doyle et al., 2007; Schneider et al., 2009). CAM persistence remains positively associated after these controls are included.

The textual-change test examines the same mechanism from the opposite direction. Because CAM textual change is defined as one minus CAM persistence, it should move in the opposite direction if the persistence interpretation is valid. That pattern is consistent with the persistence interpretation.

Current-year 10-K/A amendments serve as a timing check. CAM persistence is not significantly associated with this outcome, suggesting that the baseline association is more closely related to later filing revisions than to amendment activity already visible in the same reporting period. This test should not be overstated, because current-year amendments and audit-report drafting may partly overlap in timing.

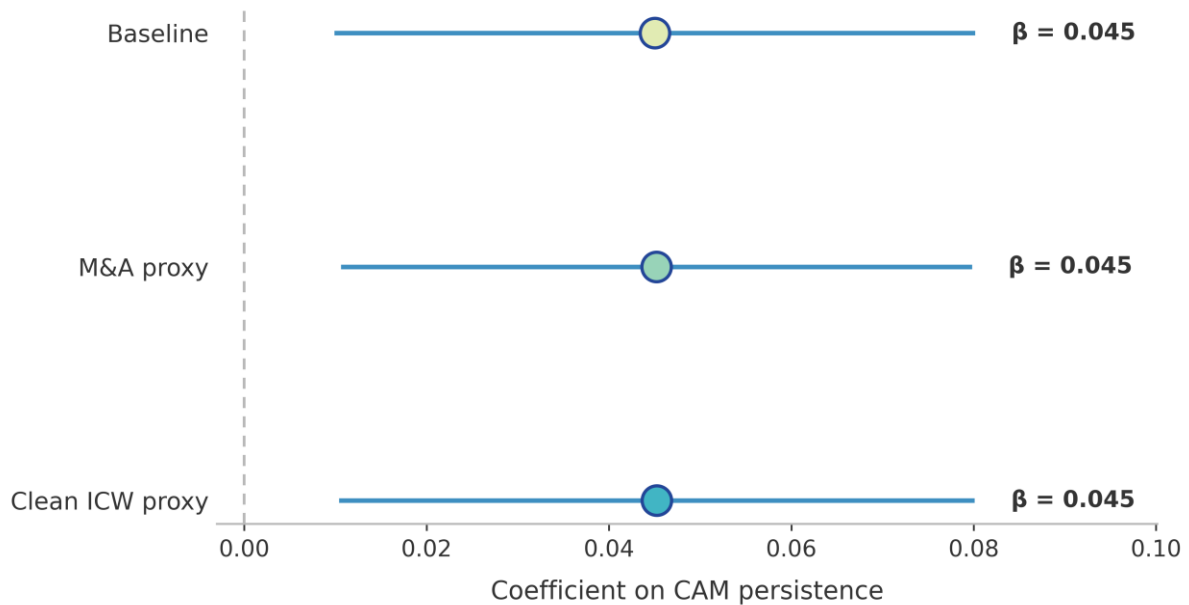


Figure 5: LPM Coefficient Plot

Note: Points report LPM coefficients on CAM persistence; horizontal lines represent confidence intervals.
Source: Author's own work.

The alternative outcome tests narrow the interpretation. CAM textual features do not consistently predict future loss, future ROA decline, or future ROA. The association is therefore not a broad claim that CAM language predicts all future accounting outcomes; its strongest signal is with future annual-report amendment risk, the outcome most closely aligned with the research question.

Bootstrap resampling provides an additional check for rare-outcome stability. The bootstrap distribution remains centred near the baseline estimate, and the percentile interval stays positive. This reduces the concern that the finding rests on a small number of influential observations. The full bootstrap distribution is reported in Figure S1 in the Appendix.

The baseline specification uses year, and sector fixed effects rather than firm fixed effects. In a five-year panel with rare future 10-K/A amendments, firm fixed effects would identify the relation mainly from firms that change amendment status, while removing much of the cross-sectional variation in CAM persistence. Sector fixed effects provide a more balanced specification by controlling for broad reporting environments while preserving enough variation to estimate the relation (Aobdia, 2019; Cao et al., 2016; Petersen, 2009).

Taken as a whole, the evidence in Tables 4 and 5 supports H1. The main result does not depend on a single specification. CAM persistence is positive in the baseline models, stays almost unchanged after adding the M&A and ICW controls, and moves in the expected opposite direction when the variable is rewritten as CAM textual change. The bootstrap result gives the

same message. The current-year amendment test is also useful because it is not significant; the signal appears to be tied more closely to filing revisions than to amendment activity already visible in the same reporting period. These results do not prove causality, but they make one point harder to ignore: repeated CAM language is not just repeated wording; it carries information about future 10-K/A amendments.

Discussion

The results suggest a more specific interpretation of CAM persistence, which is an important finding given the current state of research in this area. The reiteration of CAM phrasing does not inherently signify inadequate audit reporting. Nevertheless, it would be imprudent to disregard this as a mere innocuous continuation. In this sample, a later 10-K/A amendment was more likely to be filed by firms with more persistent CAM language. The issue at hand is not that repetition leads to reporting problems. The problem is that using the same audit-report language again can point to accounting issues that are still hard to sort out.

This reading is important because CAMs are often treated as one-year disclosures. A CAM from one year will inform users of areas where the audit faced difficulties at that point in time. But a different story is told by a similar CAM repeated across years. This suggests that the same accounting estimate may still be in use. The same applies to valuation issues, tax positions, revenue judgements and impairment concerns. In that sense, CAM persistence adds a time dimension to the boilerplate debate. This is important for understanding the impact of this technology. Repetition can make something seem less new, but it can also make it impossible to forget some of the details that weren't clear at first.

The important question is not whether someone has used a CAM again, but what the reason for it is. The ability to inquire about any alterations to the underlying estimate should be a prerequisite for audit committees. They should also be able to ask whether management's disclosure has improved, and if so, what the reasons for that might be. The audit response must be assessed to determine whether it has adapted to current conditions. Should the same language persist in appearing despite alterations to the reporting environment, the issue at hand extends beyond mere stylistic concerns. Rather, it is a question of whether the audit report is still communicating the substance of the risk. This cross-year pattern may also be useful for regulators, especially in judgement-heavy areas such as revenue, tax, impairment and valuation.

The evidence should still be read as associational rather than causal. The data do not allow the paper to separate audit inertia from risk continuity completely, and 10-K/A amendments are not classified by severity in the present design. Even with those limits, the result opens a useful path for CAM research. Audit-report language does not only matter at the filing date. Its persistence across years can carry information, and that cross-year signal deserves attention.

Conclusion

This paper investigated the association between persistent CAM language and future 10-K/A amendments. The measure of CAM persistence used in this study was based on the textual similarity between CAM sections in consecutive original 10-K filings. This was done for a

sample of U.S. S&P 500 non-financial firms from 2020 to 2024. The outcome measure for this study was future 10-K/A amendments.

Higher CAM persistence is associated with a higher likelihood of future 10-K/A amendments. This association holds across alternative specifications and controls. These findings do not imply that repeated CAM language causes later amendments. They also do not imply that every persistent CAM signals a problem. It seems that the wording used repeatedly carries additional information that could be related to later problems with reporting.

The paper adds a cross-year dimension to CAM research. It does this by shifting attention from filing-date disclosure. Instead, it looks at how audit-report language develops over time. The presence of repetition in CAM wording should not be taken to indicate disclosure deterioration. For audit committees, persistent CAM language raises a governance question, namely whether, if the same matter continues to appear, the audit response has adapted to current conditions. For regulators, repeated CAM phrasing may provide an added supervisory signal, particularly in areas where judgement is crucial.

The sample encompasses S&P 500 non-financial firms exclusively, and 10-K/A amendments are not categorised by type in this instance. Future research involving audit fee data, partner identity, or amendment-type classifications could more directly differentiate between audit inertia and risk continuity.

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Appendix

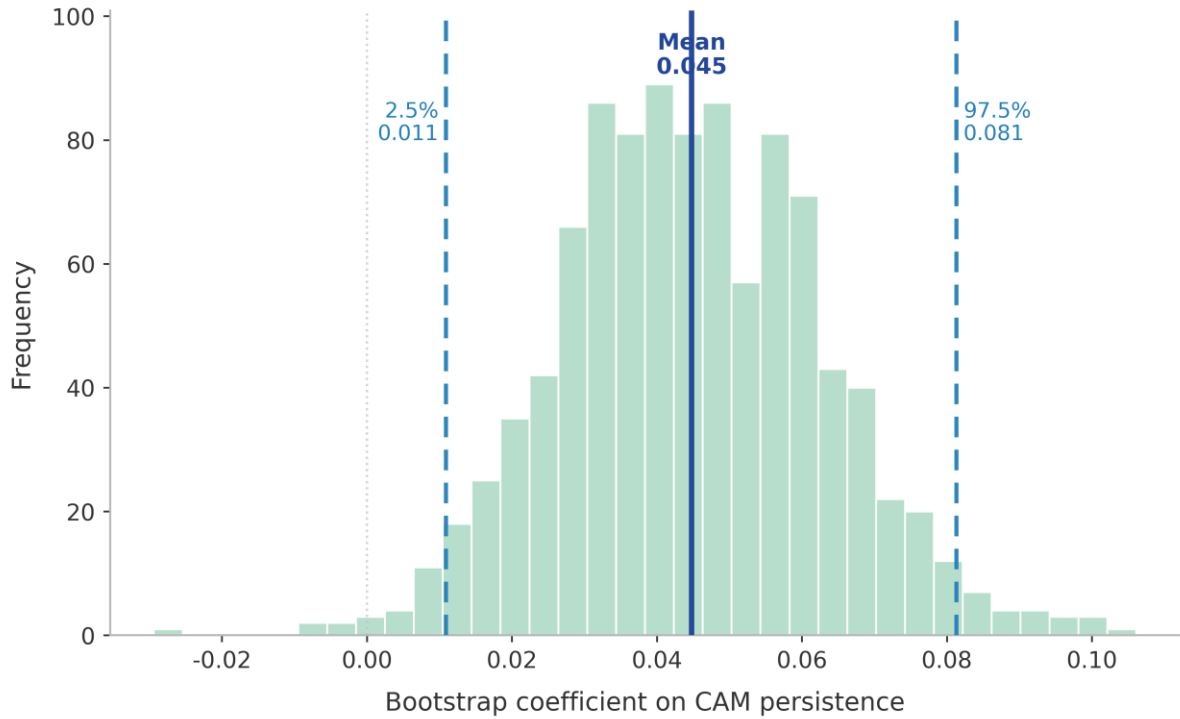


Figure S1: Bootstrap Distribution of LPM Coefficients

Note: The histogram reports bootstrap estimates of the LPM coefficient on CAM persistence. Dashed lines indicate the 2.5th and 97.5th percentiles; the solid line indicates the bootstrap mean.

Source: Author's own work.