The State of Audit Quality: Perspectives and Empirical Evidence

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Abstract

In this study, we adopt an "accuracy-centric" perspective of audit quality based on the stated nature of an audit: to provide assurance that the financial statements fairly present the financial condition of the auditee. Using a policy capturing study, we find that audit committee members most value audit accuracy, followed closely by the quality of communications with the auditor, over a variety of other auditor features such as experience, regulatory inspection record, and quality controls. Importantly, our research design isolates participants' revealed preferences by examining choices in a series of auditor selection scenarios that require tradeoffs between potential auditors. The policy capturing findings are corroborated in interviews with audit committee members. Through this lens, the observed level of audit quality seems to have reached historically high levels based on material restatement rates in U.S. public financial markets. Together, our study indicates that audit committees seem to 'get what they want' in the current audit market.

1 Introduction

Financial statement audit quality is critical for the efficient operation of public markets and considerable attention is devoted to increasing audit quality. Interestingly, though, there is little agreement on the definition of audit quality, and, as a result, the current state of audit quality is nebulous. In this study, we 1) derive an "accuracy-centric" audit quality definition directly from auditing's *purpose* (i.e., its essential and stated nature); 2) empirically validate our definition with a policy capturing study with audit committee members; 3) investigate the state of audit quality for publicly listed U.S. companies consistent with this definition; and, 4) provide directions for future audit practice, regulation, and research.

The purpose of an audit, as stated in every audit report, is to provide confidence that the financial statements present fairly, in all material respects, the financial position of the auditee. Therefore, audit quality can be conceptualized as the degree with which post-audited financial statements are free of material misstatements. In terms of a corporate financial statement audit, this means that audit opinions are accurate. The concept of reasonable assurance indicates that audits are not meant to be perfect in the sense that they detect and correct all errors in financial statements. Rather, some risk of material misstatement is 'acceptable' in the production of audited financial statements for practical reasons of economic efficiency. We examine the degree to which audit committee members, who represent the primary supervisors of the financial statement audit function, value opinion accuracy. Specifically, we recruited 17 audit committee members to complete a policy capturing survey where each participant is asked to complete a series of 12 comparisons of two audit teams resulting in over 200 observations. We hypothesize and find that historical opinion accuracy explains more variance in auditor choice than most other common features of audit quality (such as partner experience, regulatory record, and quality controls). That is, given the chance, sophisticated and experienced participants implicitly value opinion accuracy by systematically preferring an auditor that dominates on the ability to identify material misstatements. While other audit quality components add incremental explanatory power to

the choice of an auditor, historical opinion accuracy explains more choice variance than any other audit quality measure and dominates in head-to-head tests against other measures. Interestingly, our findings indicate that "how well the auditor communicates with management and the committee" is also a very strong determinant of auditor selection and statistically indistinguishable from opinion accuracy (though accuracy still receives a nominally but not statistically higher weighting). Together, it seems that audit committee members implicitly value accuracy and communication over other auditor traits. We further cross-validate these results by interviewing 20 current public company audit committee members (19 of whom also serve as committee chairs). Nineteen of the twenty audit committee members interviewed stated that audit quality in the market at large is strong.

Given these findings, we investigate aggregate material misstatement rates from 2005 to present in the U.S. public company audit market. We find that material misstatement rates (i.e., Big R restatements) are relatively low since 2007, at least compared to the commonly used audit risk threshold of a five percent misstatement rate.[1] Moreover, material misstatements seem to be less common over time. We also examine the estimated overall market value "lost" around the disclosure of material restatements and show that the negative impact of audit failures is, considering the overall size of the market, very small at around 2.5 basis points of the annual average market value.

Our study informs the ongoing academic and regulatory debates on the state of audit quality. Our results suggest that audit opinion accuracy is extraordinarily high considering recent comments from the PCAOB chair describing 46 percent inspection deficiency rates as "unacceptably high" and from U.S. senators describing them as "atrocious" (Foley, 2024; Williams, 2024). Moreover, opinion accuracy is highly valued by the primary party charged with auditor evaluation, audit committee members, who generally believe audit quality to

[1]Audit standards tend to be principles-based and generally refer to "low" or "acceptable" levels of risk rather than set a particular threshold. Nonetheless, five percent is a common rule of thumb (e.g., Messier Jr, Glover, and Prawitt (2017)) and commonly used in examples for the application of audit risk (PCAOB, 2025). Importantly, we are unaware of proposed thresholds that are lower than five percent. We point out that the threshold is not essential to the conclusions in our study. We discuss this in more detail in Section 3.

be very high. Together, our findings indicate that an accuracy-based definition of audit quality, though derided as "simplistic" by regulators (Williams, 2024), is implicitly accepted by sophisticated stakeholders and that the current state of public company audit quality is higher than generally thought.

2 Perspectives on Audit Quality

Knechel et al. (2013) assert that "audit quality is much debated but little understood." Perhaps one reason is that audit quality has many proposed definitions. The Center for Audit Quality (CAQ) supports an audit quality definition that "recognizes the audit committee's role, incorporates professional and quality control standards, and provides a link to audit quality frameworks" (CAQ, 2014). However, the CAQ recognizes that, "there has not been universal agreement on a definition of audit quality, an audit quality framework, or the most relevant indicators of audit quality..." (CAQ, 2014).

In this section, we examine the elements of the definitions of audit quality put forth by various stakeholders. We compile the elements of each definition in Table I, with the goal of identifying elements common to all stakeholder definitions of audit quality.[2]

2.1 Process-centric perspectives on audit quality

Audits are a complex process whereby accounting professionals plan and perform a set of tests to inform their opinion on the accuracy of the financial statements. Hence, many perspectives on audit quality are based on the features of, or inputs to, the audit process. The International Auditing and Assurance Standards Board (IAASB) states that "a quality audit *is achieved with* an audit team having 1) appropriate values, ethics and attitudes; 2) sufficient knowledge, skills, experience and time to perform the work; 3) a rigorous process and quality control procedures complying with standards; 4) provided useful and timely re-

[2]This evaluation is not meant to comprehensively cover all proposed definitions and perspectives on audit quality, but rather to demonstrate differences and commonalities among various parties.

ports; and 5) appropriate interactions with stakeholders [emphasis added]" (IAASB, 2014).[3] Relatedly, in a response letter to the Hong Kong Institute of Certified Public Accountants regarding audit quality, BlackRock, one of the largest global investment managers, describes its perceptions as a user of financial statements. BlackRock highlights its general expectation that qualified auditors should exhibit professional skepticism, integrity and objectivity and outlines the following factors it considers in its evaluation of audit quality: how well the auditor identifies and reports material misstatements, audit process efficiency, and the level of dialogue between the auditors and management (Blackrock, Inc., 2013).

Survey evidence also supports the idea that various stakeholders value audit inputs in achieving high audit quality, for example, Christensen et al. (2016) surveyed investors about their definitions of audit quality to identify common themes. The investors identified the engagement team's competence, well-planned identification and auditing of significant risks, and independence/skepticism as the most valued audit quality factors. Relatedly, the IAASB surveyed stakeholder perspectives on audit quality, including investors, audit committee members, managers, and other public sector users. They report that institutional investors and public sector stakeholders identified firm reputation, industry expertise, independence, and the strength of the auditor oversight process (both regulatory and audit committee oversight) as the most important factors (IAASB, 2012). In a reference guide for audit committees, the Center for Audit Quality suggests audit committees evaluate the external auditor's quality of services, sufficiency of resources, quality of communications, independence, objectivity and professional skepticism while acting in their oversight roles (CAQ, 2019).

[3]The wording of the IAASB statement leads us to believe that it is not actually meant to be a definition of audit quality. Rather, the IAASB is prescribing the methods and means of achieving some undefined audit quality.

2.2 Accuracy-centric perspectives on audit quality

In the Public Company Accounting Oversight Board's (PCAOB) 2015 concept release on audit quality indicators, the Board enumerates three stakeholder perspectives on audit quality as:

> "...an auditor's operating in full compliance with professional auditing standards and applicable law... an auditor's meeting the needs of a public company's investors, and the marketplace, for independent, *effective*, and *reliable* audits of the company's financial statements, conducted by auditors who exercise due professional care, including professional skepticism; such audits, among other things, *reduce the risk of material errors and accounting fraud*... The *end result* should be robust audits that provide 'reasonable assurance [that] the financial statements are free of material misstatement,' and 'present fairly in all material respects, the financial position of the Company... (In one sense, *the higher the level of audit quality, the more certain users are that financial statements are free of material misstatements.*)" [emphasis added] (PCAOB, 2015).

Despite this comprehensive description, the PCAOB stops short of explicitly *defining* audit quality. While the PCAOB's identification of audit quality contains multiple elements (perhaps more than any other single stakeholder definition), it is clear from reading the statement that the element of paramount importance is that the audit accurately identifies material misstatements, or their absence, for financial statement users. Ancillary to the accuracy element, the PCAOB identifies compliance with standards and law, independence, due professional care, professional skepticism, timely reporting, and the provision of public confidence in the financial reports as additional elements of audit quality. Non-public company audit standards describe an audit's purpose as providing "financial statement users with an opinion as to whether the financial statements are presented fairly, in all material respects, with an applicable financial reporting framework, which enhances the degree of confidence the intended users can place in the financial statements" (AICPA, 2021).

In academic circles, DeAngelo (1981) provided one of the first formal definitions of audit quality, asserting that it is "the market-assessed joint probability that a given auditor will both discover a breach in the client's accounting system, and report the breach."[4] This per-

[4]Similarly, the IAASB 2012 report closely follows this definition noting that, "The technical component

spective implies that auditors will detect and report (or correct) misstatements if they exist. Similarly, Francis (2011) notes that audit standards imply audit quality is achieved by the issuance of the "appropriate" audit report on the client's compliance with generally accepted accounting principles. However, he caveats that audit quality is a complex concept and cannot be reduced to a simple definition, and in Francis (2024), he suggests that audit quality can be measured via financial reporting quality (i.e., earnings and accrual quality). Also, DeFond and Zhang (2014) define audit quality as, "greater assurance of high financial reporting quality," and place it on a continuum, with higher audit quality as "greater assurance that the financial statements faithfully reflect the firm's underlying economics, conditioned on its financial reporting system and innate characteristics." Relatedly, Knechel (2013) states: "I equate audit quality to the level of residual risk that a material misstatement goes undetected or uncorrected after the conduct of an audit." While Knechel (2024) emphasizes that this residual risk from the audit risk model is unobservable for any individual audit, we contend that it is estimable for the population in the same way statistical sampling and tests are commonly used to estimate an unknown population distribution. That is, while the residual risk (probability) of an undetected misstatement is not directly observable for any specific audit, it can be estimated for the population as a whole over a period with a large enough sample. Therefore, we contend that the financial reporting quality and residual risk conceptualizations of audit quality are also consistent with an "accuracy perspective."

Another source for the definition of audit quality is the auditor's report, which states the nature and purpose of an audit. In the United States, the ASB and PCAOB suggest very similar wording in an unqualified auditor's report over financial statements. First, both require a specification of the auditor's responsibility and contain identical language about that responsibility, "...standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are *free*

of audit quality is often considered as having been achieved when there is a high probability that an auditor will both (a) discover a misstatement in the client's financial statements, and (b) report that misstatement. The technical component is most likely to be of greatest importance to users of financial statements, those charged with governance and regulators." (IAASB, 2012).

from material misstatement." Second, an unqualified opinion contains the language, "...the financial statements... *present fairly, in all material respects,* the financial position of [the Company]..." We believe it is telling that while ASB and PCAOB standards require or strongly suggest a myriad of procedures (e.g., specific communications with management, fraud brainstorming meetings, confirmations of receivables), the only aspect of the standards directly reported to the shareholders is that the audit be conducted in way that provides reasonable assurance that the financial statements are free of material misstatements. The inference we draw from the chosen communication to users is that this is the single most important and overriding purpose of the audit standards – to provide the best, practical approach to ensuring that material misstatements are identified for stakeholders.

Based on the perspectives laid out above, we propose that auditing's purpose is to accurately and reliably identify material misstatements for reliant parties, and therefore, an accuracy-centric definition of audit quality follows:[5]

> *Audit quality is the accuracy and reliability with which the audit identifies material misstatements for reliant parties.*

Practically, this implies that the primary way of measuring and evaluating audit quality is to assess the degree to which audited financial statements are free of material misstatements.

2.3 Empirical evidence for the accuracy-centric model of quality

Substantial literature suggests (or otherwise assumes) that opinion accuracy is the benchmark for evaluating audit quality. In a large-scale review of auditing research DeFond and Zhang (2014) summarize "which audit quality measures are best?" and observe that "...restatements and AAERs [frauds] rank high in terms of directly capturing audit quality,

[5]Importantly, this statement of auditing's purpose and the related definition of audit quality generalizes beyond external financial statement audits in the modern business context and is consistent with auditing in multiple contexts. For example, modern IRS tax compliance audits also fit with this audit purpose and definition of audit quality. Specifically, the IRS is the reliant party for taxable income claims submitted by the taxpayer. If selected for audit, the IRS sends its own agents to audit those tax returns for misstatements material to the IRS's determination of the tax liability.

and have little measurement error..."[6] Other studies confirm this perspective empirically. Using a unique dataset of regulatory inspection findings, Aobdia (2019) finds that restatements are one of the strongest predictors of audit process quality. Relatedly, Rajgopal, Srinivasan, and Zheng (2021) find that restatements are the strongest predictor of AAERs. Both studies conclude that restatements are strong measures of audit quality. Interestingly, though, few studies have considered the level or frequency of restatements as an overall indicator of market-wide audit quality.

2.4 Discussion of objections to the accuracy-centric audit quality definition

In this section, we summarize a series of objections to the accuracy-centric audit quality definition proposed above.

2.4.1 Objection #1 – Disregarding Process

There are reasonable, and perhaps compelling, arguments for including "process" elements in the definition of audit quality in addition to "outcome" elements. The International Forum of Independent Audit Regulators (IFIAR), comprised of audit regulators from over 40 countries, gathers monitoring information from internal and external inspection results to evaluate challenges faced by the auditors in providing quality work. IFIAR states the following (IFIAR, 2016):

> *"Audit regulators do not measure the sufficiency of audit performance based on whether or not the financial statements were misstated. The reporting company's management has primary responsibility for the accuracy and presentation in the financial statements, making benchmarks about misstatements more appropriate*

[6] In this discussion, DeFond and Zhang (2014) argue that an important weakness of restatements is that they are rare. While this may be a drawback when using them in empirical models, we argue that the frequency of restatements is itself an indication of audit quality at the market level. From this perspective, the low frequency of restatements is not a weakness, but rather an indication that market-wide audit quality is good.

to evaluations of management's performance. Audit regulators, rather, evaluate whether the auditor fulfilled the requirements of the auditing standards designed to position the auditor to detect a material misstatement, in the event one exists."

The prototypical argument against an "outcome only" definition of audit quality takes the form of a thought experiment. Imagine that auditor A gives an auditee a clean opinion while doing little to no work, save issuing a boilerplate unqualified report. Because material misstatements are relatively rare in public companies' financial statements, the opinion is accurate, despite the fact that auditor A did no work. On the other hand, auditor B complies with all auditing standards and conducts a thorough and competent audit. Firm B also issues an unqualified report. According to an accuracy-based definition of audit quality, both audits are of equal quality but firm A is more efficient.

This thought experiment involves an extreme and easily identifiable scenario where an auditor conducts no reasonable audit work, however it elucidates an obvious but unstated concern—that though auditor A got *this* opinion correct, the auditor would have certainly missed a material misstatement if one existed. Ultimately, this is a fear of inaccuracy and speaks to the *reliability* of the audit process over time. Likewise, the audit risk model inherently recognizes that as management's financial reporting quality increases (inherent and control risk decrease), detection risk can, and should, be increased to achieve the same level of overall audit risk (i.e., risk of issuing an incorrect opinion). Many conceptualizations of audit quality focus on detection risk and thus, the audit process. However, detection risk is unestimable because inherent risk and control risk are unknowns, which means the appropriate level of detection risk cannot be determined by those outside the audit process. However, using the accuracy centric audit quality perspective sidesteps this problem by allowing us to re-focus on achieved audit risk (which is estimable for a population because restatements are observable). The result is that we need not be concerned with the audit process as an end, but rather as a means for achieving accuracy rates, just as the audit risk model adjusts process via detection risk for the *purpose* of achieving low or very low audit

risk.

Similarly, many of the audit quality elements incorporated into stakeholder definitions are not ends, but rather the means of accurately and reliably identifying misstatements for reliant parties, or, in some instances, the means of increasing stakeholder confidence in a credence good (Causholli and Knechel, 2012). For example, good communication with the audit committee may both help the auditors identify misstatements and increase the audit committee members' confidence that the auditors are carrying out their duties. Of course, good communication also helps the audit committee fulfill its duty. It may also be expedient in the sense that it increases the odds of the auditor keeping the job. Nonetheless, good communication with the audit committee is not the audit's ultimate purpose, but perhaps a means to an end, and therefore should not be included in an essential definition of audit quality.

2.4.2 Objection #2 – What about Independence?

Independence is a fundamental concept in auditing. There are two overarching features of independence as it relates to the audit function: 1) independence in fact (IIF) and 2) independence in appearance (IIA). We describe IIF as the degree to which an auditor can make an impartial decision. That is, auditors must act as an impartial referee free of bias towards their auditee's financial reporting. We view IIF as an important input to audit quality. That is, IIF should promote the accuracy of post-audited financial statements, and so we consider IIF to be like other input-based determinants of audit quality—it is a means rather than an end.

IIA, on the other hand, is not really a feature of audit quality but rather a necessary condition for audit quality to matter. That is, assuming the auditor satisfies a sufficient level of IIF, IIA should not really matter for the quality of financial reporting. However, IIA is necessary for financial statement users to have confidence in the credibility of the auditor's opinion. Together, we view IIF as similar to other process-oriented inputs to audit quality

and IIA as a signal of the audit's credibility.

2.4.3 Objection #3 – Measurability

We consider measurability an important feature of the accuracy-centric view of audit quality. That is, we can reasonably measure opinion accuracy (or lack thereof) over time. However, a common objection to an accuracy-centric definition of audit quality is that report accuracy cannot be known until after the audit is complete (if ever), and therefore such a definition is not useful for stakeholders who wish to assess audit quality *before* or *during* the audit or who wish to know the extent of the audit's effect on the final financial statements. However, we argue that *direct*, *ex ante* measurability is a poor criterion for evaluating an essential definition of audit quality due to the measurability paradox inherent in auditing.

The measurability paradox is simply this: knowing an audit opinion's accuracy requires knowing both the opinion (which can only be known *ex post*) and the true state of the claim under audit. However, from a user's perspective, if the true state of the claim under audit was known *ex ante*, it would obviate the audit. However, the measurability paradox does not preclude establishing a record of accuracy for a given auditor or continuing to evaluate metrics that we believe predict future accuracy (what regulators often refer to as audit quality indicators [AQIs]). This, arguably, makes the accuracy definition of audit quality more useful, because AQIs that are not associated with accuracy can be rejected. This is not to say these indicators are irrelevant for various stakeholders in carrying out their specific, context-dependent missions, but they may not be useful for evaluating audit quality *per se*.

Another issue is that assessing an audit opinion's accuracy requires, at a minimum, knowing the true state of the claim under audit *ex post*. That is, auditors might issue unqualified opinions on materially misstated financial statements and those misstatements are never brought to light. In this case, the auditor issued the incorrect opinion, but, from a measurability perspective, we never observe these cases and rather treat them as accurate opinions.

Some studies suggest (or otherwise assume) the issue of incorrect opinions is pervasive and that perhaps there are egregious levels of financial misreporting (intentional or otherwise) that go undetected. For example, Dyck, Morse, and Zingales (2024) use the collapse of Arthur Andersen as a shock to financial statement scrutiny. They find that, after 2002, former Andersen clients had abnormal rates of fraud and misreporting and suggest that, pre-SOX, 41% of firms were materially misstating their financial statements and 10% were committing securities fraud. However, as recognized in the study, it is not clear if these findings would extend outside that period. Zakolyukina (2018) develops an analytical model whereby CEOs operate as a singular actor and can intentionally manipulate the stock price by misstating earnings. Applying the model to restatements as a proxy for intentional manipulations, the study implies that between 2 and 22% of CEOs misstate earnings each year. However, the study finds a relatively low magnitude of manipulation and the study indicates that the market-wide value inflation is less than 1% (0.77%). In a similar vein, Barton et al. (2024) use a bi-variate probit model to separate committing and detecting misstatements. In essence, this study argues that *ex post* features (e.g., post filing returns and firm performance) can be used to predict firms that had misstatements but never actually restated. This study implicitly assumes (but cannot confirm) that there are many unidentified material misstatements and that these can be modeled using post filing outcomes.

Cade, Gunn, and Vandenberg (2025) estimate the prevalence of reporting malfeasance by directly and indirectly soliciting Russell 3000 executives' anonymous responses about various types of manipulations ranging from real earnings management to financial statement fraud. The study reports that nearly a third of executives disclose at least one form of earnings manipulation at their firm in the last five years, primarily related to manipulation types that are unrelated or ambiguously related to the audit function (e.g., real earnings management or disclosure obfuscation).[7] Outside real earnings management, the findings vary between the

[7]While we acknowledge auditors' responsibility for auditing the management assertion that disclosures are understandable, this is obviously subjective and nuanced. Practically, it seems unlikely that an obfuscated disclosure would be considered a material misstatement on the grounds that it is present, but not as readable or prominent as an investor (or auditor) might prefer.

direct and indirect questioning. When asked directly about financial statement fraud, 0% of executives indicated "...materially misrepresent[ing] information in the financial statements with the intent to mislead." However, when asked through a list experiment that pools responses among a list of innocuous statements, the estimated rate of financial statement fraud jumps to 12.4% (90% confidence interval ranging from 1.2% to 23.6%). Given this relates to a 5-year period, the implied annual rate is between 2.5% (12.4% / 5 years) and 12.4%. Interestingly, though, executives do not seem to indicate less severe types of manipulations when indirectly questioned.

While it is a certainty that some material misstatements and frauds go undetected, accurately quantifying the pervasiveness of this issue is impossible, and estimations from archival data, analytical models, or list surveys require strong assumptions. This is perhaps evidenced by the wide range of possibilities documented in these studies. Moreover, there are a few reasons to believe that financial statement misreporting (intentional or otherwise) is unlikely to be material or pervasive over time. Ball (2013), asserts that the widespread prevalence of earnings management, particularly accrual-based earnings management, is one of the most incorrect beliefs among academic accounting researchers. He argues, among other things, that advocates assume that "manipulation of this manner and magnitude takes place in a way that [they] can identify but without it being detected by parties with substantially greater information and greater incentives to do so (internal auditors, external auditors, whistle blowers, boards, analysts, short sellers, trial lawyers, press, regulators)." That is, there are many reasons to believe that undetected fraudulent or otherwise erroneous financial reporting is relatively infrequent. For example, issuers and auditors are frequently subject to regulatory inspection. Cassell, Dreher, and Myers (2013) perform an in depth analysis of the SEC's comment letters. Interestingly, out of 6,702 company years that received a comment letter from the SEC, the authors identified only 211 restatements that seemed related to the SEC's inquiry. This suggests that, even for areas that the SEC considers questionable, the misstatement rate is very low. Moreover, public company auditors are subject to periodic PCAOB

inspections. If auditors are commonly missing material misstatements, we expect regulatory inspection findings to prompt restatements, or otherwise uncover frauds, on a regular basis (or at least at rates similar to those implied by the studies noted above). PCAOB inspections regularly uncover *ex post* non-compliance with auditing standards, and when an auditor is aware of a deficiency in a previous audit, they are required to correct the issue. However, the process rarely uncovers undiscovered material misstatements in the auditee's financial statements (Hermanson, Houston, and Ye, 2010). This indicates that even for audits that undergo risk-based inspection, material misstatements are uncommon.[8] Moreover, as time passes, material misstatements are more likely to come to light from numerous changes, such as partner rotation, audit firm changes, CFO turnover, audit committee member turnover, economic downturns, and alternative sources of monitoring, such as short-sellers' reports.

3 Empirical Analyses

3.1 Policy-capturing analysis

We predict that despite their *a priori* and personal beliefs about audit quality (such as those reported by Christensen et al. (2016)), decision makers will tend to prefer an auditor with dominant levels of report accuracy as the better choice. That is, other audit quality indicators may influence participants' preference of auditor, but to a lesser degree than accuracy. We formulate, and test, the following hypothesis:

H1. *Accuracy dominates other quality measures in auditor selection.*

To empirically test our hypothesis, we conduct a policy-capturing experiment which has significant advantages over simply asking decision makers for their opinion on various audit

[8]According to data from inspection reports collected by Audit Analytics, the PCAOB found 4,412 audits to be deficient and only uncovered 233 restatements in the auditees' financials from August 2004 to July 2021 (the last date that a restatement was reported in Audit Analytics). Given that a substantial majority of inspections target high-risk audits and these are the ones found to be deficient, this is a surprisingly low number.

quality issues.[9] The policy-capturing method, while infrequently used in accounting research (see DeZoort, Holt, and Stanley (2019) for an example), is often used in decision science fields to examine how decision makers incorporate and weight specific factors into their decision-making process (Aiman-Smith, Scullen, and Barr, 2002; Karren and Barringer, 2002).[10] Specifically, policy-capturing studies generally examine some small number of variables that are hypothesized to influence a decision and then systematically vary the values of those variables within participants over many decisions (Graham and Cable, 2001). The result is many observations from each participant that allow the researcher to accurately estimate each variable's effect on the participants' ultimate decisions with reasonable statistical power from a relatively small sample of individual decision-makers.

In our setting, we seek to validate our audit quality definition through revealed preferences when participants are asked to make trade-offs. We hypothesize that when sophisticated stakeholders (i.e., audit committee members) are asked to evaluate two audit teams on various quality elements included in the stakeholder definitions of audit quality, they will tend to prefer the auditor with the better record on report accuracy, and we predict that accuracy will have the highest explanatory power for auditor choice among other factors. We also predict that sophisticated stakeholders will tend to choose the audit team with the highest accuracy rate even when that team is dominated on all other factors. Our approach is intended to investigate whether accuracy is considered the *most* important factor by participants. Further, systematically varying each proposed quality element allows us to measure the importance placed on accuracy relative to the other proposed elements.

We constructed our policy-capturing study as a series of forced-choice scenarios where participants are asked to select between two auditors that vary based on the auditors' past opinion accuracy rates and five other factors commonly identified in audit quality definitions.

[9] We pre-registered our policy-capturing study and related analyses through the Center for Open Science.

[10] We use the term policy-capturing to describe our experimental method throughout this paper. This method goes by various names in other disciplines, including conjoint analysis, stated preference modeling, or trade-off analysis in marketing; protocol analysis in information systems; and contingent preference, contingent choice, or analytical hierarchical process modeling in policy research (Aiman-Smith, Scullen, and Barr, 2002).

We chose to test the effects of opinion accuracy against the robustness of audit procedures, PCAOB inspection results (technical adherence to audit standards), audit quality control systems, partner industry experience, and quality of communications with the audit committee and management on audit committee chairs' choice of audit team.[11]

3.1.1 Participants and Recruitment

We chose public company audit committee chairs as our target participant population because they are uniquely suited to inform a definition of audit quality. First, they are statutorily tasked with hiring and overseeing the auditor (in addition to financial reporting and internal controls over financial reporting) which requires assessing the external auditor's quality. Second, many audit committee chairs also have experience as audit partners in international firms or as CFOs for public companies, many of whom have prior experience in public accounting. Third, as board members, they are generally also shareholders of the company they serve. Their rich experience in multiple roles involved in the audit process affords them a broad and deep understanding of financial statement auditing and its role in the markets. Further, as independent board members and shareholders tasked with representing all shareholders and overseeing management, they should not be biased toward either a management or auditor-centric view of audit quality. To this point, research finds that board turnover is higher after restatements and material weaknesses, suggesting that independent board member incentives are inherently aligned with shareholders in so much as restatements are also typically negative events for shareholder wealth (Srinivasan, 2005; Arthaud-Day et al., 2006; Johnstone, Li, and Rupley, 2011; Kachelmeier, Rasmussen, and Schmidt, 2016). Altogether, not only are these participants qualified to provide input on audit quality and auditor selection, their extensive backgrounds allow them sufficient perspective as former

[11] We considered including auditor independence as an attribute but ultimately omitted this factor for a couple of reasons. First, auditors are required to be independent of the auditee, so it is unclear how we could manipulate independence values without making the option clearly intractable. Second, we have to balance the number of factors under study, participants' attention time, and statistical power. Reducing the number of factors from seven to six significantly reduces the number of required comparison sets and the time to complete the instrument for participants whose time is valuable.

auditors, preparers, and investors, thereby covering the primary non-regulator stakeholder perspectives in evaluating a definition of audit quality.

We simultaneously recruited participants for a semi-structured interview on audit committee oversight of the external audit function (reported in brief below and in a subsequent study) and the policy-capturing study. We recruited audit committee chairs and members in three ways. First, we compiled a list of all current audit committee chairs for the S&P 500. We searched LinkedIn for those individuals and compiled a list of 323 profiles based on listed name and company experience. We then messaged random selections of those individuals on LinkedIn. Second, we reached out to a personal contact currently serving as an audit committee chair and asked for references. We contacted those individuals via email. Finally, we used the snowball technique, requesting additional references at the end of each interview. In total, we contacted 240 audit committee members, 17 of whom completed the policy-capturing instrument for a response rate of approximately seven percent. With the exception of one respondent, each participant completed all of the survey and spent approximately 13 minutes on average.[12]

3.1.2 Dependent and Independent Variables

Participants completed the policy-capturing instrument in Qualtrics.[13] After reviewing consent disclosures, participants read definitions of six audit team attributes before proceeding to the first of twelve audit-team choice scenarios. Every scenario provided values for two different audit teams on the six attributes, with each attribute taking one of three values.[14] The attributes are the audit team's opinion accuracy rate on their last 10 audit engagements (10/10; 9/10; 6/10), the relative number of PCAOB deficiencies in their most recent PCAOB inspection (better than average/average/worse than average), the robustness of the

[12]One participant completed the survey but chose not to respond to one (of 12) comparison questions. Additionally, one individual accessed the survey for 24 seconds and did not answer any of the questions, we did not count this response.

[13]We obtained approval for this study from our university's Institutional Review Board (IRB).

[14]Each screen included a link to the document with attribute definitions so that participants could review the definitions at will.

team's audit procedures (above average/average/below average), the relative quality of the auditors' quality control procedures (above average/average/below average), the extent to which the audit team communicates well with the audit committee and management (always/usually/rarely), and the audit partner's years of experience auditing in the client's industry (10/6/2).[15] The participants' task was simply to provide their preference as to which audit team they would like to hire based on the attributes provided.

The specific attribute definitions provided to participants and an example of the primary task screen are provided in Appendices A and B. In particular, refer to the appendices for examples of how each of our variables are measured based on hypothetical responses to each scenario.

3.1.3 Design

Comparing two audit teams on six attributes, each with three potential values creates 530,712 possible attribute combinations where the two audit teams differ on at least one attribute.[16] However, in accordance with best practices in policy-capturing research, we chose a subset of all combinations to maximize the information value of each comparison for statistically testing our hypothesis and determining where accuracy places in the comparative hierarchy of quality measures, (Graham and Cable, 2001; Karren and Barringer, 2002). Specifically, we retained three subsets of attribute combinations. The first subset of attribute combinations has six combinations in which one audit team dominates on one attribute and is dominated on all other attributes. For example, Auditor X would have a high level of audit accuracy

[15]Viewed in absolute terms, all levels of opinion accuracy are above 50 percent, and could be construed as "good". We were concerned that using a low accuracy rate in the absolute sense (less than 50 percent) would be unrealistic, creating demand effects among the participants. As will be seen later, the archival data suggests the vast majority of opinions are correct (i.e., unrestated), so we set the high level at 100 percent, the moderate level at 90 percent, and the low level at 60 percent, reasoning that it could still be realistic for four of an audit team's last 10 opinions to be restated if a single client restated multiple years or if there was an accounting issue affecting multiple clients. Across all attributes, the moderate levels are intended to represent a common or average level for the attribute. As a result of selecting attribute combinations that maximize the informational value of the comparisons, the moderate levels typically only appear when the two auditors are the same on the attribute.

[16]There are 9^6 total possible combinations of values. There are also 3^6 combinations where all attributes are the same. 9^6 - 3^6 = 530,712.

and moderate levels on the other five attributes while Auditor Y has a low level of audit accuracy and high levels on the other five attributes. Each participant received the accuracy domination combination and two additional domination combinations. The second subset of attribute combinations have five combinations where Auditor X and Y are equal on four attributes (set at the moderate value) but have opposite values (high and low) on accuracy and one other attribute. For example, Auditor X has high accuracy while Auditor Y has low accuracy but Auditor X has low partner experience while Auditor Y has high partner experience and the other four attributes are set to be equal at the moderate level. Each participant received a random selection of two opposite combinations including accuracy as one of the opposites and three of the remaining opposite combinations. The third subset of attribute combinations retained was the set of 20 non-domination combinations in which each auditor dominated on three of the six attributes and was dominated on the other three (all attribute values set to either high or low). Each participant received a random selection of four non-domination combinations.

From the random selections of attribute sets described above, we created 16 pre-determined sets of 12 comparisons each, half of which had the attribute order reversed to control for order effects. To reduce cognitive load and time requirements for our participants, rather than randomize the presentation order of the six attributes for each of the 12 combinations, we chose two set orders for the individual factors, ABCDEF and FEDCBA, and each pre-determined choice set maintained one of those orders. In other words, participants either saw all 12 comparisons with the factors ordered A-F or F-A, but that order never changed within-participant. As our hypothesis is that accuracy rate will be the most important factor and we wanted to avoid primacy or recency biases, accuracy rate was always the third or fourth attribute, depending on order.[17]

After completing the twelve auditor choice questions, participants who preferred the

[17]It does not seem that accuracy stands out as a quantitative factor given the other quantitative factor, partner experience, had the lowest model coefficient and contributed the least to the model's explanatory power. Hence, the evidence does not suggest that quantitative factors *per se* affect participants' preferences.

auditor with higher accuracy on the accuracy-dominated question also received an accuracy rate calibration question. The question again presented the audit team attributes from the dominance question and recalled the participant's preference. It then asked participants to provide an accuracy rate at which point their preference would change to the otherwise dominant auditor. The instrument concluded with demographic PEQs.

3.1.4 Variables and Statistical Model

Each scenario elicited the participant's preference between hiring one of two auditors (labeled auditor X and Y) on a 6-point Likert scale labeled "Strongly Prefer X," "Prefer X," "Slightly Prefer X," "Slightly Prefer Y," "Prefer Y," and "Strongly Prefer Y," and this preference rating served as the dependent variable.[18] The respondent preference is converted to a number capturing the preference for Auditor X compared to Auditor Y. That is, "Strongly Prefer Y" is coded as 1 and "Strongly Prefer X" is coded as 6. The auditors' relative value on each of the six attributes comprise the primary independent variables. For example, since each attribute could take on a high, medium, or low value for both auditors, auditor X's attribute value relative to Y could take on five potential values, -2 (X Low/Y High), -1 (Low/Medium or Medium/High), 0 (both low, medium, or high), +1 (Medium/Low or High/Medium), or +2 (High/Low). Refer to Appendix B for examples.

We test our hypothesis by estimating the following equation using the responses of each participant i to each scenario j:

$$\begin{aligned} \textit{Respondent Preference}_{i,j} = \alpha &+ \beta_1 \textit{Accuracy}_{i,j} + \beta_2 \textit{Communication}_{i,j} \\ &+ \beta_3 \textit{PCAOB Deficiency}_{i,j} + \beta_4 \textit{Robustness}_{i,j} \\ &+ \beta_5 \textit{Quality Control}_{i,j} + \beta_6 \textit{Partner Experience}_{i,j} \\ &+ \eta_i + \varepsilon_{i,j} \end{aligned} \tag{1}$$

[18] We intentionally did not include a mid-point value to force respondents to weigh the attributes of the auditors and make a choice between the two.

where each of the primary independent variables are auditor X's attribute value relative to auditor Y's as described above. *Accuracy* is opinion accuracy, *Communication* is communications with management and the audit committee, *Robustness* is the robustness of audit procedures, *Partner Experience* is partner experience, *PCAOB Deficiency* is PCAOB inspection results, *Quality Control* is the quality of the firm's quality control environment.[19] Finally, participant fixed effects, η_i, are added to account for unobservable participant characteristics that do not vary between different scenarios. Based on H1, we expect that β_1 will be significantly positive and larger than β_2 through β_6 and will explain more variance in participants' auditor preferences than any other factor as measured by the incremental change in adjusted R^2 attributable to *Accuracy* compared to the incremental change attributable to each other auditor attribute.

3.1.5 Sample Descriptive Statistics

As previously noted, we contacted a total of 240 qualified individuals, 20 of whom participated in semi-structured interviews. Of the 20 audit committee chairs interviewed, 14 also completed the policy-capturing study. Three additional participants completed the policy-capturing study without an interview for a total of 17 audit committee respondents. Participants have an average of 15 years of experience serving on the board of directors in a variety of industries, with an average of 14 years of experience serving on audit committees (min = 5 years, max = 30 years). Respondents have previously served on an average of four audit committees and currently serve on an average of two audit committees. All participants are qualified financial experts with an average of 31 years of relevant professional experience as an auditor and/or a corporate executive (CFO/CEO/COO). Participants hold various professional certification licenses, including CPA/CA (11), CMA (2) and CFE (1). The final sample yielded 203 observations from 17 audit committee members.[20]

[19] We rely on a linear model estimated via OLS since we are interested in average effects. Inferences are similar if we use ordered logistic regression to estimate the coefficients.

[20] One participant chose not to respond to one of the 12 comparisons, thereby reducing the number of observations from the expected 204 to 203.

3.1.6 Hypothesis Test

The results of our hypothesis test, presented in Table II Panel A, support the notion that audit committee members' revealed preferences are consistent with an "accuracy-centric" perspective of audit quality. The coefficient on *Accuracy* is positive, significant, and nominally larger than all other model coefficients ($\beta_1 = 0.473$, $t = 6.90$, $p < 0.001$), indicating that when deciding between two audit teams, audit committee members tend to select the auditor with higher opinion accuracy. Additionally, Table II Panel B presents the results of F-tests comparing the coefficients on the six audit team attributes. Results indicate that the coefficient on audit opinion accuracy (β_1) is significantly greater, at the $p = 0.10$ level, than the coefficients on four of the other five auditor attributes (β_3 through β_6). While nominally larger, the coefficient on *Accuracy* is not significantly larger than the coefficient on *Communication* at the $p = 0.10$ level. To further examine the relative importance of each attribute to participants' auditor choice, we analyzed the contribution of each attribute to the regression R^2. The results presented in Figure 1 indicate that accuracy has the highest explanatory power for auditor choice of all audit quality factors examined.

3.1.7 Supplemental Analyses and Discussion of Policy-Capturing Results

In addition to the auditor choice questions, we asked participants to rank the six auditor attributes in order of importance (absent any attribute values or hypothetical audit teams), with one being the most important and six being the least important. Based on our hypothesis, we expected accuracy to be ranked first more often than any other attribute. Figure 2 displays the mean attribute rankings, showing accuracy received the lowest mean rank. Thus, when asked to explicitly rank the attributes based on importance, audit committee members rated accuracy as the most important, on average. However, using paired t-tests and Wilcoxon signed rank tests, the mean ranking of *Accuracy* is only statistically different ($p < 0.10$ two tailed) than *Quality Control* and *PCAOB Deficiencies*. Interestingly, after *Accuracy* and *Communication*, the participants rank the attributes in a different order than

implied in the policy capturing study. In particular, participants seem to rank PCAOB deficiencies relatively low and partner experience relatively high when asked directly compared to their revealed preferences from the policy capturing study.[21]

Further, we also examined the frequency with which participants chose the auditor with the higher accuracy rating in the choice questions from the "opposites" subset including accuracy (i.e., comparison sets pitting high accuracy against a high value of one other attribute with the other four attributes being equal). In 28 out of 34 ($\chi^2 = 14.239$, $df = 1$, $p < 0.001$) cases, participants preferred the auditor with higher accuracy, and 76 percent (13/17) of participants always chose the auditor dominating on accuracy, a rate statistically higher than chance ($\chi^2 = 4.765$, $df = 1$, $p = 0.029$). Finally, we also examined responses to the scenario in which one auditor is dominated on every attribute except accuracy (received by all participants). Even for the accuracy dominated choice, 29 percent (5/17) of participants still chose the more accurate auditor despite that auditor being worse on *all five* other other attributes (i.e., worse quality control systems, less robust audit procedures, less partner experience, more PCAOB inspection deficiencies, and worse communication with the audit committee and management). Overall, the policy-capturing results are consistent with the contention that opinion accuracy (the ability to correctly identify material misstatements) is the essential nature of audit quality that sophisticated stakeholders implicitly recognize.

3.2 Opinion accuracy rates over time

Having validated the accuracy-based definition of audit quality, we use this definition to examine the current level of audit quality in the U.S. public company markets. We examine audit quality using rates of known material restatements resulting from errors, omissions, and frauds. Material restatements are widely viewed as the best indicator of poor audit quality

[21] As noted earlier, our policy capturing study is focused on comparing accuracy to the other attributes. Hence, we are cautious not to draw strong conclusions from the implied rankings for the non-accuracy attributes in the policy capturing study. Also, participants were asked to rank each attribute from a randomized order. Two participants did not change the initial ordering, but answered all questions before and after, if we drop these, inferences are similar.

(consistent with an accuracy based definition) (DeFond and Zhang, 2014; Aobdia, 2019). We use a market-wide misstatement rate of five percent of audit opinions as the benchmark for acceptable audit quality based on the operationalization of audit risk commonly used in the audit risk model and 95 percent also being a common benchmark for reasonable assurance as a "high, but not absolute" assurance level.

While we argue this approach is the most appropriate way to measure audit quality, there are some limitations that we cannot fully ameliorate. The presence of a material restatement signifies an incorrect unqualified opinion. However, the absence of a material restatement is a noisy indication of a correct unqualified opinion. To minimize the noise in this signal, we incorporate an 18-year sample period from fiscal year 2005 to fiscal year 2022.[22] This period represents the current audit regulatory environment (beginning after the passage of SOX and implementation of the PCAOB's inspection regime) and minimizes noise in several ways. Specifically, for many companies in our sample, this long window increases the odds that these companies will have experienced events that are more likely to lead to material misstatements being uncovered if they do exist, events such as recessions and market crashes (2008, 2020), audit partner changes (every five years), executive turnover and audit committee turnover, regulatory inspections, and potentially even audit firm changes. Further, for those material restatements that do occur, the mean length of time the material misstatement(s) went uncorrected is about 1.5 years, suggesting that our window is sufficient for most material misstatements that will be uncovered to be revealed.[23] We present our sample composition and attrition in Panel A of Table III. We begin with company years at the intersection of Compustat and Audit Analytics from 2005-2022. We limit the sample to observations with revenue and market capitalization coverage in Compustat. We also remove companies that have not previously filed either a 10-K or 8-K to ensure that we have a sample of observations that could plausibly have a non-reliance misstatement in the form

[22]We use the Compustat convention and define fiscal years ended June 2005 to May 2006 as fiscal year 2005 and so on.

[23]Restatement data was obtained in March 2025 allowing nearly 2 full years for restatements to be announced.

of an 8-K. We also remove observations classified as Special Purpose Acquisition Vehicles by Audit Analytics.[24] Note that we apply a fairly minimalist number of data restrictions to retain as many public issuers as possible. The industry composition, using the Fama-French 12 schema, is tabulated in Panel B. While all industries are represented, there is a relatively higher concentration in finance, business equipment, and healthcare industries.

We start by examining the percentage of all audited financial statements that contain misstatements in each year of our sample as determined by subsequent Big R restatements disclosed in 8-K filings (Figure 3). That is, we define a misstatement as years included in a restatement announcement. This ranges from about 8.5 percent in 2005 to less 5 percent by 2007 and trending downwards to around 1-2 percent in the most recent period. Consistent with patterns in Choudhary, Merkley, and Schipper (2021) and Rowe and Sivadasan (2021), there is a clear downward trend in 8-K restatement rates over time. While we note a slight uptick to around 2 percent at the end of the sample, the material misstatement rate is a fraction of the benchmark rate. Untabulated results indicate that, at any conventional significance level, we can reject the null hypothesis that the mean non-reliance restatement rate in our sample is equal to 5 percent ($t = -31.5$, $p < 0.01$, 95% $CI = [0.030, 0.032]$). Examining misstatement rates by audit firm in Figure 4, reported separately for Big 4 firms as a group, second-tier audit firms as a group, and all others as a group, we also find that material misstatement rates have not exceeded 5 percent since 2009.

One objection to this analysis is that misstatement rates may be low as a percentage of audit opinions but misstatements tend to represent economically meaningful market-wide financial effects. We address this objection in two ways: by weighting each misstatement by

[24]SPACs represent investment vehicles that are uncommon in most of the sample outside of a large number of IPOs in 2020 and 2021. In 2021, the SEC disagreed with the commonly applied treatment of equity classifications for these firms prompting a large proportion of these filers to issue 8-K restatements for within-equity reclassifications. These instances represent a 'one time' spike in restatements for investment vehicles with limited market impact. Moreover, these instances do not represent audit quality failures. See Audit Analytics restatement reports for more details about this issue (Audit Analytics, 2022). Most of these observations are missing revenue data in Compustat, however, we excluded remaining SPACs identified in Audit Analytics IPO file from our analyses and figures. Importantly, our analyses and inferences do not relate to SPAC issuers.

the company's total market capitalization and by examining market capitalization lost due to restatement announcements.

Figure 5 depicts misstatement rates weighted by market capitalization and shows that misstatement rates are substantially lower when observations are weighted by size.[25] The patterns in Figure 5 are similar to those in Figure 3 however the misstatement rate after 2005 is significantly lower when weighted by market capitalization. Notably, the weighted misstatement rate near the end of the sample is very low (less than 0.5%). Together, this suggests that companies affected by material misstatements in the recent period represent a minor share of the overall market capitalization. Next, Figure 6 depicts the total market value lost to restatements over the sample period. To arrive at the market value lost to each restatement announcement in our sample, we first calculate the buy and hold return associated with an announcement on day t as the difference between company i's abnormal market-adjusted return over the $[t-4, t+4]$ window around the Audit Analytics file date for restatements with sufficient return data. This window captures a full disclosure window around a restatement announcement and is conservative because restatements are likely confounded by other bad news. We determine the market value lost around each restatement announcement by multiplying the buy and hold return by the market capitalization the day before the window (i.e., the the CRSP market cap in day $t-5$). This approximates the value of the capitalization lost due to the restatement announcement or, if we divide by the capitalization of the entire sample, the percentage of the overall market's capitalization lost due to company i's announcement. For each year in the sample, we add up the dollar value lost and percentage declines in the market's capitalization resulting from restatement announcements, and report them in Figure 6. The average market effect of these restatements ranged from less than 0 basis points of market cap in 2011 to a peak of about 12 basis points of market cap in 2006.[26] To put this number in economic perspective, the asset-weighted

[25]This does not represent the amount of market value restated, rather it weights firms by size such that the unit of analysis is each dollar of market capitalization for restating and non-restating firms.

[26]The two spikes in 2006 and 2018 (Compustat year convention), are largely driven by restatements from General Electric (file date January 2007 - window return of -4%)) and Kraft (file date February 2019 window

average management fee for a *passively* managed and indexed ETF is approximately 12 basis points (Morningstar, 2023), or about ten times larger than most years in our sample. We propose that the observed effects of material financial misstatements are economically trivial in the U.S. public company audit market.

3.3 Qualitative Triangulation

As previously noted, we conducted 20 semi-structured interviews of audit committee members (19 chairs) about their oversight of the external audit function. As part of our interviews, we asked each interviewee for their views on overall audit quality in the U.S. public company audit market as a way of triangulating and characterizing our archival findings. Nineteen of 20 participants stated they believed that audit quality in the U.S. public company market is high.[27]

> *"I think audit quality in general is... still really, really, really good." (AC6)*
>
> *"I would say very high. I think the level of rigor that [audit firms] are operating under now as opposed to maybe 20 years ago, is substantially different." (AC4)*
>
> *"Personally, I don't think auditing has ever been stronger... All the firms I think are really laser focused on doing quality audits... I think the level of audit quality is at an all-time high..." (AC19)*
>
> *"I think audit quality today is much more enhanced, much more transparent, and I think there's a lot more confidence in the financial statements." (AC10)*

One audit committee chair is concerned about the current level of audit quality in the market and stated it could be "improved dramatically" given the PCAOB Part IA inspection deficiency rates of 40 percent for 2022 (PCAOB, 2023). Other interviewees acknowledged the PCAOB has identified deficiencies in many audits, but they do not believe this indicates low

return of -34%)). General Electric is a particularly large company, so the return has a large weighted effect on the market.

[27]To enhance the trustworthiness of our conclusions and ensure we accurately characterized our participants' comments, we sent a draft of the manuscript to all participants for member checking (Malsch and Salterio, 2016). None of the responding participants disagreed with the nature of our findings and conclusions.

overall audit quality for the market. Some interviewees emphasized the distinction between PCAOB findings and an audit that misses a material misstatement. They acknowledged that while audits can be improved, they believe auditors are auditing appropriately to identify and detect material misstatements, thereby providing quality information to investors.

> *"I know the PCAOB would oftentimes like to challenge [high audit quality] and say that it's not... You can always find something on an engagement that wasn't documented as well as it could have been, or that maybe a piece that they had missed, but does it actually have a material impact on the financials that would impact the shareholders investing in that stock? I don't think there's that many failures on that, so I do believe that audit quality is high." (AC6)*

Several audit committee members expressed views consistent with the accuracy-centric definition of audit quality when describing and referring to the current level of audit quality.

> *"At the end of the day, if you get back to what the capital markets actually need, which is financial statements that are materially accurate in all material respects... I think it's really, really high." (AC20)*

> *"Think about how many audits get done every year and how few failures there are... And unfortunately, when they do have a failure... it gets disproportionate press [compared] to all of the many, many, many audits that get done without any issues." (AC3)*

Interviewees acknowledge that there are still restatements and errors in the audit market but overwhelmingly believe that the professionals executing audits are capable and aim to provide high quality audits and financial statements that are free from material misstatement.

4 Conclusion

We propose that audit quality should be defined as the accuracy and reliability with which the audit identifies or corrects material misstatements for reliant parties. Operationalizing this definition using the audit opinion accuracy rate and comparing directly to other proposed

elements of audit quality in a policy-capturing study, we find that this core, definitional element of audit quality explains more variance in auditor choice among audit committee chairs (sophisticated stakeholders) than any other audit quality element tested.

Having thus defined audit quality, we use restatements as a clear signal of poor audit quality in the archival data, and, using a 19-year window of U.S. public company audits, we find that poor audit quality is both infrequent and economically trivial. That the economic effects of poor audit quality are economically small likewise suggests that efforts to incrementally improve audit quality would also be economically inconsequential, at least from a market-wide perspective. We triangulate the archival data with the independent views of 20 U.S. public company audit chairs and find that their perspectives on audit quality largely match what we find in the archival data. Specifically, 19 of 20 explicitly stated that audit quality is good with responses ranging from "really, really, really good" to, in another instance, simply noting that there is no reason to believe it is subpar.

Our study is not without limitations. We acknowledge that there are many factors that contribute to achieving audit quality while intentionally omitting those factors from the *definition* of audit quality. We also acknowledge that many of our inferences are only as good as the data, in that it is possible that many material misstatements have gone undetected through our 19-year window. However, we also note that even doubling the misstatement rate would generally keep the rates below five percent in most calendar-years examined and would still leave the economic value lost at a trivial proportion of annual market value, on average, during our window. Finally, it is possible that audit quality could dramatically change in the future, or that even now there are lurking "Enrons" that have yet to come to light. However, given the current regulatory and professional environment, there is little concrete evidence that there is a large problem with audit quality in the current market. Only time will tell.

Overall, we argue these findings have consequential implications for audit regulation and research, in that they may demand a perspective change. If audit quality is high, or at

least acceptable, there may be too many academic and regulatory resources being spent investigating ways to improve audit quality. Likewise, regulators seem to suggest that audits have severe and unacceptable quality issues when citing statistics like inspection failures that do not prompt material restatements. However, our study highlights that while the PCAOB may be inspecting for adherence to current audit standards, they are not necessarily inspecting for achieved audit quality. While we do not argue that audit quality is perfect, nor unworthy of study, we do suggest that perhaps audit quality should be viewed and inspected from a different angle and with a different set of priors. Given the level of audit quality currently observable in the U.S. public company audit market, it may instead make sense to approach audit quality questions by asking how we achieved such a high level of audit quality, what factors contribute to audit quality, what threats could reduce audit quality, and how we can preserve audit quality.

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Table I: Elements of Audit Quality by Stakeholder Source.

This table shows the elements of audit quality that are important to each stakeholder group according to various sources (Panel A) and in aggregate for each group (Panel B). Reliable Process maps to "meeting investors' needs for reliable audits"; "rigorous process and quality control procedures"; "well-planned"; "well-planned identification and auditing of significant risks"; "robustness of the audit." Independent maps to "independent"; "appropriate values, ethics and attitudes"; "independence, objectivity, and professional skepticism." Communications maps to "useful and timely reporting"; "appropriate interactions with stakeholders"; "robust audit committee communications." Identification of Material Misstatements maps to "presented fairly, in all material respects"; "not materially misstated"; "enhancing the reliability of the financial statements." Confidence Enhancing maps to "enhancing the reliability of the financial statements"; "which enhances the degree of confidence the intended users can place in the financial statements"; "increasing the credibility of financial reports." Competent Auditors maps to "sufficient knowledge, skills, experience, and time." Compliance with Standards maps to "rigorous process and quality control procedures complying with standards." Legal, Regulatory, Governance Oversight maps to "robust mechanisms for ensuring adequate oversight." Efficiency maps to "how efficient the audit process is performed."

	Reliable Process	Independent	Com-munications	Identification of Material Misstatements	Confidence Enhancing	Competent Auditors	Compliance with Standards	Legal, Regula-tory, Governance Oversight	Efficiency	Financial Reporting Quality
Panel A. Elements of Audit Quality by Stakeholder Source										
Investors										
Christensen et al. 2016 Survey	x	x				x				
IAASB Survey		x		x		x		x		
Blackrock, Inc.		x	x	x		x			x	
Audit Committees										
IAASB Survey	x	x	x	x		x				
CAQ		x	x			x				
Regulators and Standard Setters										
PCAOB	x	x	x	x		x	x			
AICPA				x	x		x			
GAO		x		x			x			
IAASB	x	x	x	x		x	x			
IFIAR				x	x		x			
FRC	x	x		x	x		x			
Auditors										
CAQ					No Definition Provided					
International Firms[28]					No Definition Provided					
Academics										
DeAngelo 1981		x		x		x				
DeFond and Zhang 2014				x						x
Francis (2011; 2023)	x	x	x	x		x				x
Knechel and Knechel et al. (2024; 2024)	x				x	x				
Total Occurrences	7	10	6	12	4	10	4	1	1	2
Panel B. Elements of Audit Quality by Stakeholder Group										
Investors	x	x	x	x		x		x	x	
Audit Committees	x	x	x	x		x				
Regulators and Standard Setters	x	x	x	x	x	x	x			
Auditors										
Academics	x	x	x	x	x	x				x

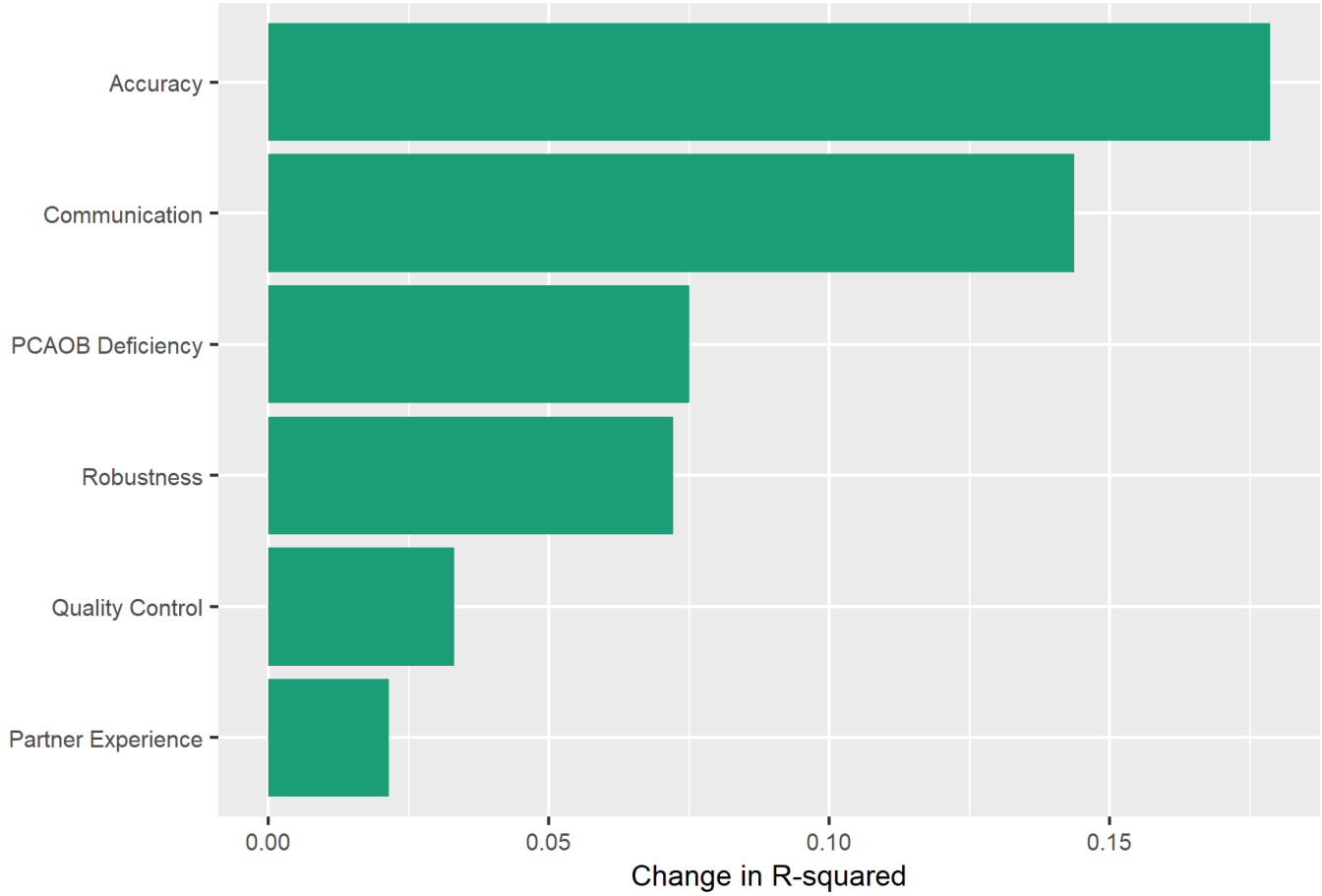
[28] Comment letters from PCAOB docket 41 by: BDO, Crowe, Deloitte, EY, Grant Thornton, KPMG, McGladrey, and PwC. We searched for definitions of audit quality using the terms "Defin*" and "Quality is*". In each case, the firm either did not comment on a definition of audit quality, or noted that there is no commonly accepted definition. The statement from PwC is representative of the latter comments: "There is no one definition of audit quality, or a universally accepted audit quality framework..." (PWC 2015, 3).

Table II: Auditor Preferences.

	(1) *Respondent Preference*	
Panel A. Regression Results		
Accuracy	0.473***	(0.068)
Communication	0.394***	(0.064)
PCAOB Deficiency	0.293***	(0.066)
Robustness	0.282***	(0.064)
Quality Control	0.191***	(0.064)
Partner Experience	0.156**	(0.065)
N	203	
R^2	0.325	
Participant Fixed Effects	Yes	
Panel B. Tests for Coefficient Differences		
Accuracy - Communication	0.078	(0.226)
Accuracy - PCAOB Deficiency	0.179***	(0.006)
Accuracy - Robustness	0.190***	(0.003)
Accuracy - Quality Control	0.282***	(0.000)
Accuracy - Partner Experience	0.317***	(0.000)
Communication - PCAOB Deficiency	0.101	(0.121)
Communication - Robustness	0.112*	(0.091)
Communication - Quality Control	0.204***	(0.002)
Communication - Partner Experience	0.239***	(0.000)
PCAOB Deficiency - Robustness	0.011	(0.873)
PCAOB Deficiency - Quality Control	0.102	(0.137)
PCAOB Deficiency - Partner Experience	0.137**	(0.046)
Robustness - Quality Control	0.091	(0.164)
Robustness - Partner Experience	0.126*	(0.057)
Quality Control - Partner Experience	0.035	(0.598)

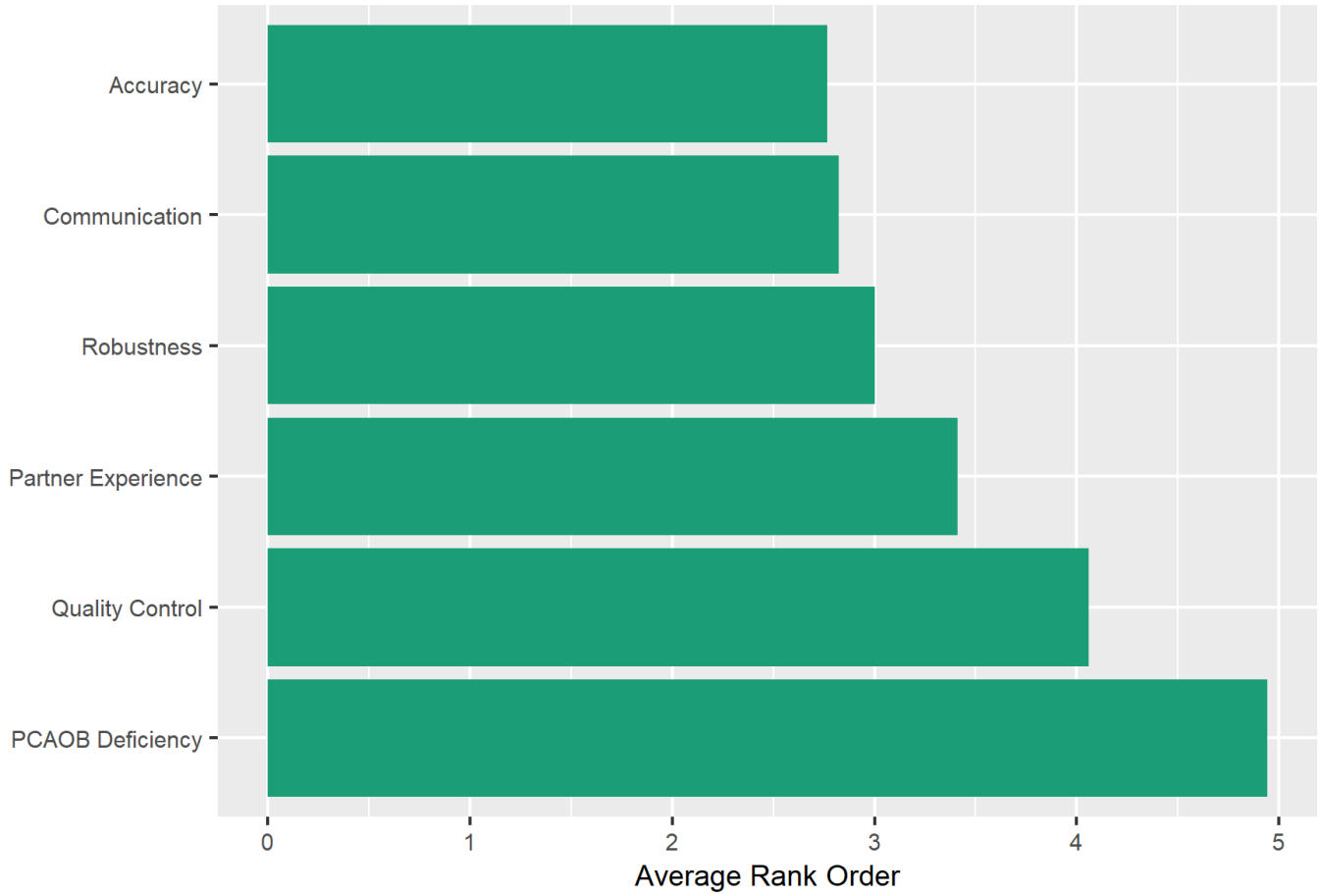
Panel A reports the coefficients from a linear regression of each participant's 6-point Likert scale preference for auditor X over auditor Y on the difference between auditor X's and auditor Y's value for each measured attribute. The regression includes participant fixed effects. Standard errors of the coefficients are reported in parentheses. Panel B presents the difference between the regression coefficients and the p-values of the associated F-test in parentheses for every possible pair of the regression coefficients. *, **, and *** denote significance at the 10%, 5%, and 1% levels, respectively.

Figure 1: Contribution of Each Characteristic to Model R^2.



This figure shows the change in the model R^2 when the model of auditor preferences in Equation 1 is reestimated without one of the independent variables marked on the vertical axis. Independent variables alternately dropped from the estimation are the following auditor attributes: *Accuracy*, *Communication*, *PCAOB Deficiency*, *Robustness*, *Quality Control*, and *Partner Experience*.

Figure 2: Rank Order Analysis.



This figure shows the average rank for each the following auditor attributes marked on the vertical axis: *Accuracy*, *Communication*, *Robustness*, *Quality Control*, *Partner Experience*, and *PCAOB Deficiency*. Each bar represents the average of the rank that each survey participant assigned to the particular attribute when asked to rank the attributes in the order of importance from the least important (6) to the most important (1).

Table III: Misstatement Sample.

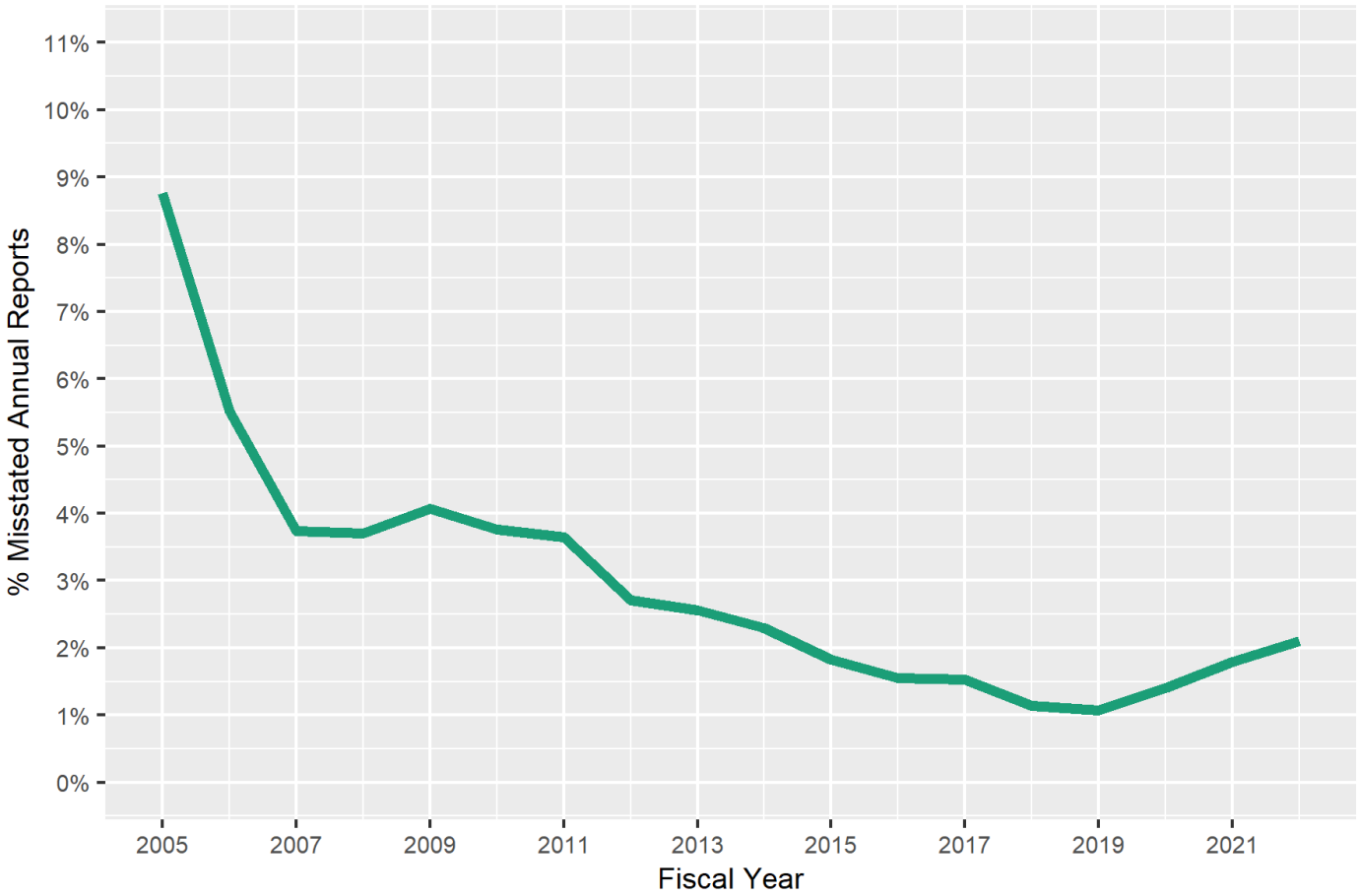
Panel A: Sample Attrition	
Unique company-years in Compustat and Audit Analytics from 2005 to 2022	116,223
Less: Company-years with missing or non-positive revenue/market cap in Compustat	24,061
Less: Company-years with no previous 10-K or 8-K filings in SEC Analytics	5,724
Less: Companies identified as SPACs in Audit Analytics	1,044
Final Sample	85,394

Panel B: Industry Composition

Fama-French-12 Industry	Mean Annual N
Business Equipment	835
Chemicals and Allied Products	116
Consumer Durables	109
Consumer NonDurables	201
Finance	1,095
Healthcare, Medical Equipment, and Drugs	631
Manufacturing	388
Oil, Gas, and Coal Extraction and Products	216
Telephone and Television Transmission	105
Utilities	97
Wholesale, Retail, and Some Services	385
Other/Unclassed	566

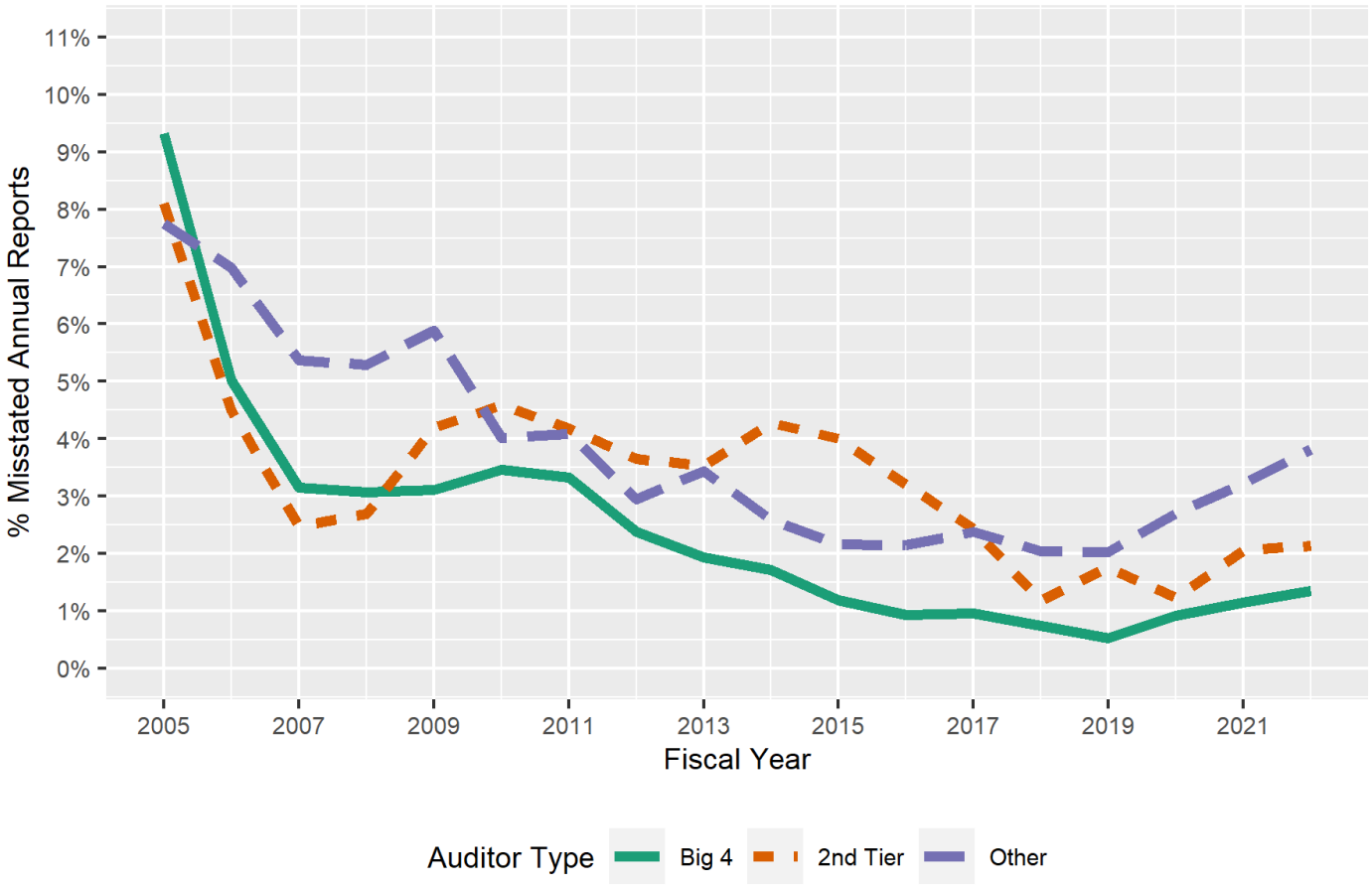
Panel A shows how we arrived at the final sample used in the misstatement frequency analyses. In Panel B, we report the number of companies that appear on average in each Fama-French-12 industry in each year (unclassified observations included in Other).

Figure 3: Overall 8-K Misstatement Frequency.



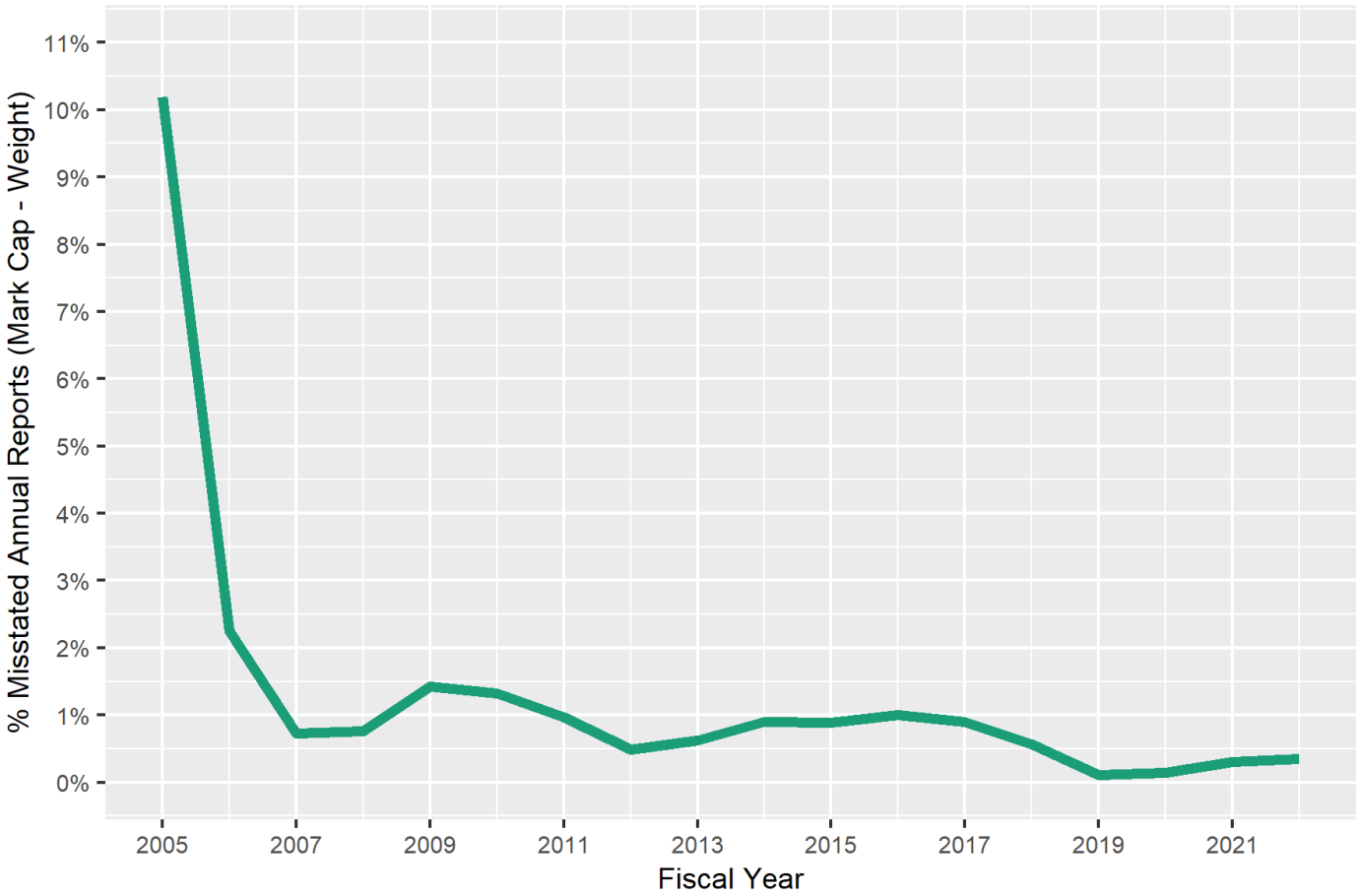
This figure plots the percentage of each fiscal year's annual reports that are subsequently materially restated. An annual report is considered materially misstated if the company issues a statement of non-reliance on previously issued financial statements on SEC Form 8-K that covers the period of time including the fiscal year end date of the annual report in question.

Figure 4: 8-K Misstatement Frequency by Auditor Type.



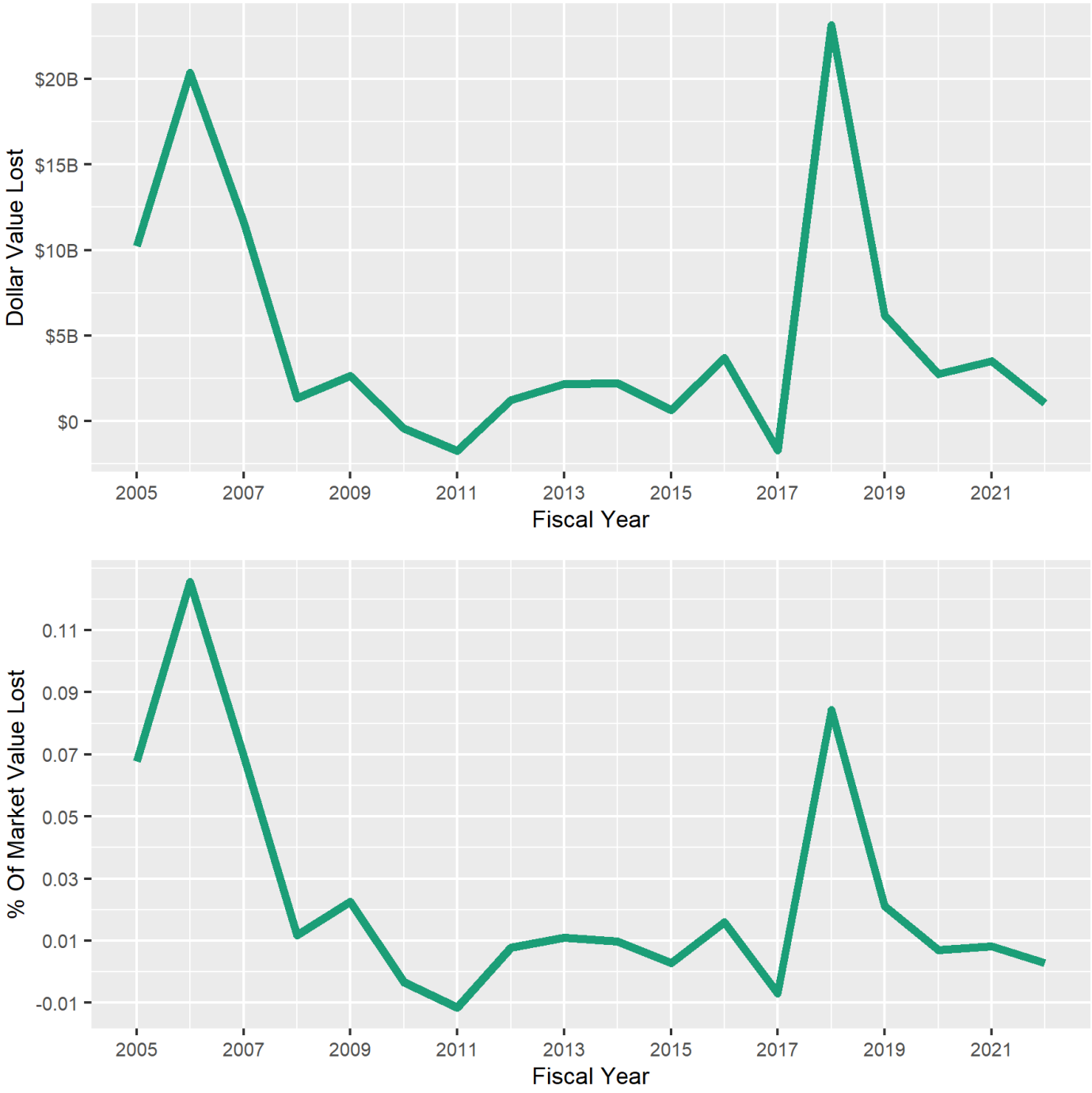
This figure plots the percentage of each fiscal year's materially misstated annual reports separately for companies audited by Big 4 accounting firms (solid series), 2nd Tier accounting firms (short-dash series), and all other accounting firms (long-dash series). An annual report is considered materially misstated if the company issues a statement of non-reliance on previously issued financial statements on SEC Form 8-K that covers the period of time including the fiscal year end date of the annual report in question. The Big 4 firms are Deloitte, EY, KPMG, and PwC. The second tier firms are BDO, Crowe, Grant Thornton, and RSM (McGladrey and Pullen).

Figure 5: Overall 8-K Misstatement Frequency: Weighted by Market Capitalization.



This figure plots the weighted percentage (based on market capitalization) of each fiscal year's annual reports that are subsequently materially restated. An annual report is considered materially misstated if the company issues a statement of non-reliance on previously issued financial statements on SEC Form 8-K that covers the period of time including the fiscal year end date of the annual report in question. Each fiscal year t's misstatement percentage represents the ratio of the total market capitalization of companies with fiscal year t material misstatements and the total market capitalization of all companies in Compustat. Market capitalization of each company is based on the Compustat values for shares outstanding and closing price as of fiscal year end.

Figure 6: Total Market Value Lost to Restatement Filings



This figure plots the market value lost around each material restatement filing. For each material restatement filing with sufficient returns data, we calculate the market adjusted buy and hold returns over the window beginning four days before and ending four days after the file date in Audit Analytics. If the filing date falls on a non-trading day, the next trading day is used as the filing date. The top graph plots the value lost in each fiscal year t as the aggregate decline in the dollar value of companies' market cap around restatement announcements. The dollar value decline associated with each filing is calculated as the product of the company's buy and hold return over the event window and market capitalization the day before the window (i.e., 5 days before the filing date). The bottom graph plots the aggregate percentage of market capitalization lost around restatement announcements (determined as the window return dollar value lost as scaled by the overall market value the day before the window). All values are aggregated by year using the Compustat year convention.

A Appendix: Auditor Attribute Definitions

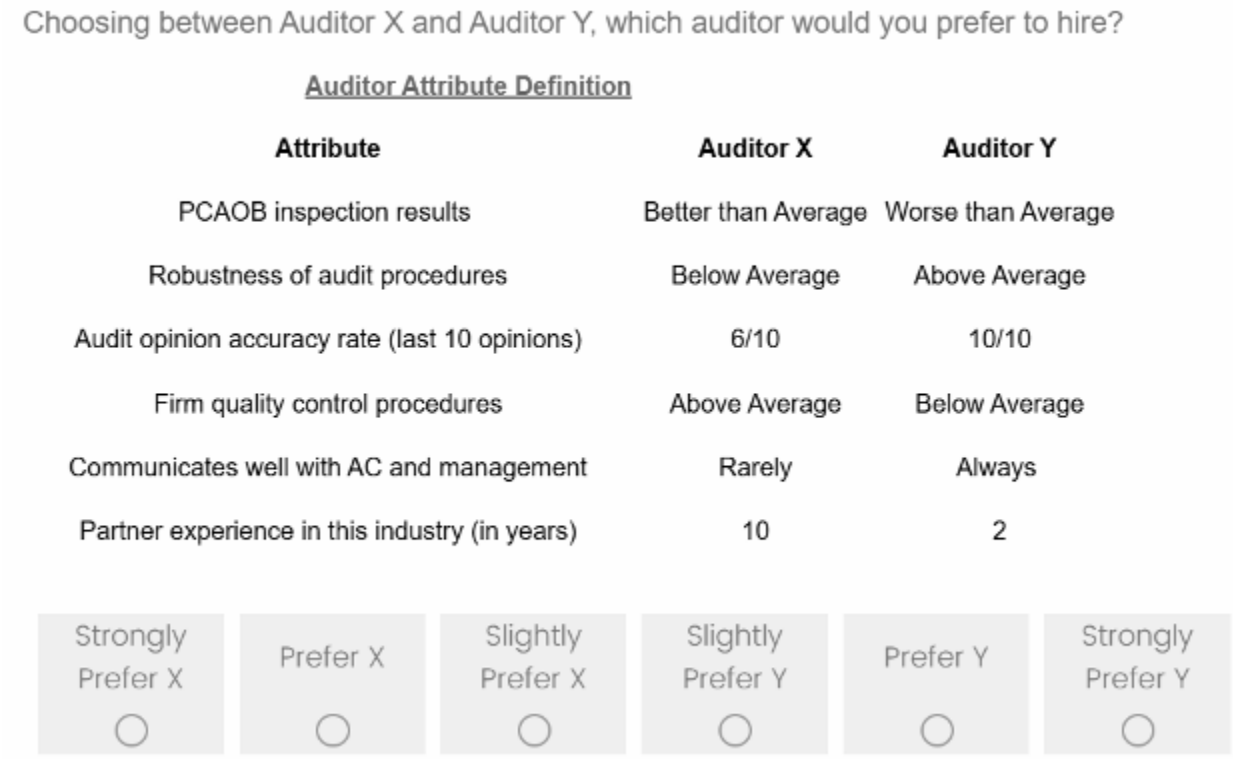
Attribute	Definition
PCAOB inspection results	The PCAOB is responsible for inspecting audit firms' adherence to audit standards. To do so, the PCAOB inspects a sample of a firm's completed audits for a particular year. When reporting inspection results, the PCAOB defines audit deficiencies as any instances of non-compliance with audit standards. Inspection results are reported publicly, but the audited companies associated with deficiencies are kept anonymous. The auditors you will select from work for firms with average, better than average, or worse than average inspection results compared to other auditors.
Robustness of audit procedures	Auditors exercise considerable professional judgment over the scope and type of audit procedures, including judgments on materiality thresholds, sample sizes, and evidence sufficiency. More robust audit procedures can be more time consuming but tend to be more effective, while less robust procedures can be less time consuming but tend to be less effective. While all auditors you will select from will follow audit standards, the robustness of their audit procedures will be either below average, average, or above average compared to auditors in general.
Audit opinion accuracy rate	Audit standards require that auditors provide "reasonable assurance" that audited financial statements are free from material misstatements. While audits are not perfect, an "inaccurate opinion" occurs when the auditor issues a clean opinion on materially misstated financial statements. Materially misstated financial statements require restatement with the SEC and a statement of non-reliance on the audit opinion. Based on their prior 10 opinions issued, the audit teams you will select from have accuracy rates ranging from 6/10 to 10/10.

Firm quality control procedures	The PCAOB also inspects audit firms' quality control systems as part of their inspection process. A system of quality control is broadly defined as processes that provide the firm with reasonable assurance that it complies with professional and firm standards of quality. The audit teams you will select from come from firms whose quality control systems are below average, average, or above average when compared to audit firms generally.
Communicates well with AC and management	Audit standards require that auditors communicate with the audit committee (AC) on certain matters, including the overall audit strategy and significant risks identified during the auditor's risk assessment procedures. Similarly, audit teams work closely with management throughout the audit process to facilitate audit completion and gather appropriate evidence. While audit standards dictate minimum requirements for communication with both AC and management, the ease and frequency of communication can vary by audit team. The audit teams you will select from usually, rarely, or always communicate well with the AC and management.
Partner experience in this industry (in years)	Accounting and auditing issues can be industry specific, especially in industries with complex transactions or unusual business models. All audit partners are experienced auditors, but their industry experience varies. Auditing standards require auditors to be knowledgeable about the company and industry they are auditing. Among the audit teams you will select from, the primary engagement partner has either 2, 6, or 10 years of experience in your company's specific industry.

B Appendix: Survey Question Coding Example

B.1 Random Non-Dominant Combination

Qualtrics Screen



Choosing between Auditor X and Auditor Y, which auditor would you prefer to hire?

Auditor Attribute Definition

Attribute	Auditor X	Auditor Y
PCAOB inspection results	Better than Average	Worse than Average
Robustness of audit procedures	Below Average	Above Average
Audit opinion accuracy rate (last 10 opinions)	6/10	10/10
Firm quality control procedures	Above Average	Below Average
Communicates well with AC and management	Rarely	Always
Partner experience in this industry (in years)	10	2

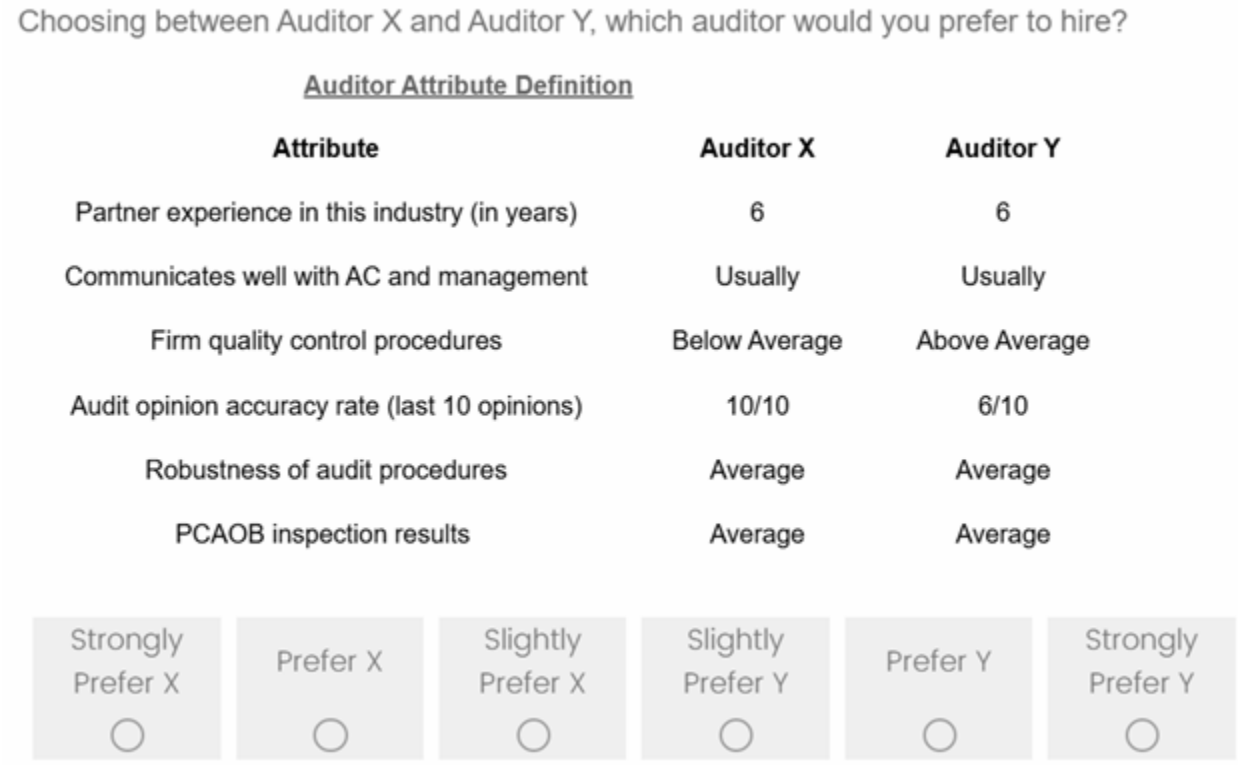
Strongly Prefer X | Prefer X | Slightly Prefer X | Slightly Prefer Y | Prefer Y | Strongly Prefer Y

Attribute and Outcome Coding Used in Analysis

Respondent Preference (Outcome)	*Accuracy*	*Communication*	*Robustness*	*Partner Experience*	*PCAOB Deficiency*	*Quality Control*
Response = "Prefer Y"						
2	-2	-2	-2	2	2	2
Response = "Strongly Prefer X"						
6	-2	-2	-2	2	2	2

B.2 Opposites on Accuracy and Firm Quality Control Procedures

Qualtrics Screen



Choosing between Auditor X and Auditor Y, which auditor would you prefer to hire?

Auditor Attribute Definition

Attribute	Auditor X	Auditor Y
Partner experience in this industry (in years)	6	6
Communicates well with AC and management	Usually	Usually
Firm quality control procedures	Below Average	Above Average
Audit opinion accuracy rate (last 10 opinions)	10/10	6/10
Robustness of audit procedures	Average	Average
PCAOB inspection results	Average	Average

Strongly Prefer X | Prefer X | Slightly Prefer X | Slightly Prefer Y | Prefer Y | Strongly Prefer Y

Attribute and Outcome Coding Used in Analysis

Respondent Preference (Outcome)	*Accuracy*	*Communication*	*Robustness*	*Partner Experience*	*PCAOB Deficiency*	*Quality Control*
Response = "Strongly Prefer Y"						
1	2	0	0	0	0	-2
Response = "Slightly Prefer X"						
4	2	0	0	0	0	-2