

The auditing oligopoly and lobbying on accounting standards

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Abstract

We examine how the tightening of the U.S. auditing oligopoly over the last twenty-five years—from the Big 8 to the Big 6, the Big 5, and, finally, the Big 4—has affected the incentives of the Big N, as manifest in their lobbying preferences on accounting standards. We find, as the oligopoly has tightened, Big N auditors are more likely to express concerns about decreased “reliability” in FASB-proposed accounting standards (relative to an independent benchmark); this finding is robust to controls for various alternative explanations. The results are consistent with the Big N auditors facing greater political and litigation costs attributable to their increased visibility from tightening oligopoly and with decreased competitive pressure among the Big N to satisfy client preferences (who usually demand accounting flexibility at the expense of reliability). The results are inconsistent with the claim that the Big N increasingly consider themselves “too big to fail” as the audit oligopoly tightens.

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1. Introduction

Auditors play a crucial role in the functioning of capital markets by serving as independent agents that scrutinize firms' financial statements on behalf of shareholders, creditors, and other accounting users. In the United States, they attest that companies, in preparing their financial reports, conform to generally accepted accounting principles (GAAP) largely specified by the Financial Accounting Standards Board (FASB). Since at least the 1970s, the audit market in the U.S. has functioned as an oligopoly, with a few large firms providing audit services for the vast majority of public companies. The past twenty-five years have witnessed a steady tightening of the oligopoly, with the number of big audit firms (hereafter, the Big N) declining from eight in the 1980s to four by 2002, while their combined market share has remained largely unchanged (e.g., GAO, 2008).

A tightening oligopoly significantly alters the competitive landscape in auditing and can influence the interactions between the Big N firms and the broader business and political environment. In doing so, the changing oligopolistic structure of auditing is likely to alter the incentives of Big N firms. We characterize auditors' incentives in fulfilling their fiduciary role in capital markets while simultaneously increasing profits as two-fold: to increase client satisfaction and to decrease expected costs of litigation and regulatory intervention. Our goal is to examine how these incentives evolve in response to the tightening oligopoly.

We capture auditors' changing incentives over time via their comment-letter lobbying on financial reporting proposals of the FASB. Auditors' comment-letter evaluations of new reporting standards proposed by the FASB are key inputs to the standard-setting process (e.g., Watts and Zimmerman, 1982; Puro, 1984). To capture auditors' incentives, we focus on their assessments of a key attribute of proposed standards: their impact on accounting's "reliability."

Specifically, we examine the influence of a tightening audit oligopoly on Big N auditors' changing propensity to express concerns regarding the reliability of proposed standards, conditional on such concerns actually being present in those proposed standards (as measured through an independent, informed benchmarking process).

Reliability of reporting standards is a key attribute of accounting, as identified by the FASB and numerous basic accounting textbooks (e.g., FASB, 1980; Stickney, Weil, Schipper, and Francis, 2010). Reliability limits managers' discretion in accounting choice to reporting methods that are representationally faithful, while additionally being verifiable and neutral (FASB, 1980).¹ Thus, more reliable standards provide a well-defined framework for reporting economic events, facilitating audits and potentially reducing litigation and regulatory costs by restricting client firms' ability to misreport. Auditors' clients, on the other hand, are expected on average to prefer discretion in reporting standards because it provides the flexibility to choose the reporting option that is best suited to an underlying economic transaction.² Such discretion, however, can confound verifiability and thus reduce the reliability of standards (which is intended to guard against misreporting).

As the number of Big N audit firms has declined, there are two primary sets of factors that can prompt the firms to revise their concerns regarding the reliability of proposed standards. First, a decline in the number of Big N firms without a decline in their collective market share has translated into each remaining firm becoming more "visible" as they grow in wealth and

¹ In 2010 the FASB modified its conceptual framework to move away from "reliability" towards "representational faithfulness." Since this change went into effect after our sample period (1973–2006), we use "reliability," not "representational faithfulness," in our analyses.

² Some clients might prefer to constrain accounting discretion for competitive reasons (e.g., to prevent competitors' access to discretion).

influence. The higher visibility of Big N audit firms makes them a more visible target for litigation. The perception of deep pockets heightens motives among capital market participants, including investors, to launch class-action lawsuits against Big N auditors alleging dereliction of fiduciary duties. Visibility to regulators is another potential issue, as it can increase regulators' incentives to scrutinize big audit firms more carefully (this phenomenon is sometimes described as 'political costs'). If the dominating effect of a tightening oligopoly is to increase auditors' visibility, they are more likely to highlight concerns about the reliability of proposed standards when such concerns are present. Reliable standards restrict the exercise of reporting flexibility by managers, and are also more defensible ex-post if clients are suspected of making questionable choices within the framework provided by the standards (e.g., Watts, 2003).

The second effect of a declining number of Big N audit firms is that they enjoy greater security, in terms of both the regulatory and the competitive environments. As the number of Big N auditors capable of undertaking auditing assignments of large and complex clients declines, the potential systemic instability and cost to the financial system that could result from the failure of a single oligopolistic audit firm rises. This can make regulators reluctant to aggressively pursue auditors in the event of irregularities, effectively bestowing upon them the status of "too big to fail." For example, in 2005, the Big 4 audit firm KPMG was revealed to be "peddling illegal tax shelters" among its clients (Nocera, 2005). The U.S. Justice Department signed a deferred prosecution agreement with KPMG, forcing the firm to admit wrongdoing, but sparing it from criminal prosecution. Some in the business press explained the Justice Department's move as being motivated in part by concerns over destabilizing the audit industry in eliminating a key player. Less fettered by the need to manage the risk of regulatory intervention, a tighter Big N oligopoly can be expected to care less about reliability and shift

towards a preference for standards favored by their clients, which can help them increase revenue.³ On the other hand, a more secure business and competitive environment with fewer audit firms can have a countervailing effect. As Big N audit firms compete less with each other for business, the market-driven need to be responsive to clients' preferences is weaker, and auditors can focus on managing their exposures to litigation and regulatory risk. This can make auditors shift their preferences towards standards that are more reliable.⁴ Thus the net effect of increasingly secure regulatory and competitive environments from a tightening audit oligopoly is an empirical question.

We measure Big N auditors' changing incentives by looking at their changing propensity to express concerns about "decreased reliability" when such concerns are present. To do so, we first measure the Big N auditors' "raw" mentions of decreased reliability in their comment letters on exposure drafts issued by the FASB. Subsequently, we obtain the benchmark (or "true") incidence of decreased reliability in the exposure draft based on the evaluations of two highly experienced research assistants blind to the study's objective (the data are from Allen and Ramanna, 2013). The changing correlations between the Big N auditors' raw mentions of decreased reliability and the benchmark serve as our proxy for the auditors' changing incentives to raise concerns about decreased reliability.⁵ We test the validity of our metric by examining

³ Catering to client preferences can help auditors increase revenues in a number of ways: e.g., more satisfied clients will probably be more willing to accept higher audit rates, more receptive of cross-sold services such as business-process consulting, and less prone to switch auditors.

⁴ More generally, auditors can shift their preferences towards standards that are more compliance oriented, less judgment-based, and more defensible ex post. Our formal prediction is limited to "reliability," consistent with our empirical design and strategy.

⁵ Our use of this benchmark presumes no systematic hindsight bias in research assistants' evaluations of exposure drafts.

whether the Big N auditors' incentives to focus on decreased reliability vary predictably with the intensity of the litigation regime across the 34 years in our sample (1973 through 2006).⁶ As expected if the measure is sensible, Big N auditors' exhibit a greater focus on decreased reliability in regimes with higher litigation risk, providing some evidence that our empirical proxy is capturing auditors' incentives. This result, and subsequent results, is also robust to time-series controls.

In our primary tests, we observe that Big N auditors are increasingly concerned with the decreased reliability of proposed standards as the audit oligopoly tightens. Thus, the findings are consistent with Big N audit firms' preferences for standards reflecting heightened concerns about the litigation and political costs associated with their rising visibility. A greater focus among Big N auditors on reliability could also be facilitated by lower competition among Big N audit firms for clients, with the consequence that Big N auditors have less incentive to cater to their clients' preferences for higher reporting discretion. The results do not offer any support for the notion that Big N audit firms are less concerned with reliability because their declining numbers effectively make them "too big to fail".

We acknowledge that the changing incidence of Big N auditors' concerns around decreased reliability can be a function of the factors that are in fact at least partial determinants of their tightening oligopoly (such as, perhaps, changing litigation risk). However, the objective of our study — to examine the relation between the declining number of Big N audit firms and their incentives vis-à-vis accounting standard setting — would be defeated by controlling for the

⁶ Our sample begins in 1973 because that is the first year of the FASB's operation. Because our sample ends in 2006, our data do not speak to the possible impact of PCAOB inspection reports and of the Financial Crisis of 2008 on Big N lobbying at the FASB. These are important issues for future research.

determinants of that decline. Indeed, if the literature supplied a full theory of the determinants, the results we report probably would, indeed should, be subsumed in a comprehensive analysis of their impact on Big N auditors' incentives.

Other factors influencing auditors' concerns with decreased reliability are of issue to us to the extent that they influence the correlation with "true" concerns as measured by our benchmark. Given the use of year fixed effects in our analysis, these factors would be alternative explanations only if they manifest in a time series that is similar to changes in the audit oligopoly. While identifying such factors is not easy, we focus on four that might be responsible for our results: (a) macroeconomic cycles, (b) market conditions, (c) the prevalence of fair value standards, and (d) standard setter's ideologies. We find that our primary result — auditors increasingly focus on the reliability of proposed standards as the oligopoly tightens — is robust to this set of controls. Additionally, we explain why our results for the post-2002 period are unlikely to be driven by the Big N auditors' support for convergence of U.S. GAAP with International Financial Reporting Standards (IFRS). Finally, we conduct a jackknife analysis to determine whether our inferences are driven by any one exposure draft in the sample (given the relatively small sample size in our tests). Our conclusions are robust to this analysis, although in three cases, we lose some statistical significance: details are discussed in Section 4.

Our findings suggest a greater concern about their rising visibility, together with a lower need to be responsive to their clients' preferences for reporting discretion, has prompted Big N auditors to place a greater emphasis on mitigating decreased reliability in proposed standards. This implies that over time, auditors' appetite for risk-taking, in particular, the level of judgment they are willing to apply in implementing reporting standards has lessened. To the extent that increased reliability is facilitated through "rules-based" accounting, our results suggest an

evolving preference for rules over principles among the Big N audit firms. If this preference is manifested in actual GAAP standards, it can provide some descriptive evidence on the evolution of rules-based U.S. GAAP during our sample period.

The remainder of this paper is organized as follows. Section 2 develops the hypotheses connecting the tightening audit oligopoly with auditors changing incentives on decreased reliability. Section 3 describes the data and research design. Section 4 presents and interprets the results. Section 5 concludes with a discussion of the study's implications.

2. Hypothesis development

2.1 The tightening audit oligopoly

The audit business in the US has since at least the 1970s functioned as a relatively tight oligopoly, with a few big firms providing a disproportionately large share of audit services. The dominance of the audit firms has been particularly pronounced among larger clients. In 1988, only eight firms collectively audited approximately 98% of all public companies by sales (82% by number). Thereafter, the concentration of audit firms increased progressively to the point that in 2002, there were only four firms auditing almost 99% of all public companies by sales (78% by number).⁷ The specific consolidations that led to the emergence of a Big 4 from a Big 8 are outlined in Table 1. Briefly, the consolidations characterize four distinct oligopoly “eras” in our sample period from 1973 through 2006: the Big 8 era (1973-1989), the Big 6 era (1990-1998), the Big 5 era (1999-2002) and the Big 4 era (2003-2006).

⁷ See GAO (2003), a study conducted by Government Accountability Office for the Senate Committee on Banking, Housing, and Urban Affairs and the House Committee on Financial Services.

The oligopoly in auditing is the focus of national public policy to the point that the U.S. Congress' investigative arm, the Government Accountability Office (GAO), issues periodic studies on the matter. The GAO's 2008 study was explicitly focused on reforms aimed at enhancing "the potential for smaller accounting firms' growth to ease [audit] market concentration," although the report did not call for immediate action (GAO, 2008). Thus, the federal government is also clearly interested in the ramifications of a tightening audit oligopoly, providing further impetus for an academic investigation of the phenomenon.

The primary factor driving the increasing concentration of Big N audit firms has been mergers between existing firms. The mergers, in turn, appear to have been motivated by Big N audit firms' attempts to achieve economies of scale in servicing a client base that increasingly spans diverse operational and geographic boundaries. The academic literature has long recognized the benefits associated with economies of scale in the audit industry (e.g., DeAngelo, 1981; Benston, 1985). More recently, the GAO provides survey evidence attributing the growing concentration in the audit industry to the ability of Big N audit firms to make the large investments in technology and human capital that are necessary to provide services to larger, more complex, more global clients (GAO, 2008). Changing litigiousness over time may have also contributed towards auditors' proclivity to merge. Bigger firms with a wider pool of resources are presumably in a better position to withstand the threats, and costs, arising from class-action lawsuits (GAO, 2008). Higher concentration does not, however, *guarantee* the ability to survive litigation and political threats, as the case of Arthur Andersen demonstrates. In 2002, the criminal indictment of Arthur Andersen for its culpability as auditor in the accounting fraud perpetuated by Enron Corporation led to unprecedented client flight, as well as voluntary departures of several of its partners and staff, ultimately resulting in its dissolution. Indeed, the

disappearance of Arthur Andersen represents the one instance in which voluntary mergers were not responsible for the tightening audit oligopoly.

2.2 Auditors' incentives for reliability in accounting standards

In building a sustainable business model, auditors are expected to be guided by their incentives to increase profits while ensuring that they fulfill their fiduciary responsibilities and avoid facing undue costs arising out of litigation and regulatory intervention. These incentives are also likely to be driving auditors' preferences regarding financial accounting standards.⁸

In a competitive equilibrium, auditors' wealth is eventually dependent on that of its clients. Clients typically encounter a heterogeneous range of transactions in their operations. *Ceteris paribus*, they would thus prefer standards that allow them flexibility to choose the most appropriate reporting method for a given transaction, conditional on the economic circumstances underlying that transaction. For example, when Apple originally entered the mobile phone business, it was expected to recognize revenue from iPhone sales over a two-year period, consistent with subscription accounting rules (the typical cellular-service contract duration on iPhones is two years). Apple argued that the subscription model did not reflect the economics of iPhone sales because the company met a substantial fraction of its obligations to iPhone customers at contract initiation. The company lobbied for (and successfully secured) revised accounting standards that allowed it to recognize the bulk of revenue at an iPhone's sale (the fraction of revenue recognized at sale is at Apple's and its auditor's discretion; e.g., Brochet, Palepu, and Barley, 2011). Watts and Zimmerman (1986) argue that managers choose

⁸ The implicit assumption is that auditors lobby in their self-interest, which is consistent with Kinney's (1986) findings on lobbying at the Auditing Standards Board. Auditors might well lobby in "the general interest." Our empirical strategy controls for this possibility.

accounting methods to suit their firms' contracting, information, regulatory, and tax environments. Kothari, Ramanna, Skinner (2010, p. 277) argue that "accounting is of strategic importance rather than a compliance tool," so there are "rents to be earned" by firms from customizing their accounting metrics. Both studies provide arguments for firms preferring greater accounting flexibility. Although, in specific circumstances, clients may desire reduced accounting flexibility (e.g., to harm competitors), on average we expect clients to prefer more flexibility in reporting standards to less. *Ceteris paribus*, clients' preferences for flexibility in accounting standards provides auditors incentives to support accounting rules that allow for reporting discretion since auditors have a self-serving interest in supporting standards that their clients would prefer (Watts and Zimmerman, 1982; Puro, 1984).

Auditors also have to consider that the primary consumers of their services are capital market participants. Auditors bear the fiduciary responsibility of scrutinizing the financial reports prepared by their clients and assessing whether these reports meet generally accepted accounting principles, and whether they provide a true and fair representation of their clients' financial health and performance. Capital market participants such as investors, financial analysts and regulators can subject auditors to significant scrutiny for negligence, misrepresentation, and fraud. This scrutiny is associated with substantial costs, particularly when there is *ex-ante* suspicion or *ex-post* revelation of improper accounting by auditors' clients, for example, to overstate their performance or misrepresent their financial position. Costs arising from capital markets scrutiny include the threat of class-action lawsuits by the investing community (litigation costs, e.g., Lys and Watts, 1994), as well as that of intervention and penalties by regulatory authorities (political costs).

To mitigate litigation and political costs, auditors are likely to prefer standards that allow less room for interpretation and limit the discretion available to managers. Accounting choices of clients are easier to audit when they have to be within the boundaries set by standards that allow less scope for discretion. Further, accounting choices that are within the framework provided by “reliable” standards but that are questioned in litigation or regulatory action ex post are nevertheless more defensible because they have met an ex ante standard of objectivity (e.g., Ramanna and Watts, 2012).

We operationalize auditors’ preferences regarding standards as the extent to which they express their concerns about the standards’ decreased reliability conditional on such concerns being actually present. Since at least the publication of its conceptual statements in the late 1970s (e.g., FASB, 1978; 1980), the FASB has viewed “reliability” as one of the primary desirable attributes of accounting information (FASB, 1980, p. 5). According to the FASB Concept Statement No. 2, reliability requires that financial statement information be representationally faithful with respect to the economic events that it purports to represent, while additionally being verifiable and neutral. Reliability of proposed standards is well-suited to our context, as it is often thought of as limiting managers’ discretion in accounting choice (Watts, 2003).

2.3 The tightening audit oligopoly and auditors’ changing incentives

We expect Big N audit firms’ assessments of the reliability of proposed financial reporting standards to reflect changes in their own incentives. With a decrease in the number of Big N audit firms, auditors’ considerations regarding the management of both their clients’ preferences and their legal and regulatory environment are likely to evolve. We argue the tightening audit oligopoly influences Big N auditors’ incentives on “reliability” via two primary

channels: (a) the increasing visibility of each individual Big N auditor and (b) the increasingly secure business environment of the surviving Big N audit firms.

Increasing visibility

As fewer audit firms account for an increasing share of the audit market, their role in the determination of best practices in financial reporting becomes more salient. Their perceived growth in size, wealth, and power makes them more prominent economic entities and, in that sense, more “visible.” This, in turn, has implications for both their litigation risk as well their expected political costs.

The “deep pocket” theory of litigation suggests that the threat of class-action lawsuits against big audit firms is increasing in the perceived wealth and financial resources of these firms (e.g., Calabresi, 1970; Palmrose, 1988). As the audit market becomes increasingly oligopolistic, a smaller number of big audit firms share the risk of facing class-action lawsuits. Further, the political costs literature also points to an increased probability and intensity of regulatory scrutiny for more visible corporate entities (Watts and Zimmerman, 1978). Big audit firms have the largest clients and are often regarded as more reputable (DeAngelo, 1981), with an influence on audit practices across the rest of the industry. The more visible big audit firms are, the more anxious regulators are likely to be, at least in perception, that the auditors maintain prudent and ethical reporting.

Thus, the threat of both litigation and regulatory intervention are predicted to increase as the visibility of the big audit firms rises with increased consolidation. The failure of Arthur Andersen in 2002, instrumental in reducing the number of big audit firms from five to four, made investors and regulators more sensitive to the possibility of audit failures and malfeasance even

at large firms. If the big audit firms perceive their litigation risk and political costs as increasing with a tightening oligopoly, they are expected to exhibit a stronger preference for standards that provide lower discretion to managers, are easier to audit, and also easier to defend against allegations of abuse (more “verifiable”). We expect these forces to manifest as follows: increasingly oligopolistic Big N auditors pay greater attention to the decreased reliability of proposed standards.

Increasingly secure business environment

With the tightening audit oligopoly, the business environment of the audit firms can become more secure in terms of both the regulatory climate and the competitive landscape. The corresponding effects on auditors’ concerns regarding the reliability of proposed accounting standards are countervailing with respect to each other.

The increasing significance of each audit firm for the economy can act as a safety net against regulatory enforcement. Litigation and regulatory intervention have the power to severely damage an audit firm’s wealth and reputation, and cause it to fail completely (as was the case with Arthur Andersen). As the number of big audit firms declines, a failure of any of the remaining firms would severely restrict the choices available to the client base and additionally, cause a crisis of confidence with investors questioning the reporting quality of the clients audited by the failed firm. The macroeconomic and political consequences of a Big N audit firm failure can generate a classic “too big to fail” scenario, in which regulators are reluctant to pursue enforcement actions against big auditors suspected of malfeasance or of negligence with respect to their fiduciary duties (e.g., Nocera, 2005, in the context of the KPMG tax-shelter example discussed in the introduction). If Big N auditors in a tighter oligopoly perceive themselves as being increasingly insulated against political costs, they are expected to shift their focus from

managing the regulatory climate to satisfying the preferences of their clients (or, more generally, to other profit increasing activities), to the extent that there are trade-offs involved. Thus, as auditor concentration rises, we would expect Big N audit firms to exhibit a greater tendency to support standards that grant discretion to their clients, that is, auditors become less concerned with the decreasing reliability of proposed accounting standards.

The second aspect in which Big N auditors enjoy an increasingly secure business environment as the number of audit firms drops is reduced competition for audit business. As already discussed, auditors are generally expected to be sensitive towards their clients' preferences for standards that offer a wide range of reporting options and the discretion to choose the most relevant option befitting their economic circumstances. The growing concentration of the audit industry over time reduces the severity of competition among Big N audit firms, which can make them less responsive to their clients' demands, and instead more focused on managing their increasingly visible litigation and political costs. As a consequence, Big N auditors would be more concerned about the decreasing reliability of proposed standards as the auditing oligopoly tightens.

To summarize the arguments in this section: The tightening oligopoly in auditing is likely to change Big N auditors' incentives towards decreased reliability in accounting standards. The increased political and litigation costs that come from a tighter audit oligopoly, together with the decreased competitive pressure among the Big N to satisfy client preferences, suggest the Big N are more likely to highlight decreased reliability in proposed accounting standards. But, if as some commentators have argued, individual members of a tighter Big N oligopoly are "too big to fail," concerns over increasing litigation and political costs are misplaced: the Big N, now secure, will cater to clients' preferences for flexibility in accounting standards, which translates

into a lower likelihood of highlighting decreased accounting reliability. The following section proceeds to describe the data and research methods we use to test the arguments above.

There are additional arguments on how a tightening auditing oligopoly might affect the incentives of the Big N on matters beyond decreased reliability in accounting standards. For example, a tightening oligopoly can lower costs to collusion, enabling the Big N to erect competitive barriers via accounting standards — that is, they might lobby for standards that are so complex that only large auditors can afford the human and technological capital to implement; such “complex” standards can also generate additional revenue by creating “busy work.” We do not develop these arguments since our empirical tests are focused on decreased reliability. It is unclear how auditors’ incentives to support “complex” standards would influence their lobbying preferences on the issue of decreased reliability.

3. Data and research design

Our objective is to study the impact of the changing auditing oligopoly on accounting standards. We execute on this objective by investigating whether consolidation in the audit industry has significantly impacted Big N auditors’ propensity to discuss decreased reliability in their evaluation of proposed accounting standards, conditional on such concerns existing. We estimate this conditional propensity as the association in a multivariate regression between Big N auditors’ reported assessment of decreased reliability and the “true” incidence of decreased reliability as measured by an independent benchmark. Changes in the correlation between Big N auditors’ reported assessments and an independent benchmark can provide evidence as to the prevailing incentives in a tightened audit oligopoly.

In Section 3.1 we describe construction of our primary regression variables: the dependent variable, Big N auditors' reported assessments of decreased reliability; and the primary independent variable, the benchmark assessment of decreased reliability. In Section 3.2 we detail our multivariate regression design and statistical tests. Section 3.3 describes our construct validity test. Section 3.4 describes our control variables and statistical tests for alternative explanations.

3.1 Primary regression variables

Dependent variable: Big N auditors' assessments of decreased reliability

We conduct our analysis of Big N audit firms' assessments of decreased accounting reliability through the lens of the comment letters written by these firms on FASB exposure drafts. Due process for the FASB provides constituents the opportunity to weigh in on a proposed standard by submitting comment letters. Prior research has shown that comment letters have an impact on final standards, so they are meaningful indicators of constituent views (e.g., Ramanna, 2008). Our sample includes comment letters submitted by Big N auditors on the 170 exposure drafts issued from 1973 through 2006 that resulted in one or more SFAS: these data have been used by Allen and Ramanna (2013). In total there are 908 Big N auditor comment letters covering 149 exposure drafts (and 157 SFAS), which represents a participation rate of approximately 80%. See Table 2.

We measure Big N auditors' reported evaluations of decreased reliability as in Allen and Ramanna (2012). A paper copy of each Big N auditor comment letter was obtained from the FASB public library in Norwalk, Connecticut, digitized using optical character recognition and manual transcription, and analyzed using a custom designed Perl script, which extracted all

sentences containing the word stem “reliab.” Next, using the output from Perl, a research assistant blind to the intent of our study but trained in accounting principles manually examined the extracted sentences from each comment letter to assess the substance of the auditors’ reference. Based on this evaluation, comment letters where auditors reported decreased reliability as a result of the exposure draft were identified.

Using the above procedure we find that 98 (10.8%) of the Big N auditors’ comment letters express the opinion that an exposure draft will decrease accounting reliability. Our construction of the dependent variable (*dec_relb_aud*) is as in Allen and Ramanna (2013):

$$dec_relb_aud_{ij} = 1 - \frac{WC_dec_relb_{ij}}{WC_{ij}} \quad (1)$$

In equation (1), $WC_dec_relb_{ij}$ is the word count of the first instance of the word stem “reliab” used in a negative (“decreasing”) context in comment letter i on exposure draft j ; and WC_{ij} is the total word count of comment letter i on exposure draft j . By construction, *dec_relb_aud* is bounded [0,1] and is intended to capture the relative importance a Big N auditor places on its assessment of decreased reliability by using relative word position as a proxy for sentiment intensity. As discussed in Allen and Ramanna (2012), this linguistic assumption is justified by the propensity of comment letters to begin with an introductory paragraph that highlights key issues. The variable construction should result in higher values of *dec_relb_aud*

for comment letters in which the author views reliability as sufficiently important in her overall evaluation of an exposure draft to allude to it earlier in the comment letter.⁹

Primary independent variable: benchmark assessment of decreased reliability

To create a benchmark of an exposure draft’s “true” impact on reliability that is independent of auditor incentives, we utilize the variable *manual_dec_relb* from Allen and Ramanna (2013), which we rename *benchmark* for clarity of interpretation in our setting. *benchmark* is constructed from the evaluations of two highly experienced research assistants who were instructed to manually assess each exposure draft’s impact on reliability relative to the status quo of GAAP at the time of issuance. The research assistants employed in this task had a combined total experience in the fields of accounting and finance of over 30 years, as well as MBA degrees from top ranked U.S. business schools. The research assistants were blind to the objectives of the study. By construction, *benchmark* is a binary indicator for each exposure draft, which takes a value of one for exposure drafts categorized by the research assistants as decreasing accounting reliability. Of the 170 exposure drafts in our population, 145 were available to us from the FASB archives for manual evaluation. Merging this sample with our auditor comment letters yields a common sample of 774 auditor comment letters on 126 unique exposure drafts manually evaluated by our research assistants. See Table 2.

Summary statistics

Table 3 provides summary statistics for our dependent variable (*dec_relb_aud*) and primary independent variable (*benchmark*) across each of the four Big N auditor concentration

⁹ In untabulated tests, we use a dummy variable set to one if *dec_relb_aud*>0 in lieu of *dec_relb_aud*; results are substantively invariant to the substitution in the regression specification with all control variables.

eras (Big8, Big6, Big5, and Big4). As seen in Table 3, raw auditor mentions of decreased reliability are monotonically increasing across the eras: average *dec_relb_aud* increases from a low of 0.04 in the Big 8 era to a high of 0.27 in the Big 4 era. By contrast, the true incidence of decreased reliability in proposed standards (as measured by *benchmark*) shows no analogous increasing trend. Figures 1 and 2 present plots of averaged *dec_relb_aud* and *benchmark*, respectively, by year. For both variables we observe substantial time-series variation. The break at 1987 in Figures 1 and 2 is due to the fact that no exposure drafts were issued by the FASB in that year. Figure 2 has three additional breaks at 1973, 1975, and 1997; across these three years the FASB issued ten exposure drafts, none of which were available when creating our *benchmark* variable.

3.2 Research design

Our empirical tests are designed to assess the changing correlations between *dec_relb_aud* and *benchmark* over different audit oligopoly regimes. Formally, we estimate the betas from the following regression:

$$dec_relb_aud_{ij} = \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_t \end{bmatrix}' * yr_dummies + \begin{bmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_t \end{bmatrix}' * yr_dummies * benchmark_j \quad (2)$$

In the above equation *yr_dummies* is a $t \times 1$ vector of year dummies, which allows variation across the intercept and slope estimates by year. There are a variety of factors (e.g., macroeconomic and market conditions) that can impact Big N auditors' mentions of *dec_relb_aud* in ways that may be unrelated to the "true" incidence of decreased reliability (*benchmark*). These factors are likely to vary by exposure draft and time, and their impact in equation (2) is captured in the alphas (we develop additional tests for alternative explanations in

Section 3.4). By interacting *yr_dummies* with our *benchmark* variable the above regression, we generate separate beta estimates of the correlation between Big N auditors' assessments and "true" assessments for each year in our sample. For ease of interpretation we include a full set of year dummies and interactions, and accordingly omit a constant term and the main effect on *benchmark* to avoid multicollinearity.

As discussed in Section 2, there are four distinct auditor concentration "eras" across our sample of SFAS: the Big 8 era (1973-1989), Big 6 era (1990-1998), Big 5 era (1999-2002), and Big 4 era (2003-2006). To test whether year-estimated betas differ significantly across these four audit eras we use linear combinations of betas to calculate era-average coefficients and standard errors per the following equations.

$$\text{Regime Average Coefficient} = l'\beta = \sum_{k=1}^K l_k \beta_k \quad (3)$$

$$se(l'\beta) = [\hat{\sigma}^2 l'(x'x)^{-1}l]^{1/2} \quad (4)$$

In equations (3) and (4), l is an $t \times 1$ matrix (where t is the sample length) that has element k set to one for each β_k being averaged across a regime and zero otherwise; thus $l'\beta$ is a the simple average of coefficients on *benchmark* from 1973 through 1989 for the Big 8 era, 1990 to 1998 for the Big 6 era, 1999 to 2002 for the Big 5 era, and 2003 to 2006 for the Big 4 era. In equation (4), $\hat{\sigma}^2$ is the regression's sum of squared residuals divided by the degrees of freedom and x is the matrix of explanatory variables.

To test for significance of differences between era-averaged coefficients (say between Big 8 and Big 6), equations (3) and (4) are re-estimated setting l such that $l'\beta$ is the difference

between the era-averaged coefficients for each era pair. For example, in estimating the difference between Big 8 and Big 6 era coefficients $l_{Big8-Big6}$ is constructed such that $l'_{Big8-Big6}\beta = l'_{Big8}\beta - l'_{Big6}\beta$. Significance tests of era-averaged coefficients and differences across era-averaged coefficients are based on a Student's t -distribution with $n-K$ degrees of freedom, where n is the sample size and K is the number of regression covariates.

Note that if the Big N auditors' incentives are unchanged across eras or if the auditors are, on average, not self-serving in their lobbying, we are unlikely to find significant differences between era-averaged beta coefficients. If, on the other hand, Big N auditors' lobbying on exposure drafts is influenced by changing incentives, significant differences between regime averaged coefficients provide evidence as to which incentives dominate as the oligopoly tightens.

3.3 Construct validity

As discussed in Section 1, auditor incentives in standard setting, particularly in highlighting decreased accounting reliability, are likely driven in part by the litigation environment. Specifically, *ceteris paribus*, in the face of increased (decreased) litigation risk auditors are more (less) likely to highlight decreased reliability in accounting standards. We use this prediction to examine the validity of our regression design: we test whether the correlation between *dec_relb_aud* and *benchmark* varies predictably with changes in the litigation environment in the thirty-four years of our sample period. Specifically, following the evolution of tort law related to auditor liability in our sample period, we identify four distinct litigation eras from 1973 to 2006:

(1) 1973-1982 constitutes our baseline period. During this period tort law governing auditor liability to non-clients for negligence was largely governed by the doctrine of “privity” (Feinman, 2003). Under the doctrine of privity, auditors can only be held liable for negligence to third parties with whom they have a direct contractual relationship.¹⁰

(2) 1983-1991 was a period marked by increase in litigation pressure felt by the large auditing firms. Two major court rulings in 1983, *Rosenblum v. Adler* and *Citizens State Bank v. Timm Schmidt and Co.*, set precedents for the use of “reasonable foreseeability” rather than “privity” as the standard for negligence (Kothari et al., 1988). Under the doctrine of “reasonable foreseeability,” auditor litigation risk is significantly increased; an auditor is potentially liable to any party that might have been reasonably expected to rely on a client’s audited financial statements. Also in 1983, the U.S. courts held that auditors could be sued under the Racketeer Influenced and Corrupt Organization Act (RICO) of 1970 (Lys and Watts, 1994).

(3) 1992-2002 was a period that saw a series of reforms aimed at decreasing auditor liability. In 1992, two court cases *Bily v. Arthur Young and Co.* and *Security Pacific Business Credit v. Peat Marwick Main*, reversed the precedent set in *Rosenblum*. Rejecting the doctrine of “reasonable foreseeability”, both court cases instead applied the doctrine of “known users” (Feinman, 2003). By this standard auditor liability for negligent misrepresentation to non-clients is limited to third parties whom the auditor *knows* rely on its audit reports. Also, in 1992 the AICPA amended Section 505 of its Code of Professional Conduct to allow member firms to

¹⁰ Kothari, Lys, Smith, and Watts (1988) in their discussion of auditor liability eras identify the *Ernst & Ernst v. Hochfelder* case in 1976 as demarking a reduction in auditor liability. Applied to our setting, this would suggest that we treat the periods 1973–1976 and 1977–1982 differently. We do not do so because we lack sufficient observations (based on limited data to construct the *benchmark* variable) to generate regression betas for the 1973-1976 period.

incorporate as limited liability partnerships; and, the Big N firms all converted shortly thereafter (Choi, Doogar, and Ganguly, 2004). In 1994, the Supreme Court eliminated auditors' liability for aiding and abetting rule 10b-5 violations (Central Bank of Denver v. First Interstate Bank of Denver). And finally, in 1995 the Private Securities Litigation Reform Act of 1995 further reduced auditor liability by limiting key aspects of their liability under the 1934 Securities Act and under RICO (Ali and Kallapur, 2001). The sum effect of these changes was a reduction in litigation risk for auditors relative to the prior period.

(4) 2003-2006 was a period marked by increased litigation risk relative to the prior period. The provisions of the Sarbanes Oxley Act of 2002 (SOX) left largely untouched the private civil liability standards for auditors, but established the Public Company Accounting Oversight Board for increased oversight and visibility of Big N audit firms. Further, the high visibility of corporate accounting scandals from 2001-2002, the demise of Arthur Andersen, and the ensuing wave of investigations and penalties for public accounting firms likely heightened Big N audit firms incentives to minimize litigation risk (Cahan and Zhang, 2006). We note that this period coincides directly with the "Big 4" era identified in our primary analysis.

To the extent that our regression design allows us to generate estimates of the correlation between auditor assessments of an exposure draft and the benchmark assessments that are meaningful proxies for auditor incentives, a distinct pattern in average regression betas should present across the four litigation eras defined above. The specific predictions are summarized in the chart below:

<i>Era</i>	<i>Legal Liability Standard</i>	<i>Beta Predictions (relative to preceding period)</i>
1973-1983	Privity	Baseline

1984-1992	Reasonable Foreseeability	Increased Beta
1993-2002	Known Users (and Limited Liability)	Decreased Beta
2003-2006	SOX	Increased Beta

In these construct validity tests, the statistical significance of regime-average betas and comparisons across betas are made using the linear-combination process described in the prior subsection (Eq 3 and Eq 4).

3.4 Control variables and tests of alternative explanations

The incidence of Big N auditors’ “raw” concerns about decreased reliability (*dec_relb_aud*) can be a function of numerous factors that vary over time, such as macroeconomic and market conditions. To the extent that these factors are unrelated to the “true” incidence of decreased reliability (*benchmark*), our use of year fixed-effects in equation (2) serves as a control in the multivariate regressions. But these factors may affect the *benchmark* variable as well. If such factors are unrelated to the tightening audit oligopoly but manifest in a time series that is similar to the auditor eras, our interpretation of the linear combinations (over auditor eras) of betas in equation (2) as representing the association between Big N auditor incentives and the tightening audit oligopoly is confounded. We are not aware of any theory that exhaustively specifies these factors (largely because the literature is lacking a theory for the tightening auditor oligopoly), but we identify four factors that nevertheless warrant consideration as potential alternative explanations: macroeconomic cycles, market conditions, increased fair-value-based accounting, and standard setters’ ideologies.

Macroeconomic cycles and market conditions

Periods of recession increase the probability of financial distress and corporate failure, and accordingly may heighten auditor concern with legal liability (St. Pierre and Anderson, 1984). If this is the case, Big N audit firms may be more likely, *ceteris paribus*, to recognize and highlight issues of decreased reliability in their responses to exposure drafts proposed during recessions than during periods of macroeconomic growth. The same argument can be made with regards to the prevailing market conditions. To control for these possibilities, we generate two control variables: *macro_growth* is a binary variable set equal to one for exposure drafts issued during a period of economic growth, as defined by the NBER, and zero for exposure drafts issued during a period of economic contraction; *market_ret* is a continuous variable set equal to the annual value-weighted market return for the 12 months directly preceding the month in which an exposure draft was issued.

Fair-value accounting

Audit firms may have preferences against the increased use of fair value in financial reporting. Fair value estimates can be more difficult to audit than historical costs, and the use of fair values can increase litigation risk for auditors (e.g., Watts, 2003). Accordingly, Big N auditors, hoping to deter the increased use of fair value methods, may be more likely to voice concerns regarding decreased reliability for exposure drafts that increase the use of fair values than for those that do not. To control for this possibility we rely on data from Allen and Ramanna (2012), who construct a variable based on independent research assistants' evaluations of exposure drafts' use of fair-value methods. For our analysis, we generate a binary control variable (*fair_value*) that takes the value of one for exposure drafts that increase the use of fair

values for asset write downs, asset recognition and measurement, liability recognition and measurement, disclosure, or recognition in the income statement; zero otherwise.

Standard-setters’ ideologies

Allen and Ramanna (2013) show that standards proposed by FASB boards with a higher proportion of members from the financial services industry (*pct_fin_fasb*) are more likely to be viewed by the Big N audit firms as decreasing accounting reliability. Accordingly, we include *pct_fin_fasb* as a control variable in our analysis; *pct_fin_fasb* is a continuous variable equal to the proportion of FASB members in office at the issuance of an exposure draft who were employed in the financial services industry (defined as investment banking and investment management) immediately prior to their appointment to the board.

Tests of alternative explanations

Table 4 provides summary statistics for each of the four control variables described above. As shown in Figures 3 through 6, none of these factors manifest in a pattern that is identical to the changes in the audit oligopoly, suggesting they are unlikely to confound inferences in our multivariate regressions. Nevertheless, to understand better the potential impact of these factors in our setting, we perform two separate tests. First, we separate our sample into periods of high and low macro conditions, market returns, fair-value use, and proportion of financial-services members on the FASB. Segregation of years into high and low periods on each variable is achieved as follows:

<i>Variable</i>	<i>Classification Criteria</i>	<i>“High” subsample</i>	<i>“Low” subsample</i>
<i>macro_growth</i>	Years are denoted as “growth” if the mean value of <i>macro_growth</i> >.5 across all exposure drafts in our sample	“Growth:” 1975-1979, 1981, 1983-2000, 2002-2006	“Recession:” 1973-1974, 1980, 1982, 2001

	for that year, and “recession” otherwise.		
<i>market_ret</i>	Years are denoted as “positive” if the mean value of <i>market_ret</i> >0 across all exposure drafts in our sample for that year and “negative” otherwise	“Positive:” 1975-1981, 1983, 1985-1987, 1989, 1991-1993, 1995-1997, 1999, 2003-2006	“Negative:” 1973, 1974, 1982, 1984, 1988, 1990, 1994, 1998, 2000-2002
<i>fair_value</i>	Years are denoted as “No FV” if <i>fair_value</i> = 0 for all sample exposure drafts proposed during that year, and “FV increasing” otherwise	“FV increasing:” 1977, 1983-1984, 1989, 1992, 1994, 1996, 1998-2006	“No FV:” 1974, 1978-1982, 1985-1986, 1988, 1990, 1991, 1993, 1995, 1997
<i>pct_fin_fasb</i>	Years are denoted as “Financial FASB” if <i>pct_fin_fasb</i> >0 for at least one exposure draft in our sample from that year and “No Financial FASB” otherwise	“Financial FASB:” 1993-2006	“No Financial FASB:” 1973-1992

For each of the above subsamples, we compute era-average betas from our primary regression results (Eq 2). Two sided *t*-tests are used to assess whether there is a significant difference between the era-average betas from “growth” versus “recession” years, “positive” versus “negative” market return years, “fair value increasing” versus “no fair value” years; and years with “no financial FASB” versus at least one “financial FASB” member serving.

Second, we re-estimate our primary regression (Eq 2), including the additional controls for *macro_growth*, *market_ret*, *fair_value*, *pct_fin_fasb*, and their respective interaction controls with *benchmark* (*macro_growth*benchmark*, *market_ret*benchmark*, *fair_value*benchmark*, *pct_fin_fasb*benchmark*). Using this regression output we re-compute the era-average betas for

each auditor concentration era (Eq 3 and Eq 4) and test for significance of differences. The full specification of this model is as follows:

$$\begin{aligned}
 dec_relb_aud_{ij} = & \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \vdots \\ \alpha_t \end{bmatrix}' * yr_dummies + \begin{bmatrix} \beta_1 \\ \beta_2 \\ \vdots \\ \beta_t \end{bmatrix}' * yr_dummies * benchmark_j \\
 & + \begin{bmatrix} \gamma_1 \\ \gamma_2 \\ \vdots \\ \gamma_8 \end{bmatrix}' * \begin{bmatrix} macro_growth \\ market_ret \\ fair_value \\ pct_fin_fasb \\ macro_growth * benchmark \\ market_ret * benchmark \\ fair_value * benchmark \\ pct_fin_fasb * benchmark \end{bmatrix} \quad (5)
 \end{aligned}$$

Beyond the four potential alternative explanations discussed above — macro and market conditions, increased fair-value-based accounting, and standard setters’ ideologies — the globalization of accounting standard setting, particularly the convergence project between the FASB and the International Accounting Standards Board (IASB) since 2002, may have affected the Big N auditors’ incentives on decreased reliability. Specifically, IFRS standards proposed by the IASB, of which the Big N has been largely supportive (e.g., Botzem and Quack, 2009), are generally considered to be “principles-based,” emphasizing flexibility and fair-value accounting at the expense of reliability. Thus, if support for the convergence of U.S. GAAP with IFRS determined the Big N auditors’ lobbying positions on decreased reliability post 2002, we would expect it to lower the era-average beta coefficient from the Big 4 era (2003-2006). Further, under this explanation, the difference between the Big 4 era-averaged beta coefficient and prior era-averaged beta coefficients would not be positive. We use this prediction to test the alternative

explanation that support for IFRS convergence determined the Big N auditors' incentives on decreased reliability post 2002.

4. Results

4.1 Construct validity tests

Table 5 presents the results of our construct validity tests to determine whether average regression coefficients vary predictably with changes in the litigation environment. The underlying regression for Table 5 is from Eq 2; beta coefficients measure the propensity of Big N auditors to express concerns about decreased reliability (*dec_relb_aud*) relative to our *benchmark* assessment of an exposure draft's "true" impact on decreased reliability. Column (1) of Table 5 reports the average beta observed for each of the four auditor litigation eras. Differences in average coefficients for each pair of eras are presented in columns (2) through (4). Statistical significance is reported based on heteroskedastic-robust standard errors.

As shown in column (1), litigation era averaged coefficients vary according to our predictions (see Section 3.3): Big N auditor concern with decreased reliability conditional on an exposure drafts "true" impact, is lowest under the legal standard of "privity" (-0.03), increases under the more relaxed doctrine of "reasonable foreseeability" (0.31), decreases under the more stringent standard of "known users" (0.18), and increases again post-SOX (0.34). Pairwise differences across each of these eras are presented in columns (2) through (4). All predicted differences (diagonal elements) are statistically significant at the 90% confidence level ($p\text{-value} < 0.10$). The comparison between "reasonable foreseeability" and "SOX" is not statistically significant. We had no ex-ante prediction on this comparison since "reasonable foreseeability" and "SOX" represent two relatively high litigation-risk eras. Overall, Table 5 offers assurance

that the regression design can provide meaningful estimates for the changing incentives of Big N audit firms in standard setting.

4.2 Multivariate results

Table 6 presents the results of our multivariate tests to determine how auditor incentives in standard setting have changed with a tightening audit oligopoly. The underlying regression and presentation of Table 6 is identical to that of Table 5, except that regression coefficients are averaged across the four auditor concentration eras as opposed to litigation eras. Column (1) of Table 6 suggests average coefficients are monotonically increasing across eras; average beta is 0.09 in the Big 8 era, 0.14 in the Big 6 era, 0.24 in the Big 5 era and 0.34 in the Big 4 era. This trend is consistent with predictions that a tightening oligopoly will heighten auditor concern with litigation and political visibility risk, as well as decrease the competitive pressure for Big N auditors to advocate for greater flexibility in standards on their clients behalf. Increasing average coefficients suggest these factors subsume any decrease in auditor concern resulting from an increased perception of being “too big to fail”. Differences are significant ($p\text{-value} < .05$) when comparing: Big 8 to Big 5 and Big 4; and Big 6 to Big 4. The other differences are not statistically significant, warranting restraint in drawing strong inferences from the analysis in Table 6.

4.3 Tests of alternative explanations

Table 7 presents our analysis on the impact of four factors that may be correlated with both Big N auditor “raw” concerns about decreased reliability (*dec_relb_aud*) and the “true” incidence of decreased reliability (*benchmark*) for each exposure draft (see Section 3.4): macroeconomic cycles (Panel A), average market returns (Panel B), fair-value use in proposed standards (Panel C), and the proportion of FASB members most recently employed in financial

services (Panel D). Each panel has two columns: column (1) presents era-averaged betas for “high” and “low” values of the four factors as defined in Section 3.3. Column (2) shows the difference between these era-averaged coefficients. Statistical significance is reported using heteroskedastic-robust standard errors.

Panels A and B of Table 7 suggest that the average correspondence between “raw” auditor concern with decreased reliability and the “true” incidence of decreased reliability is largely invariant to both macroeconomic cycles (*macro_growth*) and average market returns (*market_ret*). Columns (1) of Panels A and B show average betas are 0.17 across years with macro-economic “growth” and with macro-economic “recession” as well as across those years with positive average market returns and negative average market returns. As shown in columns (2) of Panels A and B, differences are, in both cases, statistically insignificant.

By contrast, Panels C and D of Table 7 suggest that the fair-value impact of an exposure draft as well as the proportional membership of FASB members having a financial services background has a significant effect on Big N auditors’ propensity to express concern about decreased reliability, conditional on such concern being present. Panel C suggests that the average beta increases from -0.03 in years for which no fair-value increasing standards are proposed, to 0.25 in years that have at least one fair-value increasing exposure draft. The difference in average betas (0.28) is statistically significant ($p\text{-value} < .01$). Similarly, Panel D suggests that the average beta is significantly higher ($p\text{-value} < 0.01$) in years where at least one FASB member was previously employed in the financial-services sector (0.23) compared to years in which no FASB member has a financial-services background (0.10).

Collectively Panels C and D of Table 7 suggest that the fair-value impact of a proposed standard as well as the proportional composition of FASB board members may affect the correlation between “raw” propensities of Big N auditors to comment on decreased reliability (*dec_relb_aud*) and the “true” instance of decreased reliability in an exposure draft (*benchmark*). Accordingly, including controls for these variables in our primary regression design is important to generating unbiased estimation of betas that are consistent with our intended interpretation for them. By contrast, Panels A and B suggest that macroeconomic cycles and average market returns do not affect the correlation between Big N auditor concerns with decreased reliability and true concerns; as such, the inclusion of year-fixed effects in our primary specification should adequately capture the effect of these factors.

4.4 Multivariate results after controlling for alternative explanations

Table 8 presents average auditor concentration era betas obtained by re-estimating our primary regression after including both main effect and interaction controls for those factors observed to be statistically significant in Table 7: the fair-value impact of an exposure draft (*fair_value* and *fair_value*benchmark*), and the proportion of FASB members with financial services background (*pct_fin_fasb* and *pct_fin_fasb*benchmark*). Table 8 is otherwise identical to Table 6. Column (1) of Table 8 suggests that Big N auditor concern with decreased reliability, conditional on an exposure statements “true” impact, is increasing monotonically with increased concentration of the audit oligopoly, consistent with the results of Table 6. Columns (2) through (4) provide pairwise differences between era-averaged betas, which are all positive and statistically significant (p -values <0.5). Thus, results of Table 8, similar to those of Table 6, are consistent with Big N auditors facing greater political and litigation costs attributable to their increased visibility from tightening oligopoly and with decreased competitive pressure among

the Big N to satisfy client preferences (who usually demand accounting flexibility at the expense of reliability). These forces appear to dominate any increased perception by the Big N that they are “too big to fail” as the audit oligopoly tightens.

In Table 8, the era-average beta coefficient from the Big 4 era is greater than that from any other era. This positive difference is inconsistent with the proposition that support for IFRS convergence determined the Big N auditors’ incentives on decreased reliability post 2002. As noted earlier, support for IFRS convergence is expected to decrease the Big 4 era coefficient, given the principles-based nature of IFRS that emphasizes flexibility and fair-value accounting at the expense of reliability.

For completeness in un-tabulated analysis we also test whether the results of Table 8 are robust to the inclusion of *macro_growth* and *market_ret* and the corresponding interaction terms (*macro_growth*benchmark*, *market_ret*benchmark*). The results presented in Table 8 are substantively unchanged when we include these additional controls with one exception: the pairwise difference between Big 6 and Big 5 era average coefficients is no longer significant at conventional levels. This change can be related to decreased power: observed variance inflation factors (a test for multicollinearity) for *macro_growth*benchmark* and *market_ret*benchmark* are 39.8 and 23.0, respectively.

4.5 Jackknifing

Because the inferences from the regressions described thus far are based on a relatively small sample of 126 exposure drafts, we conduct a jackknife analysis to test whether any one exposure draft is critical to our conclusions. Specifically, we successively eliminate each exposure draft that is used in the calculation of era-average coefficients and determine whether

the statistical inferences from Table 8 continue to hold. We find that the inferences are robust to the jackknife analysis in all but three cases, where the difference between Big 6 and Big 5 era-averaged coefficients is positive but not statistically significant. All three cases pertain to exposure drafts issued in the Big 5 era.¹¹ The exclusion of these exposure drafts (and associated comment letters) lowers the precision of the Big 5 era coefficient and thus the power to detect the statistical difference between that coefficient and the Big 6 era coefficient.

5. Conclusion

The U.S. auditing industry has been characterized as an oligopoly for at least the last forty years, but the structure of that oligopoly has successively tightened from eight key players to four over the last twenty-five years. The tightening oligopoly is likely to change the incentives of the surviving Big N auditors, with implications for their role in our market economy. The U.S. Government Accountability Office, the Congress' key independent oversight agency, has investigated the tightening oligopoly and, from time to time, issued reports aimed at increasing the number of major players in the audit industry (e.g., GAO, 2008). Motivated by the economic and public policy implications of the tightening audit oligopoly, we investigate the changing relation between the Big N and accounting standards.

Accounting standards are a key input in the audit process and, through their effects on financial reporting, can impact capital allocation decisions in the economy. We study the impact

¹¹ The three exposure drafts are: (1) "Accounting for Derivative Instruments and Hedging Activities—Deferral of the Elective Date of FASB Statement No. 133: an amendment of FASB Statement No. 133," issued May 1999; (2) "Business Combinations and Intangible Assets—Accounting for Goodwill," issued February 2001; and (3) "Rescission of FASB Statements No. 4, 44, and 64 and Technical Corrections," issued November 2001.

of the tightening audit oligopoly on Big N auditors' propensity to discuss decreased "reliability" in accounting standards proposed by the FASB. "Reliability" is a key attribute of accounting, as recognized by the FASB and several accounting textbooks (e.g., FASB, 1980; Stickney et al., 2010). Moreover, reliability is directly relevant to auditors because it entails "verifiability," which is a key aspect of auditing. Verifiable standards mitigate the litigation and regulatory risks embedded in auditors' certification of financial reports (e.g., Watts, 2003). Beyond reliability, there are likely to be other accounting properties such as comparability, consistency, and relevance that are important to auditors: future work can explore the impact of changing audit oligopoly on these properties as well.

We find that Big N auditors are more likely to identify decreased reliability in proposed standards as the auditing oligopoly has tightened. Our inferences are facilitated through the use of a "benchmark" assessment of proposed standards' decreased reliability: the benchmark is obtained through a standard dual-coder model using highly experienced accounting and finance professionals blind to the study's objectives. The findings are consistent with Big N auditors perceiving higher litigation and political costs from the increased visibility that accompanies tighter oligopoly. The findings are also consistent with tighter oligopoly decreasing competition among the surviving Big N to satisfy client preferences in accounting standards (preferences for accounting flexibility at the expense of verifiability). The findings are not consistent with the concern that tightening oligopoly has rendered the surviving Big N "too big to fail."

Collectively, the results suggest that, as the oligopoly in auditing has tightened, Big N auditors are more prone to eschew the judgment and risks inherent in less reliable accounting standards. If these sentiments — measured in the auditors' comment letters on proposed standards — manifested in the final standards issued by the FASB, the results provide some

descriptive evidence on the evolution of “rules” over “principles” in U.S. GAAP. The growth of rules-based accounting standards is significant because it can result in a collectivization of auditing and financial reporting risks in ways that can be sub-optimal for capital allocation (Kothari et al., 2010).

The results are robust to the inclusion of controls that capture other time-based factors that can impact auditors’ propensity to identify decreased reliability in proposed standards (factors such as extant macroeconomic or stock market conditions). The findings are also robust to controls for the incidence of fair-value methods in proposed accounting standards and for the proportion of FASB members from the financial services sector. Fair-value accounting, which is expected to decrease accounting reliability, is one of the major developments in accounting standards over the last twenty years, and prior research has shown that the incidence of fair-value methods in proposed standards is tied to the proportion of financial-services FASB members (Allen and Ramanna, 2012).

More generally, the nature of our multivariate regression design is such that alternative explanations that do not manifest in a time series that is similar to the consolidation of the audit industry are unlikely to confound our inferences. That said, our empirical strategy is focused on the effects of tightening oligopoly, not its causes. Numerous factors such as globalization, the increased scale and complexity of business, improved information technology, and changing litigiousness are thought to have precipitated changes in the audit industry (e.g., GAO, 2008). Our findings are likely to be explained by a full consideration of the determinants of audit oligopoly (although the literature currently lacks such a theory), and thus must be interpreted accordingly. The results herein provide a pivot for future research on the changing audit oligopoly, its determinants and consequences.

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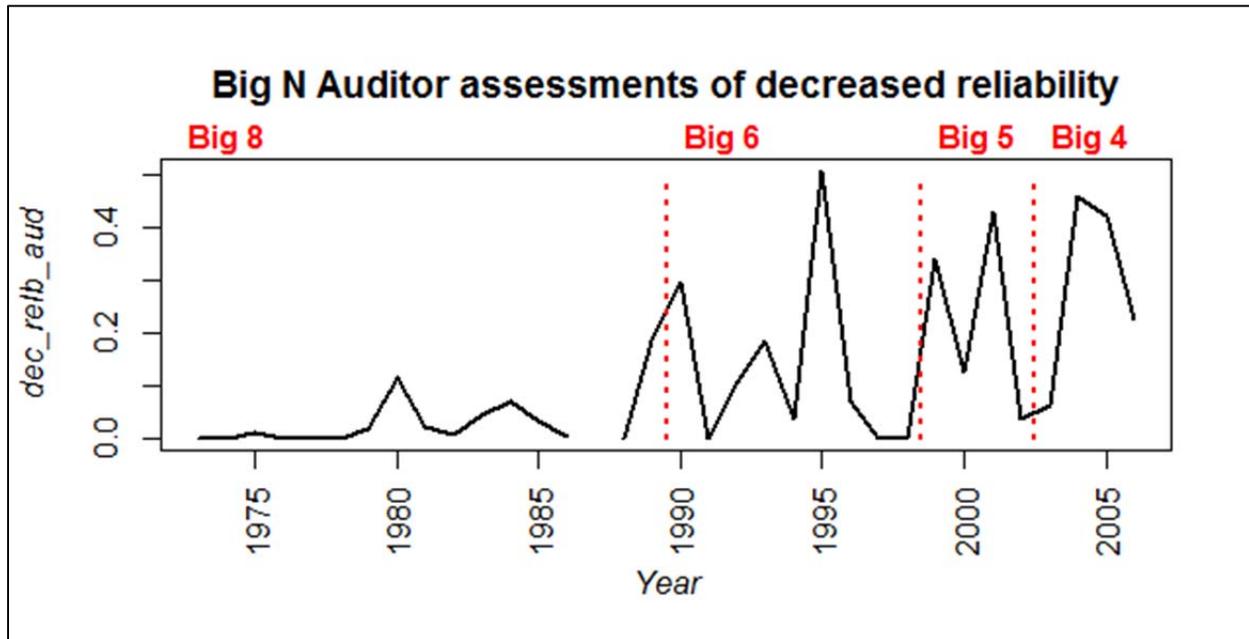
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Figure 1:

Big N Auditor assessments of decreased reliability in proposed standards

The sample is based on 149 exposure drafts issued between 1973 and 2006. *dec_relb_aud* is an assessment that a proposed SFAS will decrease accounting “reliability” as expressed by the Big 8/6/5/4 auditors (hereafter “Big N auditors”) in their comment letters. See Section 3.1 for details.



**Figure 2:
Independent research assistant “benchmark” assessments of decreased reliability in proposed standards**

The sample is based on 126 exposure drafts issued between 1973 and 2006. *benchmark* is an assessment that a proposed SFAS will decrease “reliability” as determined by two independent reviewers. See Section 3.1 for details.

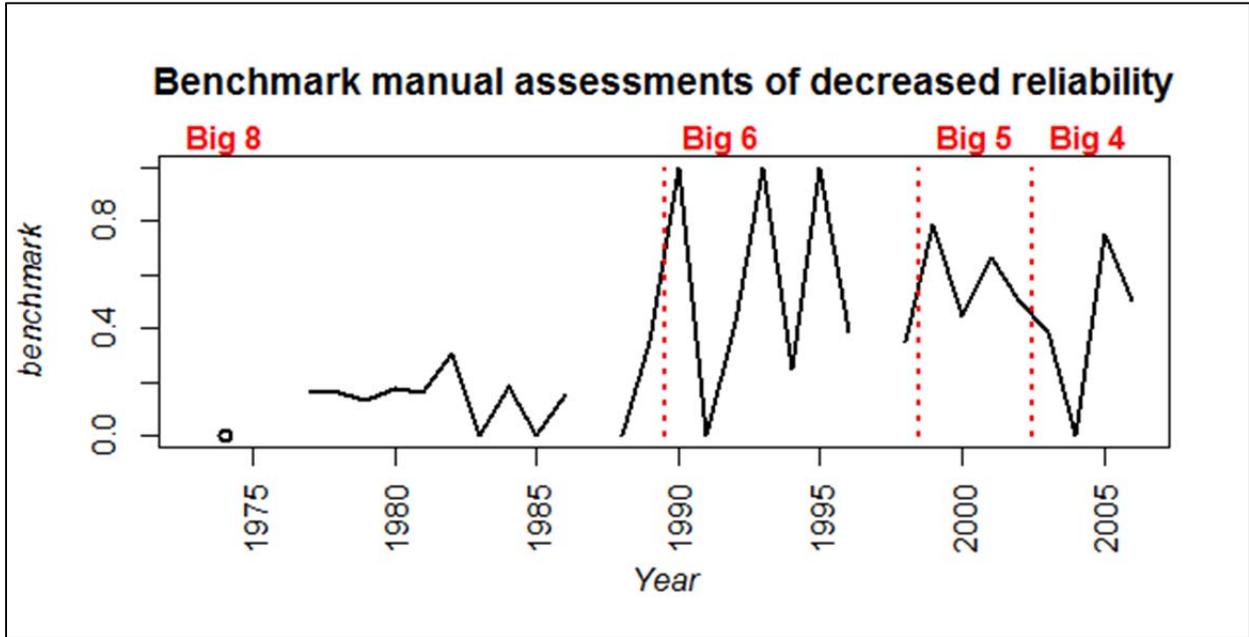


Figure 3:

Average growth versus recession macroeconomic trends by year

The sample is based on 149 exposure drafts issued between 1973 and 2006. *macro_growth* is a binary variable set equal to one for exposure drafts (EDs) issued during a period of economic growth, as defined by the NBER, and zero for EDs issued during a period of economic contraction. See Section 3.4 for details.

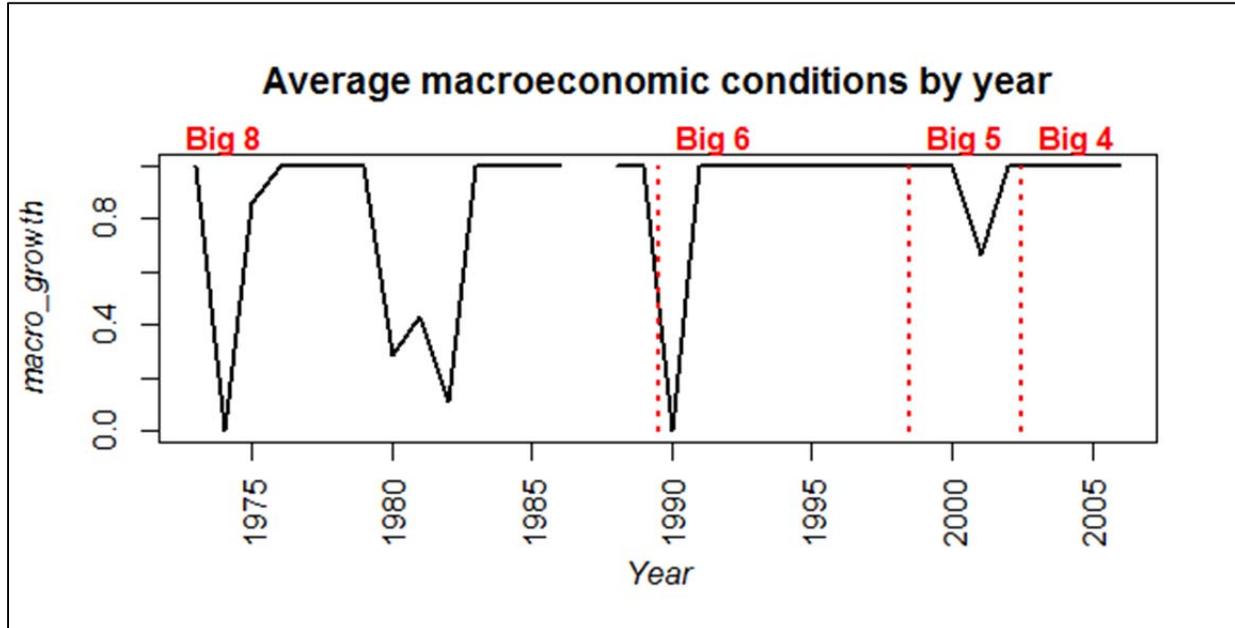


Figure 4:
Average value-weighted market returns by year

The sample is based on 149 exposure drafts issued between 1973 and 2006. *market_ret* is the annual value-weighted market return for the 12 months directly preceding the month in which an ED was issued. See Section 3.4 for details

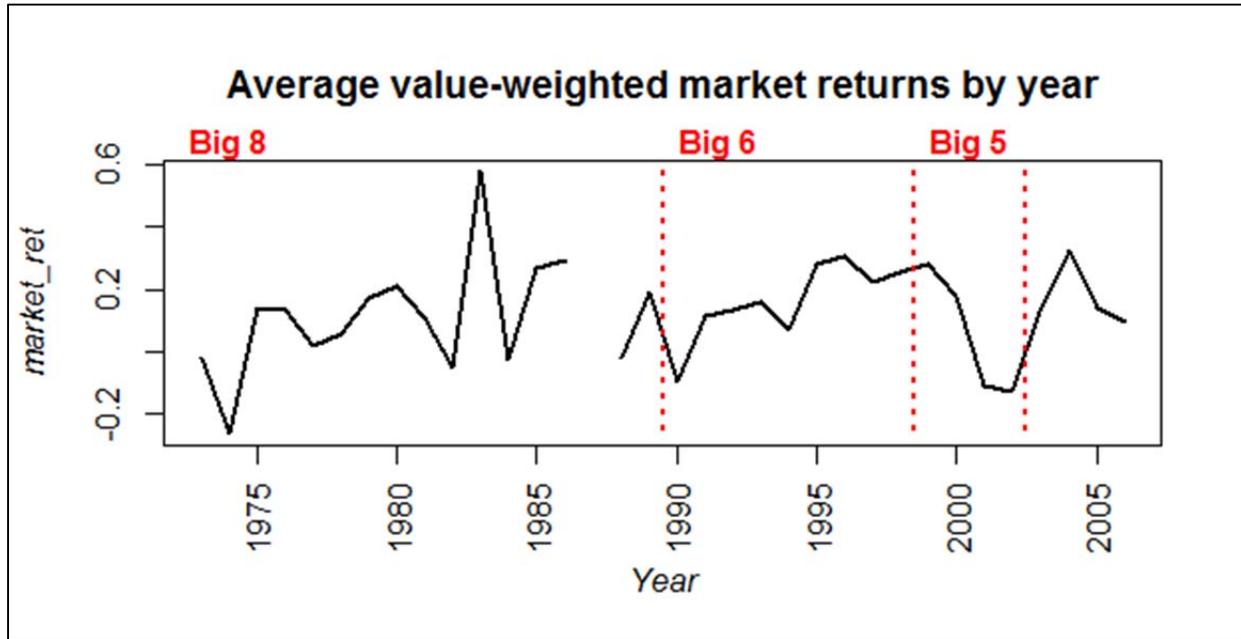


Figure 5:

Proportion of proposed standards issued that increase the use of fair values

The sample is based on 126 exposure drafts issued between 1973 and 2006. *fair_value* is a binary variable which takes a value of one for EDs determined by independent research assistant evaluation to increase the use of fair values. See Section 3.4 for details.

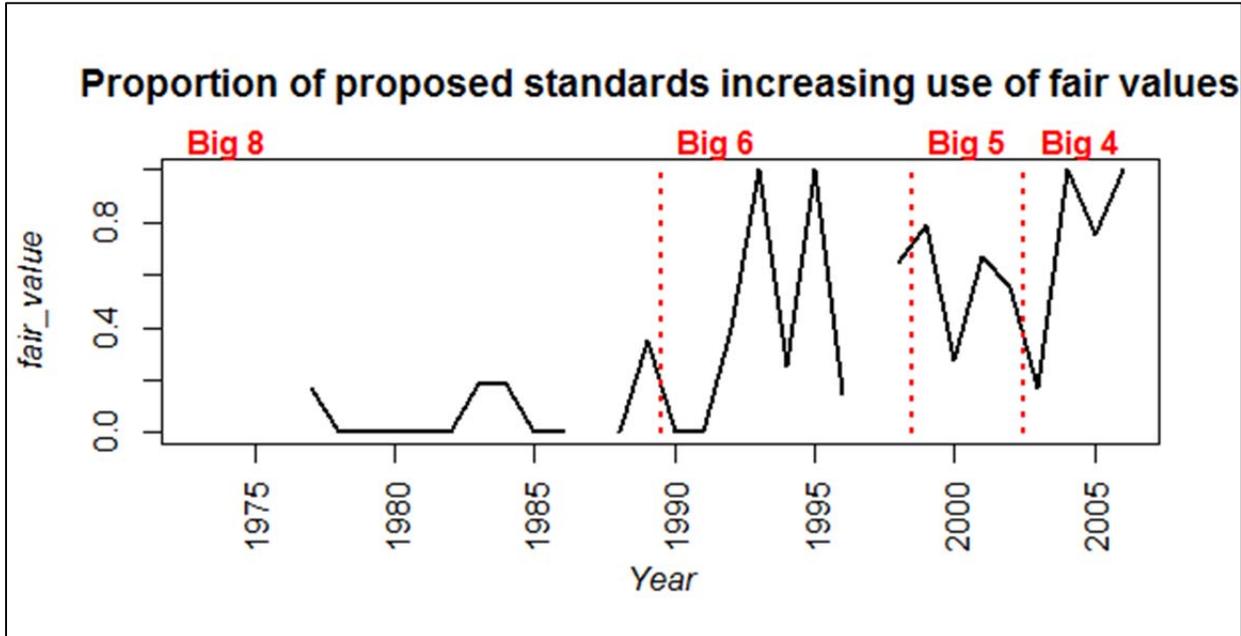


Figure 6:

Proportion of FASB members most recently employed in financial services

The sample is based on 149 exposure drafts issued between 1973 and 2006. *pct_fin_fasb* is an ED-level measure of the proportion of extant FASB members with most recent former employ in financial services. See Section 3.4 for details.

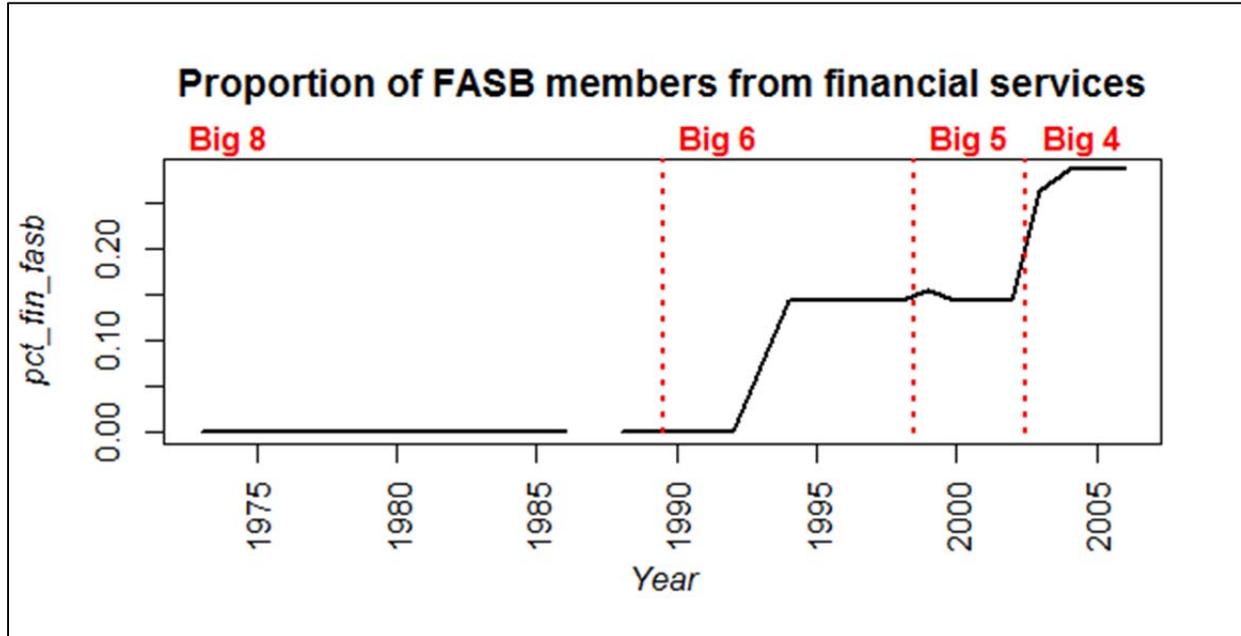


Table 1:
Evolution of the “Big N” audit oligopoly: From the Big 8 to the Big 4 audit firms.

Era	Big 8	Big 6	Big 5	Big 4
Period	1973-1989	1989-1998	1998-2002	2002-2007
Audit Firms	Arthur Andersen	Arthur Andersen	Arthur Andersen	
	Arthur Young Ernst & Whinney/ Ernst & Ernst	Ernst & Young	Ernst & Young	Ernst & Young
	Touche Ross Deloitte, Haskin & Sells	Deloitte Touche	Deloitte Touche	Deloitte Touche
	Peat Marwick Coopers Lybrand Price Waterhouse	KPMG Coopers Lybrand Price Waterhouse	KPMG PwC	KPMG PwC

Table 2:**Inventory of Big N auditor comment letter and FASB exposure draft availability**

The sample is based on 126 exposure drafts issued between 1973 and 2006 on which the Big N auditors filed comment letters and for which we were able to obtain copies of the original exposure draft from the FASB archives.

Era	Big 8	Big 6	Big 5	Big 4	Total
Period	1973-1989	1989-1998	1998-2002	2002-2006	
EDs issued	109	33	13	15	170
EDs without Big N comment letters	16	3	0	2	21
Initial Sample					
<i>EDs</i>	93	30	13	13	149
<i>SFAS</i>	100	28	10	19	157
<i>Comment Letters</i>	615	173	70	50	908
EDs unavailable for manual review	23	0	0	0	23
Final Sample					
<i>EDs</i>	70	30	13	13	126
<i>SFAS</i>	76	28	10	19	133
<i>Comment Letters</i>	487	167	70	50	774

Table 3:**Summary statistics for Big N auditor and research assistant evaluations of decreased “reliability” in proposed standards**

The sample is based on 126 exposure drafts issued between 1973 and 2006. *dec_relb_aud* is an assessment that a proposed SFAS will decrease accounting “reliability” as expressed by the Big N auditors in their comment letters. *benchmark* is an assessment that a proposed SFAS will decrease “reliability” as determined by two independent reviewers. See Section 3.1 for details.

Variable	Mean	Med	S.D.	Max	Min	n
<i>dec_relb_aud</i>						
<i>Big 8</i>	0.04	0	0.16	0.98	0	487
<i>Big 6</i>	0.10	0	0.26	0.98	0	167
<i>Big 5</i>	0.23	0	0.36	0.94	0	70
<i>Big 4</i>	0.27	0	0.39	0.99	0	50
<i>Total</i>	0.08	0	0.24	0.99	0	774
<i>benchmark</i>						
<i>Big 8</i>	0.16	0	0.37	1.00	0	487
<i>Big 6</i>	0.46	0	0.50	1.00	0	167
<i>Big 5</i>	0.60	1	0.49	1.00	0	70
<i>Big 4</i>	0.46	0	0.50	1.00	0	50
<i>Total</i>	0.29	0	0.50	1.00	0	774

Table 4:
Summary statistics for potential control variables

The sample is based on 126 exposure drafts issued between 1973 and 2006. *macro_growth* is a binary variable set equal to one for exposure drafts (EDs) issued during a period of economic growth, as defined by the NBER, and zero for EDs issued during a period of economic contraction; *market_ret* is the annual value-weighted market return for the 12 months directly preceding the month in which an ED was issued. *fair_value* is a binary variable which takes a value of one for EDs determined by independent research assistant evaluation to increase the use of fair values. *pct_fin_fasb* is an ED-level measure of the proportion of extant FASB members with most recent former employ in financial services. See Section 3.4 for details.

Variable	Mean	Med	S.D.	Max	Min
<i>macro_growth</i>	0.78	1.00	0.41	1.00	0.00
<i>market_ret</i>	0.13	0.11	0.18	0.67	-0.31
<i>fair_value</i>	0.20	0.00	0.40	1.00	0.00
<i>pct_fin_fasb</i>	0.05	0.00	0.08	0.29	0.00

Table 5:

Construct validity tests: Average auditor litigation era coefficients from an OLS regression from *dec_relb_aud* on *benchmark* assessments of decreased reliability

The sample is based on 126 exposure drafts issued between 1973 and 2006. *dec_relb_aud* is an assessment that a proposed SFAS will decrease accounting “reliability” as expressed by the Big N auditors in their comment letters. *benchmark* is an assessment that a proposed SFAS will decrease “reliability” as determined by two independent reviewers. See Section 3.1 for details. Regression structure includes year fixed effects and interacts *benchmark* with year dummies to allow variation across the intercept and slope estimates by year. Average era coefficients and heteroskedastic robust standard errors are obtained using linear combination as detailed in Section 3.2. See Section 3.3 for detail on auditor litigation eras. ***, **, and * denote statistical significance at the 99%, 95%, and 90% confidence levels, respectively.

<i>Auditor litigation era</i>			<i>Foreseability</i>	<i>Known Users</i>	<i>SOX</i>
1977-1983	<i>Privity</i>	-0.03 ***	0.34 ***	0.22 ***	0.37 ***
1984-1992	<i>Foreseability</i>	0.31 ***		-0.12 *	0.03
1993-2002	<i>Known Users</i>	0.18 ***			0.16 *
2003-2006	<i>SOX</i>	0.34 ***			
		(1)	(2)	(3)	(4)

Table 6:

Average Big N audit era coefficients from an OLS regression from *dec_relb_aud* on *benchmark* assessments of decreased reliability

The sample is based on 126 exposure drafts issued between 1973 and 2006. *dec_relb_aud* is an assessment that a proposed SFAS will decrease accounting “reliability” as expressed by the Big N auditors in their comment letters. *benchmark* is an assessment that a proposed SFAS will decrease “reliability” as determined by two independent reviewers. See Section 3.1 for details. Regression structure includes year fixed effects and interacts *benchmark* with year dummies to allow variation across the intercept and slope estimates by year. Average era coefficients and heteroskedastic robust standard errors are obtained using linear combination as detailed in Section 3.2. ***, **, and * denote statistical significance at the 99%, 95%, and 90% confidence levels, respectively.

<i>Big N audit era</i>			<i>Big 6</i>	<i>Big 5</i>	<i>Big 4</i>
1973-1989	<i>Big 8</i>	0.09 ***	0.05	0.15 **	0.25 ***
1990-1998	<i>Big 6</i>	0.14 ***		0.10	0.20 **
1999-2002	<i>Big 5</i>	0.24 ***			0.10
2003-2006	<i>Big 4</i>	0.34 ***			
		(1)	(2)	(3)	(4)

Table 7:

Tests of alternative explanations: Coefficients from an OLS regression from *dec_relb_aud* on *benchmark* assessments of decreased reliability

The sample is based on 126 exposure drafts issued between 1973 and 2006. *dec_relb_aud* is an assessment that a proposed SFAS will decrease accounting “reliability” as expressed by the Big N auditors in their comment letters. *benchmark* is an assessment that a proposed SFAS will decrease “reliability” as determined by two independent reviewers. See Section 3.1 for details. Regression structure includes year fixed effects and interacts *benchmark* with year dummies to allow variation across the intercept and slope estimates by year. Average era coefficients are calculated over years of “high” versus “low” *macro_growth*, *market_ret*, *fair_value* and *pct_fin_fasb* using linear combination as detailed in Section 3.2 and 3.4. *macro_growth* is a binary variable set equal to one for exposure drafts (EDs) issued during a period of economic growth, as defined by the NBER, and zero for EDs issued during a period of economic contraction; years are denoted as “growth” if the mean value of *macro_growth*>.5 and “recession” otherwise. *market_ret* is the annual value-weighted market return for the 12 months directly preceding the month in which an ED was issued; years are denoted as “positive” if the mean value of *market_ret*>0 and “negative” otherwise. *fair_value* is a binary variable that takes a value of one for EDs determined by independent research assistant evaluation to increase the use of fair values; years are denoted as “No FV” if *fair_value*=0 for all EDs proposed during that year and “FV increasing” otherwise. *pct_fin_fasb* is an ED-level measure of the proportion of extant FASB members with most recent former employ in investment banking/ investment management; years are denoted as “Financial FASB” if *pct_fin_fasb*>0 and “No Financial FASB” otherwise. Standard errors are heteroskedastic-robust. ***, **, and * denote statistical significance at the 99%, 95%, and 90% confidence levels, respectively.

Panel A: <i>macro_growth</i>		Panel B: <i>market_ret</i>	
	<i>Recession</i>		<i>Negative</i>
<i>Growth</i>	0.17 ***	0.00	<i>Positive</i>
<i>Recession</i>	0.17 ***		<i>Negative</i>
	(1)	(2)	
			(1)
			(2)
Panel C: <i>fair_value</i>		Panel D: <i>pct_fin_fasb</i>	
	<i>No FV</i>		<i>No Fin FASB</i>
<i>FV increasing</i>	0.25 ***	-0.29 ***	<i>Fin FASB</i>
<i>No FV</i>	-0.03 ***		<i>No Fin FASB</i>
	(1)	(2)	
			(1)
			(2)

Table 8:

Average Big N audit era coefficients from an OLS regression from *dec_relb_aud* on *benchmark* assessments of decreased reliability, after controlling for alternative explanations

The sample is based on 126 exposure drafts issued between 1973 and 2006. *dec_relb_aud* is an assessment that a proposed SFAS will decrease accounting “reliability” as expressed by the Big 8/6/5/4 auditors (hereafter “Big N auditors”) in their comment letters. *benchmark* is an assessment that a proposed SFAS will decrease “reliability” as determined by two independent reviewers. See Section 3.1 for details. Regression structure includes year fixed effects and interacts benchmark with year dummies to allow variation across the intercept and slope estimates by year. Control variables *fair_value*, *fair_value*benchmark*, *pct_fin_fasb* and *pct_fin_fasb*benchmark* were also included in regression. *fair_value* is a binary variable which takes a value of one for EDs determined by independent research assistant evaluation to increase the use of fair values. *pct_fin_fasb* is an ED-level measure of the proportion of extant FASB members with most recent former employ in financial services. Average era coefficients and heteroskedastic robust standard errors are obtained using linear combination as detailed in Section 3.2. ***, **, and * denote statistical significance at the 99%, 95%, and 90% confidence levels, respectively.

<i>Big N audit era</i>			<i>Big 6</i>	<i>Big 5</i>	<i>Big 4</i>
1973-1989	<i>Big 8</i>	0.08	0.38 **	0.60 ***	1.14 ***
1990-1998	<i>Big 6</i>	0.46 ***		0.22 **	0.76 **
1999-2002	<i>Big 5</i>	0.68 **			0.54 ***
2003-2006	<i>Big 4</i>	1.22 ***			
		(1)	(2)	(3)	(4)