The existence and effect of competition in the audit market: Evidence from the bidding process

Nicholas J. Hallman*
Assistant Professor of Accounting
University of Texas at Austin
McCombs School of Business
Nicholas.Hallman@mccombs.utexas.edu

Antonis Kartapanis
Doctoral Candidate
University of Texas at Austin
McCombs School of Business
Antonis.Kartapanis@mccombs.utexas.edu

Jaime J. Schmidt
Associate Professor of Accounting
University of Texas at Austin
McCombs School of Business
Jaime.Schmidt@mccombs.utexas.edu

June 2019

*Corresponding author

The existence and effect of competition in the audit market:
Evidence from the bidding process

ABSTRACT: Prior research provides mixed evidence about whether sufficient audit market competition exists and whether competition impairs or improves audit quality. A major impediment of this stream of research is the unobservable nature of the bidding process by which auditors compete for clients. In this study, we use non-incumbent (i.e., competitor) auditor views of public companies' SEC filings to measure competitive bidding and investigate its association with audit quality, audit pricing, and audit market concentration. We first validate that our measure of bidding captures competition by documenting that competitor auditors' views of companies' SEC filings significantly increase during the three months prior to an auditor change announcement. Then, inconsistent with concerns that competitive pressure causes auditors to placate managers, we find that competitive bidding is associated with an *improvement* in audit quality by incumbent auditors, as measured by the likelihood to subsequently restate the financial statements. We also find that competitive bidding constrains incumbent auditors' ability to increase audit fees. Finally, consistent with concerns that market concentration impedes competition, we find that less bidding occurs in *industry*-concentrated markets. However, contrary to conclusions in the prior literature, we find no evidence that *local* market concentration is associated with competitive bidding.

Key words: Auditor competition, audit market concentration, audit quality, audit fees

Data Availability: All data is publicly available from sources identified in the study.

The existence and effect of competition in the audit market:
Evidence from the bidding process

I. INTRODUCTION

Regulators have expressed a long-standing concern that the United States audit market could lack sufficient competition due to high market concentration (e.g., GAO 2003; ACAP 2008; GAO 2008). High market concentration could limit a company's choice of auditor and thereby constrain price competition and foster complacency among incumbent auditors. Alternatively, high market concentration could facilitate a high-quality audit by reducing a company's ability to replace their incumbent auditor with another who will provide a more favorable (i.e., lenient) audit opinion. Perhaps because it is difficult to directly measure competition, the extant research provides conflicting evidence on whether sufficient competition exists and whether competition impairs or improves audit quality. Some studies find that a higher level of audit market concentration is associated with higher audit fees and lower audit or financial reporting quality (e.g., Bandyopadhyay and Kao 2004; Francis, Michas, and Seavey 2005; Boone, Khurana, and Raman 2012; Eshleman and Lawson 2017). Other studies document that concentration is negatively associated with fees (Pearson and Trompeter 1994) and that a lower level of audit market concentration enables opinion-shopping by clients (Newton, Wang, and Wilkins 2013; Newton, Persellin, Wang, and Wilkins 2016).

While informative, the conclusions from these previous studies are limited by an inability to directly measure competition among auditors. Some studies note this limitation by stating that their measure of audit market *concentration* is not necessarily equivalent to audit market *competition* (i.e., Boone et al. 2012). In contrast, other studies assume that audit market concentration measures competition and use the two words interchangeably (e.g., Newton et al.

2013; Newton et al. 2016). In their seminal review of the audit archival literature, DeFond and

Zhang (2014) conclude that, ultimately, "the relation between audit market concentration and

competition is unclear" (p. 311).

Rather than rely on market concentration to measure auditor competition, we use non-

incumbent (i.e., competitor) auditor views of public company SEC filings to identify competitive

bidding for prospective clients. Our measure of competitive bidding relies on the assumption

that, as part of their due diligence when preparing to submit a bid for an audit engagement,

competing auditors download and review historical financial filings of the target client.[1] Using

the public disclosure of the internet protocol (IP) address associated with each download from

the SEC's electronic data gathering, analysis, and retrieval (EDGAR) system, we track the

frequency with which each Big 4 auditor views the filings of its competitors' (i.e., other Big 4

auditors') clients.[2] We validate that our measure of bidding represents auditor competition by

showing that, during the three months prior to an auditor change announcement, there is a three-

fold increase in the number of views of the announcing company's SEC filings by non-

incumbent Big 4 auditors. In addition, we show that the views of losing audit firms decrease to

baseline levels immediately following a company's auditor change announcement, while the

winning audit firm's views remain elevated.

Our measure of competitive bidding has several advantages over the market share

concentration measures of competition used in prior studies. First, market share is measured at

the market level (often by city or metropolitan statistical area) and is sticky over time. In

---

[1] We have confirmed this assumption with numerous audit partners at the Big 4 auditing firms.
[2] We examine competition among the Big 4, rather than between the Big 4 and non-Big 4, because it is rare for clients to change from a Big 4 to a non-Big 4 auditor and because the Big 4 audit firms conduct a large majority of audits for accelerated and large accelerated filers in the United States. In addition, EDGAR views of Big 4 auditors can be more easily (and cleanly) identified as they are more likely to register large blocks of consecutive IP addresses (see Section III for further discussion).

3

contrast, we measure competition at the individual *client* level on a monthly basis. This cross-sectional and time-series variation allows us examine auditor behavior during periods of acute competitive pressure.

Second, to calculate market concentration one must first define the relevant market. For concentration to result in low levels of competition, the boundaries of the market must be characterized by high barriers to entry. Otherwise, competitors will be disciplined by the threat of new entrants regardless of the measured level of concentration. In the audit setting, the best way to define the market is not obvious ex-ante.[3] Because we observe EDGAR views without regard to predefined market boundaries, we avoid making assumptions about (and, in fact, can test) which market features pose significant barriers to entry for Big 4 auditors. To this end, we investigate whether local or industry concentration limits competitive bidding. We find that *industry*-market concentration, but not *local*-market concentration, is significantly and inversely associated with competitive bidding. This finding is important because, in contrast to the assumptions of prior research, it illustrates that geographic market boundaries do not necessarily constrain Big 4 auditor competition. However, consistent with regulatory concerns, our findings also indicate that competition may be lacking when one or two auditors service the majority of clients in an industry.

Using our new measure, we then investigate whether competitive pressure causes incumbent auditors to appease their clients by providing a more lenient audit. Prior research has examined whether companies that switch auditors receive more favorable audit opinions (i.e.,

---

[3] Numerous prior studies have relied on the assumption that highly concentrated *local* markets present high barriers to entry and thus reduce competition (see DeFond and Zhang 2014 for a review). However, the Big 4 rely heavily on their *national* reputation and several studies suggest that auditors routinely conduct audits for non-local clients (Choi, Kim, Qiu, and Zang 2012; Francis, Golshan, and Hallman 2018). Thus, the absence of a pre-existing presence in a local audit market may not present a significant barrier to entry for Big 4 auditors.

opinion shopping) or lower audit fees (i.e., lowballing) from their *new* auditors. However, because bids are not typically made public unless they result in a change in auditors, little is known about the behavior of *incumbent* auditors who *retain* their clients after a competitive bidding process. Unlike the prior literature, our measure enables us to examine audit quality and pricing in cases where the incumbent auditor wins reappointment. Contrary to concerns about auditor independence, we find that, on average, competitive bidding is associated with *improved* audit quality by the incumbent auditor, as measured by the likelihood of a misstatement in the audited financial statements. We also find that, on average, competitive bidding is associated with a lower fee increase in the following year by incumbent auditors. Combined, our results suggest that competition among auditors promotes both audit effectiveness and efficiency.

In summary, our study provides a more direct method of measuring auditor competition than the measures documented in the prior literature. We also provide evidence on the relationship between audit market concentration, competition, pricing, and quality. Contrary to regulatory concerns, we find that competition among Big 4 auditors exist even within concentrated local markets and that such competition improves audit quality while also constraining audit fee increases. However, consistent with regulatory concerns, we find that industry concentration limits competition. Our findings should be relevant to policy-makers and encourage them to examine whether clients who desire an industry specialist auditor have enough auditors from which to choose.

II. BACKGROUND AND HYPOTHESES DEVELOPMENT

II.a Regulatory concern about lack of audit market competition

Audit market concentration and its effect on competition has long been a concern of policy makers and regulators (U.S. Congress 1977; GAO 2003; The American Assembly 2005; GAO 2008; European Commission 2010; Moulds and Feeney 2013). The concern is that publicly traded companies, who are required by regulation to obtain a financial statement audit, may have little choice in audit provider. A lack of auditor choice could result in less competition and allow auditors to use their market power to extract higher fees. If auditors know that audit committees have few options, they could become complacent and provide a lower quality audit (knowing they will not have to compete on quality). On the other hand, intense competition between auditors could enable client opinion shopping or give clients the ability exert undue pressure on their incumbent auditors, potentially violating auditor independence.

While audit market concentration has been a concern as early as the 1970s (U.S. Congress 1977), the concern persists and may be stronger today for several reasons. First, mergers in the 1980s and 1990s and the collapse of Arthur Andersen in 2001 reduced the number of "Big N" auditors from eight to four. Today, ninety-eight percent of the U.S. market capitalization is audited by the Big 4 (ACAP 2008; GAO 2008). While other non-Big 4 auditors exist, many of these smaller auditors either do not wish to audit publicly traded companies or are not desired by publicly traded clients due to an existing Big 4 reputational advantage (GAO 2008). As a result, large publicly traded companies may only have a choice of four auditors. In addition, the Sarbanes-Oxley Act of 2002 (SOX) banned accounting firms from providing several types of non-audit services to clients for which they also provide a financial statement audit (U.S. House of Representatives 2002). Thus, if a client wishes to hire a Big 4 auditor for

6

SOX-prohibited non-audit services, the choice of auditor becomes further limited. Some clients may also prefer an industry expert auditor, which further limits their options.

II.b Prior research

Given regulators' concerns about the potential lack of auditor competition in the concentrated U.S. market, prior academic research has examined the effect of audit market concentration on audit fees and audit quality. However, this research has produced mixed results. Some studies find that greater market concentration improves audit quality by discouraging client opinion shopping (Newton et al. 2016) and increasing auditor expertise following firm mergers (Gong et al. 2016; Choi, Kim, and Raman 2017). On the other hand, Boone et al. (2012) find that market concentration is associated with greater auditor tolerance for client earnings management and Francis et al. (2013) show that Big 4 clients have lower quality earnings in countries with higher concentration within the Big 4 auditor group.

With respect to audit price, Pearson and Trompeter (1994) find that higher levels of concentration are associated with greater price competition and Simunic (1980) finds that price competition exists regardless of the Big N's market share. However, Eshleman and Lawson (2017) find that market concentration is associated with higher audit fees and lower initial fee discounts. Bandyopadhyay and Pao (2004) find that market concentration is positively associated with non-Big N audit fees but unrelated to Big N audit fees. In sum, prior research both supports and refutes regulators' concerns that high audit market concentration results in an uncompetitive market that detrimentally affects the price and quality of audits.

One limitation of the prior studies is their inability to directly observe auditor competition. Rather, the studies measure audit market concentration with the implicit assumption that concentration should affect competition. However, DeFond and Zhang (2014) note that the

relationship between audit market concentration and competition is unclear. Moreover, because concentration must be measured at the market level, it represents (at best) a very coarse measure of competition. Our study differs from the prior literature by measuring the competitive bidding process for *individual* clients. By measuring competitive bidding at the individual client-level, we can separately investigate the association between (1) audit market concentration and Big 4 auditor competition and (2) Big 4 auditor competition and the quality and price of public company audit engagements.

II.c Hypothesis Development – Concentration and Competitive Bidding

Market concentration can reduce competition only if the boundaries of the market are characterized by high barriers to entry. Otherwise, competitors in even highly concentrated markets will be disciplined by the threat of new entrants. In the audit market setting, the best way to define the market is not obvious ex-ante. Most prior studies define audit markets based on geographic region (e.g., Boone et al. 2012; Newton et al. 2016). If auditors compete primarily within local markets, then auditor competition may indeed be weaker when local markets are highly concentrated. However, prior research documents that auditors often service non-local clients, suggesting that a significant number of auditors compete outside of their local markets (Choi et al. 2012; Francis et al. 2018). Moreover, auditors' industry expertise is an important determinant of audit quality, and such expertise is valued by the market (e.g., Craswell, Francis, and Tylor 1995). Mayhew and Wilkins (2003) find that industry specialists with a significant market share above the next industry competitor obtain fee premiums. Thus, if some industries are dominated by one or two Big-4 auditors, it may be difficult for other Big 4 auditors to compete for clients in that industry. Because it is unclear whether auditors compete within or across geographical regions and industries, we state our first set of hypotheses in null form:

H1a: Local-level audit market concentration is not associated with the amount of competitive bidding.

H1b: Industry-level audit market concentration is not associated with the amount of competitive bidding.

II.d Hypothesis Development – Competitive Bidding and Audit Quality

In a typical market, customers purchase the highest quality product available at a given price. Competition in such a market drives up quality as competitors attempt to win additional customers. However, the audit market is unique because a company's management may not desire a high-quality audit. Prior research finds that more competition (as measured by less audit market concentration) results in audit opinion shopping by clients (Newton et al. 2016) and greater amounts of earnings management (Boone et al. 2012). That said, post-SOX, independent audit committees are charged with hiring the financial statement auditor. If audit committees prioritize audit quality, auditors should be forced to compete on quality. Consistent with this possibility, all Big 4 auditors issue reports that market their commitment to audit quality.[4] Given the competing theoretical predictions (and the mixed findings of prior research), we state our second hypothesis is null form:

H2: Competitive bidding is not associated with audit quality.

II.e Hypothesis development – Competitive Bidding and Audit Pricing

Intuition and standard economic theory suggest that greater competition should reduce audit fees. Thus, it is not surprising that prior research shows that auditors often "lowball" their bids for initial audit engagements and subsequently raise audit fees when the client relationship is established and the cost of switching auditors is high (DeAngelo 1981; Eshleman and Lawson

---

[4] See for example: http://www.ey.com/us/en/services/assurance/ey-our-commitment-to-audit-quality-2017-report or https://www.pwc.com/us/en/audit-assurance-services/audit-quality-report.html

2017). Low balling by competitor auditors could affect the incumbent auditor's fees even when the incumbent auditor is successful at retaining the client. By soliciting bids from competing auditors, some of which will likely include "lowball" offers, clients may attempt to pressure their current auditor to reduce audit fees.

However, mixed empirical findings on the relationship between audit market concentration and audit pricing, along with regulator concerns about high market concentration, suggest that existing competition may not be great enough to significantly affect audit fees. It is possible that audit committees put audits out for bid to comply with corporate bylaws or to give the appearance of active governance, without intending to change auditors. A bidding process that is not credible is unlikely to have a significant effect on fees if the incumbent auditor does not feel threatened. Moreover, high switching costs may protect incumbent auditors from competitors because any savings in audit fees offered by a new auditor must outweigh switching costs in order to induce a company to change auditors. Consistent with this line of reasoning, auditor changes within the U.S. are infrequent (GAO 2003), suggesting that competing auditors either do not frequently bid for clients or they are not often successful at winning the audit engagement. Thus, whether competitive bidding among Big 4 auditors has a significant effect on audit pricing is an empirical question and we state our final hypothesis in null form:

H3: Competitive bidding is not associated with audit pricing.

III. MEASURING AUDITORS' COMPETITIVE BIDDING

III.a Using EDGAR Views to Measure Competitive Bidding

Our discussions with Big 4 partners reveal that, in performing their due diligence before submitting a bid to a prospective client, auditors evaluate the prospective client's riskiness and complexity by reviewing its historical financial filings. In the absence of direct access to

companies' financial reports, non-incumbent Big 4 auditors likely access those documents through SEC's EDGAR database.[5] We use the SEC's public disclosure of the IP address associated with each EDGAR search to identify how often each Big 4 auditor views the financial filings of its competitors' clients (i.e., the other Big 4 auditors).

To identify the EDGAR views of competing Big 4 auditors, we follow a process similar to Drake, Lamoreaux, Quinn, and Thornock (2018). We first requested access to the log file of the American Registry of Internet Numbers' (ARIN) WHOIS database and extracted IP addresses registered by the Big 4 auditors.[6] We also obtained the daily EDGAR log files from 2004 to September 2016 from the SEC's website.[7] This database tracks all visits to the SEC's EDGAR website and includes, among other things, the user's IP address, information about which SEC filing was viewed (i.e., 10K, 10Q, etc.), the filer's CIK, as well as the date and the time the user viewed the file.[8] To identify Big 4 auditor views, we match Big 4 auditor IP addresses, obtained from ARIN, with the IP addresses listed in the EDGAR database. Although we cannot observe the full IP address in the EDGAR database (the SEC replaces the last 3 digits of IP addresses with letters to protect users' privacy), Big 4 auditors often register large blocks of sequential IP addresses, making the last 3 digits irrelevant for matching purposes. For example,

---

[5] It is possible that Big 4 auditors visit individual companies' webpages to access historical filings. We believe the use of SEC's EDGAR database is a more common practice given that it reduces the search cost (i.e., the auditors are already familiar with the interface and can thus access documents more efficiently.) Anecdotally, through discussions with several Big 4 audit partners, we have confirmed that auditors do routinely use the SEC's EDGAR system to access financial filings for non-clients. More importantly, auditors' propensity to use sources other than EDGAR to access financial filings target companies during the audit bidding process biases against our ability to document significant findings.

[6] The database is publicly available at https://whois.arin.net, but the search functionality is limited. For example, results from searching for "Deloitte" exclude "Deloitte Services" and "Deloitteandtouche" both of which are organizational identities related to Deloitte.

[7] The database is publicly available at https://www.sec.gov/dera/data/edgar-log-file-data-set.html.

[8] Similar to Drake et al. (2018) we remove views to index, xml, and paper pages. We also exclude views of files that are smaller than 500 bytes and views associated with pictures (such as png files).

Deloitte owns a block of 255 IP addresses ranging from 198.79.49.0 to 198.79.49.255[9]; simply

knowing that there was a view on EDGAR from an IP address starting with 198.79.49. is

sufficient to assign the view to Deloitte. In cases where the Big 4 auditor does not own all IP

addresses in the 255 IP address block, matching on IP addresses that exclude the last 3 digits

adds noise to our measure and, if anything, biases our analysis against documenting significant

results.[10]

A potential issue with SEC EDGAR views is that they may relate to "bot" activity (i.e.,

Big 4 algorithms collecting all EDGAR filings) rather than human views. To reduce noise in our

measurement of competitive bidding, we attempt to remove bot views through a series of

screens. We begin by assuming that an IP address is primarily related to human users if more

than 80 percent of the EDGAR activity for that IP address occurs during working hours (which

we define as 8:00 a.m. to 7:59 p.m.).[11] We include all views from such IP addresses in our final

measures of competitive bidding. If less than 80 percent of the EDGAR activity for any given IP

address takes place during working hours, we apply the following additional screens. We first

calculate the number of views per minute. If there are more than 20 views per minute from the

same IP address, we consider that to be excessive usage which is likely caused by automated

crawling of the SEC filings. Thus, we exclude those IP-minute views from our dataset. Further,

if for any given hour there are more than 30 minutes with excessive views, then we exclude those

IP-hour views. The screens we use to remove bot views are admittedly (and necessarily) ad-hoc.

As discussed in Section V, we test the robustness of our results to several alternative screening

---

[9] The last three digits of an IP address can range from 0 to 255.

[10] More than 98 percent of the EDGAR views in our sample come from IP address blocks that are entirely owned by a Big 4 auditor, such that there is no ambiguity about the source of those views.

[11] SEC's EDGAR database records the time of the visit using Eastern time zone. We identify the state in which each IP is registered to obtain time zone information and adjust the time reported on EDGAR's database accordingly.

methods. We also note that, although we do our best to exclude bot views from our measure competitive bidding, failure to exclude all of them simply adds noise to our measure and biases against documenting a significant effect.

For each public company with a Big 4 auditor, we aggregate views by non-incumbent Big 4 auditors at the monthly level to create our primary test variable, *Competitor Views*. Because each of our analyses require views to be measured at different time periods, we use subscripts to denote which months are being measured. For example, *Competitor Views$_{m-1}$* indicates views by competitor auditors during the month prior to month *m*, while *Competitor Views$_{m-2}$* indicates views by competitor auditors two months prior to month *m*.

III.b Validating Competitor Views as a Measure of Competitive Bidding

To validate *Competitor Views* as a measure of competitive bidding, we examine the monthly time-series of views preceding auditor change announcements. If *Competitor Views* capture competitive bidding, we should observe an increase in views during the months leading up to announced auditor changes, when audit committees solicit bids and competing auditors prepare their bids.[12] We use the filing date of the 8-K announcing the engagement of a new auditor as a proxy for when the auditor change decision was made by the board. The SEC requires firms to file an 8-K within four days of deciding to engage a new auditor, so the 8-K filing date provides a reasonable proxy for the date when the new auditor is selected.

---

[12] Companies typically select new auditors by soliciting competitive bids from an invited group of audit firms and discuss this process in their auditor change announcements. For example, the following is an excerpt from a recent auditor change announcement by Motorola, "The Audit Committee of the Board of Directors (the "Audit Committee") of Motorola Solutions (the "Company") appointed a committee comprised of the Chair of the Audit Committee, the Company's Chief Financial Officer, and the Company's Chief Accounting Officer (the "Executive Committee") to conduct a competitive process to select a firm… and invited each of the "Big Four" accounting firms, including KPMG LLP, to participate in this process."

To ensure that increases in *Competitor Views* prior to auditor change announcements are not attributable to increased usage of SEC EDGAR in general, we compare observations that announce an auditor change in month m with two benchmark groups: (1) all observations in our sample and (2) a matched sample of control observations without an auditor change. To construct the matched sample, for each observation with an auditor change announcement in month m, we identify a control observation that does not announce an auditor change in month m but which (1) has the same fiscal year end, (2) is in the same industry, and (3) is headquartered in the same Core-Based Statistical Area. If there are multiple potential matches meeting these criteria, we use the one that is closest in total assets. Observations for which no match can be found are excluded from the analysis.

Table 2 shows the twelve-month (m-12 through m-1) time-series of *Competitor Views* for all three groups. Importantly, on average, companies that announce an auditor change in month m have a similar number of views to the set of matched controls at the beginning of the time-series (i.e., months m-12 through m-9). However, companies that announce an auditor change in month m receive nearly three times as many *Competitor Views* in m-1 than companies in the matched sample. Figure 1 depicts this pattern graphically. The shaded area around each line represents a 95 percent confidence interval. Together, Table 2 and Figure 1 illustrate that there is a significant increase in *Competitor Views* during the time period prior to an auditor change announcement.

To provide further evidence that *Competitor Views* capture competitive bidding, we examine *Competitor Views* for the ex-post determined winners and losers of bidding process. If *Competitor Views* at companies that announce an auditor change are driven by competitive bidding, then we expect the views of losing auditors to fall back to their baseline level as soon as it becomes clear that they are no longer in contention. By contrast, we expect the views of the

winning auditor to remain elevated after the bidding process has concluded as they prepare to take over the audit.

Table 3 shows the twelve-month (*m*-9 through *m*+3, excluding *m*) time-series of *Competitor Views* separately for the ex-post determined winning and losing auditors for companies that announce an auditor change in month *m*.[13] *Competitor Views* for both winning and losing auditors similarly increase during months *m*-4 through *m*-1, before the winning audit firm is determined and announced. However, consistent our belief that *Competitor Views* are driven by the competitive bidding process, views for the losing auditors decline sharply back to the baseline in month *m*+1 while views for the winning auditor remain elevated. Figure 2 depicts this pattern graphically. The shaded area around each line represents a 95 percent confidence interval.

In our final validation test, we examine the relationship between *Competitor Views* and auditor changes in a multivariate setting. Specifically, we fit the following model using logistic regression:

$$Prob.\left(Auditor\ Change_{i,m}\right) \hspace{4cm} \text{(Eq. 1)}$$
$$= \alpha_0 + \alpha_j * Competitor\ Views_{i,m-x} + \alpha_k * Controls_{i,t} + \varepsilon_{i,m}$$

where *Auditor Change$_{i,m}$* is an indicator variable set to 1 if client *i* announces an auditor change in month *m* and zero otherwise. *Competitor Views$_{i,m-x}$* is the natural log of 1 plus non-incumbent

---

[13] Because an 8-K filing announcing the engagement of a new auditor may occur at any point during month *m*, we omit month *m* from Table 3 to avoid ambiguity about whether views in that month occurred before or after the auditor change announcement. Moreover, the sample in Table 3 differs from that in Table 2 for two reasons. First, we do not require a matched control sample in Table 3. Second, because we require forward looking *Competitor Views* for Table 3 and because we only track views for clients of Big 4 auditors, we exclude companies that switch to non-Big 4 auditors. As a result, the number of *Competitor Views* for companies announcing an auditor change differ between Tables 2 and 3 for any given month.

Big 4 auditors' EDGAR views of SEC filings for client i in month m-x, where x is an integer between 1 and 4 (inclusive) such that we include four months of views in the model.[14]

$Controls_{i,t}$ represents a vector of control variables, including variables documented by prior research to be determinants of auditor changes. In Tables 2 and 3 we demonstrate that *Competitor Views* increase prior to announced auditor changes in a manner that is consistent with auditors competing for new clients. However, it is possible that *Competitor Views* also increase around other important events (such as M&A activity or a new SEC filing). To control for events that are unrelated to the competitive bidding process but are likely to create interest in the company and increase EDGAR views, we include *Non-auditor Views* in *Eq. 1*. We define *Non-auditor Views* as all views of a company's SEC filings not attributable to one of the largest 8 auditing firms.[15] We also control for measures of client size (*Company Assets*), age (*Company Age*), profitability (*Return on Assets* and *Loss*), growth (*Growth*), complexity (*Business Segments* and *Geographic Segments*), leverage (*Leverage*), cash flows (*Cash Flows*) and recent M&A activity (*Acquisition*). Because auditors often face capacity constraints during the typical "busy season," we control for whether the client has a calendar year end (*Calendar Year End*). Inventory and accounts receivable sometimes require estimates that involve considerable subjectivity, and managers may attempt to "shop" for an auditor who will sign off on their preferred treatment in these accounts. Thus, we control for the proportion of the company's

---

[14] We include only four months to conserve space and because m-4 is the first month in Table 2 where there is more than a single view difference between companies that announce an auditor change in month m and the matched control sample. Our results are similar if we include twelve months of views instead.

[15] The largest eight audit firms include the Big 4 auditors along with the "mid-tier" audit firms BDO LLP, Grant Thornton LLP, Crowe LLP (formerly known as Crowe Horwath LLP), and RSM LLP (former known as McGladrey LLP). As we discuss in Section III.a, our ability to match EDGAR views to auditors is facilitated by the fact that the Big 4 auditors often register entire blocks of IP addresses. Our ability to match EDGAR views to the mid-tier audit firms is hindered because mid-tier auditors are much less likely to register entire blocks of IP addresses. Our findings are unchanged if we exclude *Non-auditor Views* from our models or if we measure *Non-auditor Views* using all views not attributable to the Big 4 auditors.

assets in inventory and accounts receivable (*Inventory and Receivables)*. We also control for

whether the auditor issued a going concern opinion (*Going Concern Opinion$_{t-1}$*) or material

weakness in internal controls over financial reporting *(Material Weakness $_{t-1}$)* in the prior year, as

prior research indicates that auditors are more likely to be dismissed after issuing such opinions.

Clients that engage the same auditor for an exceptionally short or long period of time may be less

likely to change auditors, so we control for the tenure of the incumbent auditor (*Auditor Tenure*).

Importantly, we also control for audit market concentration. We follow the prior literature

and measure audit market concentration using the Herfindahl Index calculated within each

client's Core-Based Statistical Area (CBSA) and within each client's industry (using the standard

12 Fama-French industries).[16] Also consistent with the prior literature (e.g., Numan and

Willekens, 2012; Newton et al. 2013), we use ranked values of the Herfindahl indexes to

mitigate the effect of extreme values. *Herf. – Local Market* is the quintile rank of the local audit

market Herfindahl index, calculated as the sum of squared market shares (in audit fees) of

auditors in each CBSA-year. *Herf. – Industry Market* is the quintile rank of the industry audit

market Herfindahl index, calculated as the sum of squared market shares (in audit fees) of

auditors within each industry-year.

Prior research also suggests that the difference in market share between competitors can

affect competition (e.g., Numan and Willekens 2012). Following this literature, we control for

the distance in market share between the incumbent auditor and the auditor with the next closest

---

[16] Some prior studies use Metropolitan Statistical Areas (MSAs) instead of CBSAs to define local markets. We choose to use CBSA's because they apply to broader set of geographic areas. The United States Census Bureau defines CBSAs as "the county or counties or equivalent entities associated with at least one core (urbanized area or urban cluster) of at least 10,000 population, plus adjacent counties having a high degree of social and economic integration with the core as measured through commuting ties with the counties associated with the core." MSAs are defined as "CBSAs associated with at least one urbanized area that has a population of at least 50,000." Thus, while all MSAs are also CBSAs, the opposite is not true, and using MSAs restricts the sample to companies and auditors located in large metropolitan areas. In an untabulated robustness test, we confirm that our findings are qualitatively unchanged if we use MSAs to define local markets.

audit fee share. Specifically, *Dist. – Local Market* is the quintile rank of the absolute value of the difference in audit fee share between the incumbent auditor and the auditor with the next closest audit fee share. *Dist. – Industry Market* is defined similarly except that it is based on an auditor's industry market share.

We also control for whether the incumbent auditor is a market leader. In particular, we set *Leader – Local Market (Leader – Industry Market)* equal to one if the company's auditor has the highest market share in the local market (industry) and at least 10 percentage more than the next competitor auditor. Unless otherwise noted in the subscript, all variables are measured using the most recently ended fiscal year (i.e., year *t*). Finally, we include both year and month fixed effects in *Eq.* 1. Detailed definitions of all variables are provided in Table 1.

In Table 4 we provide descriptive statistics for the variables in *Eq. 1*, presented separately for (1) the full sample, (2) the sample of companies that announce an auditor change in month *m*, and (3) the matched sample of control companies that do not announce an auditor change in month *m*. The summary statistics demonstrate that companies that announce an auditor change are not significantly different in size or any of the market-level concentration measures from the matched control sample of companies without an auditor change. *Non-auditor Views$_{m-1}$* is also not significantly different between the two samples suggesting that general attention to company filings are similar for the two groups at the time of the bidding process. However, as expected, we find that companies that announce an auditor change are more likely than companies without an announced auditor change to have previously received an audit opinion with a going concern paragraph (*Going Concern Opinion$_{t-1}$*) or material weakness in internal controls over financial reporting (*Material Weakness$_{t-1}$*). We also find significant differences in profitability (*Loss* and

Return on Assets), cash flows (*Cash Flows*), and leverage (*Leverage*). All of these variables are included as controls in our multivariate analysis.

We present the results of *Eq. 1*, in both the full and matched samples, in Table 5. The findings are similar between the two samples. In the full sample, the odds ratio for *Competitor Views* gradually increases from 1.002 in month *m*-4 to 2.144 in month *m*-1. The odds ratios for the months m-3 through m-1 are all significantly greater than 1 ($p < 0.05$), suggesting that firms with high levels of EDGAR views by competitor auditors during the previous three months are more likely to announce an auditor change in the current month. The odds ratio of 2.144 for *Competitor Views$_{m-1}$* in the full sample suggests that a 100 (50) percent increase in the number of views during the previous month increases the odds of an auditor change in the current month by approximately 70 (36) percent.[17] The odds ratios for *Competitor Views* in the matched sample are similar in magnitude, but are only statistically significant for months *m*-2 through *m*-1.

We also test whether the addition of *Competitor Views* to our model significantly increases the model's predictive accuracy. We find that the area under the receiver operating curve (AUROC) for *Eq. 1* without the *Competitor Views* variables is 76 (65) percent for the full (matched) sample. Comparing this to the 84 (80) percent AUROC from the full (matched) sample results in Table 5 suggests that adding our measure of competitive bidding improves the predictive accuracy of the model by 31 (100) percent over a random guess.[18] This increase in the AUROC is highly statistically significant ($p < 0.01$).

With respect to control variables, the odds ratio for *Non-auditor Views* is significantly smaller than one, suggesting that companies are *less* likely to change auditors during events that

---

[17] Calculated as $\exp(\ln(2.144)*\ln(2)) - 1 = 70$ percent and $\exp(\ln(2.144)*\ln(1.5)) - 1 = 36$ percent.
[18] Because a random guess would result in an AUROC of 50 percent, we calculate the improvement in the predictive accuracy of the model as $(0.84 - 0.76)/(0.76 - 0.50)$ in the full sample and as $(0.80 - 0.65)/(0.65 - 0.50)$ in the matched sample.

generate interest in their financial filings from the general public. We also find a positive

association (i.e., odds ratios significantly larger than one) between prior audit opinions with

going concern paragraphs (*Going Concern Opinion)* and material weaknesses in internal controls

(*Material Weakness*) and the likelihood of an auditor change. Finally, we find a significantly

positive association between auditor tenure (*Auditor Tenure*) and the likelihood of changing

auditors. These findings align with the prior results documented in the literature.

Together, the results in Tables 2 through 5 suggest that EDGAR views by competitor

auditors are a reasonable proxy for the otherwise unobservable competitive bidding between

auditors. We believe that this makes them valuable tool for measuring both cross-sectional and

time-series variation in auditor competition at the client level. The remainder of this paper is

devoted to using this new measure of auditor competition to test the hypotheses discussed in

Section II.

IV. TESTS OF HYPOTHESES

IV.a Market Concentration and Competitive Bidding (H1)

We turn now to testing H1a and H1b, which predict that market concentration is not

associated with competitive bidding. We test these predictions by fitting the following model

using ordinary least squares regression:

$$Competitor\ Views_{i,m} = \beta_0 + \beta_1 * Concentration_{i,t} + \beta_k * Controls_{i,t} + \varepsilon_{i,t} \quad (Eq.\ 2)$$

Competitor Views$_m$ is the natural log of 1 plus the number of times in month *m* that company *i*'s

SEC filings were viewed by any Big 4 auditor (e.g., EY LLP, Deloitte LLP, KPMG LLP, PwC

LLP) other than the company's current auditor. *Concentration* is a vector of six variables which

capture market concentration or an incumbent auditor's location within the market: *Herf. – Local*

Market, *Herf. – Industry Market, Dist. – Local Market, Dist. – Industry Market, Leader – Local*

Market, and *Leader – Industry Market*, all of which are discussed and defined in Section III.b. *Controls* represents the same vector of control variables as in *Eq. 1*. Unless otherwise noted in the subscript, all variables are measured using the most recently ended fiscal year (i.e., year *t*). We estimate *Eq. 2* for both our full and matched sample.

We present the results of estimating *Eq. 2* in Table 6. We find no evidence of a significant relationship between local market concentration and auditor competitive bidding, but document evidence that industry-market concentration is significantly and negatively associated with auditor competitive bidding.[19] The coefficient of -0.020 for *Herf. - Industry Market* indicates that a one quintile increase in industry-market concentration is associated with a decrease in EDGAR views by competitor auditors of two percent. We also find that auditors who are industry market share leaders (*Leader – Industry Market)* and auditors with long tenure (*Auditor Tenure*) are associated with fewer competitor views. Finally, consistent with the prior literature, we provide evidence that companies that receive unfavorable audit opinions do attempt to "shop" for opinions the following year; the coefficients on both *Going Concern Opinion (t-1)* and *Material Weakness (t-1)* are positive and significant. In the following sections, we test whether companies are successful at using bids from other auditors as leverage to obtain concessions from their current auditor.

IV.b Competitive Bidding and Audit Quality (H2)

 H2 predicts that auditor competitive bidding is not associated with audit quality. We test this prediction by estimating the following model using logistic regression:

---

[19] Some of the variables in the vector *Concentration* from Eq. 2 are highly correlated. In an untabulated robustness test we re-estimate Eq. 2 six times and separately include each of the six variables in *Concentration*. The results are similar to those reported in Table 6 with one exception: *Dist. – Industry Market* becomes statistically significant when the other variables in the vector *Concentration* are excluded from the model.

$$Prob.(Misstatement)_{i,t} \qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\text{(Eq. 3)}$$

$$= \delta_0 + \delta_1 * Competitor\ Views_{i,p} + \delta_k * Controls_{i,t} + \varepsilon_{i,t}$$

Competitor Views$_{i,p}$ is the natural log of 1 plus the number of times during period *p* that company

i's SEC filings were viewed by any Big 4 auditor (e.g., EY LLP, Deloitte LLP, KPMG LLP,

PwC LLP) other than the company's current auditor. We measure *Competitor Views* over two

different periods for purposes of testing H2. The first period is the full year starting with the

signature date of the audit opinion for year *t-1* and ending with the signature date of audit

opinion for year *t*. The second period consists of the months when audit fieldwork is typically

performed, which we define as the last month before the end of fiscal year *t* through the second

month after the end of fiscal year *t* (i.e., December – February for a calendar year end

company).[20] We use subscripts to distinguish between *Competitor Views* measured during these

two periods (i.e., *Competitor Views*$_{Full\ Year}$ and *Competitor Views*$_{Fieldwork}$). *Misstatement*$_{i,t}$ is an

indicator variable set to 1 if firm *i*'s year *t* financial statements are subsequently restated as

announced in 8-K item 4.02 "Non-reliance on Previously Issued Financial Statements" (often

called big "R" restatements).

        Controls represents the same vector of control variables as in *Eq. 1* with two additions.

In Eq. 3 we control for whether the audit opinion for year t includes a material weakness

disclosure, as material weakness in the controls over financial reporting are likely to increase the

risk of a material misstatement. We also control for whether the financial statements for year *t-1*

---

[20] Ex-ante, we believe competitive bidding that occurs while auditors are performing the audit is most likely to affect audit quality. We use this definition of the fieldwork period because auditors typically must wait until (near) the end of a fiscal year to begin performing their substantive audit procedures and because the SEC 10-K filing deadline for large accelerated firms is 60 days after the end of the fiscal year. As we discuss in Section V, our findings are robust to several alternative definitions of the fieldwork period.

were misstated, as many misstatements span multiple years.[21] Unless otherwise noted in the subscript, all variables are measured in year t.

Because the dependent variable in Eq. 3 (i.e., *Misstatement*) is measured annually, we estimate Eq. 3 using a sample of company-year (rather than company-month) observations. In addition, to avoid conflating the effects of competitive bidding with the effects of auditor changes, we exclude all observations that announce an auditor change in year t or year t+1 from the sample before estimating Eq. 3. In other words, because our goal is to examine the behavior of auditors who successfully defend against competitive bids, we remove cases where the incumbent auditor was unsuccessful (or made no attempt) at retaining their client. However, in an untabulated robustness test we confirm that our findings are qualitatively unchanged if we include company-years with auditor changes in our sample.

An odds ratio for *Competitor Views* of significantly less than 1 would allow us to reject *H2* and conclude that higher levels of competitive bidding are associated with a lower likelihood of misstatement (i.e., higher audit quality), while an odds ratio of significantly greater than 1 would allow us to reject H1 and conclude that higher levels of competitive bidding are associated with higher likelihood of misstatement (i.e., lower audit quality).

The first two columns of Table 7 present the results of estimating *Eq. 3* using *Competitor Views_{Full Year}* as the test variable. The odds ratio for *Competitor Views_{Full Year}* is less than one (0.804) and statistically significant ($p < 0.05$), which indicates that competitive bidding is associated with a lower likelihood of material misstatement. The second two columns of Table 7 present the results of estimating *Eq. 3* using *Competitor Views_{Fieldwork}* as the test variable. The

---

[21] Controlling for prior year misstatements is consistent with prior research (e.g., Lennox and Li, 2014). Similar to prior research, we find that prior year misstatements are strongly associated with current year misstatements. In untabulated robustness tests, we confirm that our results are similar if we exclude *Misstatement_{t-1}* as a control or if we instead control for whether a separate restatement was announced in the prior year.

odds ratio for *Competitor Views*Fieldwork is also less than one (0.715) and statistically significant (p

< 0.01). Moreover, consistent with competitive bidding during fieldwork having a stronger effect

on audit quality than bidding during other times of the year, the odds ratio for *Competitor*

*Views*Fieldwork is significantly (p < 0.10, not tabulated) less than the odds ratio for *Competitor*

*Views*Full Year.

With respect to economic significance, the odds ratio of 0.715 for *Competitor*

*Views*Fieldwork indicates that a 100 (50) percent increase in competitor views during the fieldwork

period is associated with a 21 (13) percent decrease in the odds of a material misstatement (i.e.,

higher audit quality).[22] One explanation for this finding is that, ex-ante, incumbent auditors are

uncertain about the outcome of the bidding process and want to avoid having their mistakes

detected and revealed by their replacement if they are unable to retain the client. Consistent with

prior literature we find that companies with material weaknesses in internal controls and prior

year misstatements are more likely to also misstate their current financial statements (i.e., the

odds ratios for *Material Weakness* and *Misstatement*t-1 are significantly great than 1). Overall, the

results in Table 7 reject *H2* and indicate that increased competition is associated with improved

audit quality.

IV.c Competitive Bidding and Audit Pricing (H3)

H3 predicts that competitive bidding will not be associated with audit pricing. To test this

prediction, we estimate the following model using ordinary least squares regression:

$$Change\ in\ Fees_{i,t} = \gamma_0 + \gamma_1 * Competitor\ Views_{i,p} + \gamma_k * Controls_{i,t} + \varepsilon_{i,t} \qquad (Eq.\ 4)$$

Competitor Views$_{i,p}$ is the natural log of 1 plus the number of times during period *p* that company

i's SEC filings were viewed by any Big 4 auditor (e.g., EY LLP, Deloitte LLP, KPMG LLP,

---

[22] Calculated as 1 − exp(ln(0.715)*ln(2)) and 1 − exp(ln(0.715)*ln(1.5)) respectively.

PwC LLP) other than the company's current auditor. We measure *Competitor Views* over two different periods for purposes of testing H3. The first period is the full year starting with the signature date of the audit opinion for year *t-1* and ending with the signature date of audit opinion for year *t*. The second period consists of the months when the terms of the audit are typically negotiated, which we define as the three–month time period following the fieldwork period for the audit of year *t-1* (i.e., March – May for a calendar year end company).[23] We use subscripts to distinguish between *Competitor Views* measured during these two periods (i.e., *Competitor Views*$_{Full\ Year}$ and *Competitor Views*$_{Negotiation}$). *Change in Fees*$_{i,t}$ is the natural log of 1 plus the absolute value of the difference in audit fees between year *t* and year *t-1*. When the signed difference in audit fees is negative, we multiply the natural log of the absolute difference by negative 1. We model the change in audit fees (rather than the level) because audit fees are normally sticky over time (Villiers, Hay, and Zhang 2013) and we are interested in whether competitive bidding *changes* the fee negotiations between auditors and their clients. All other variables in *Eq. 4* are the same as in *Eq. 3*. A negative value of γ_1 would indicate that competitive bidding is associated with a decrease (or smaller increase) in audit fees. The opposite interpretation would apply to a positive coefficient.

The first two columns of Table 8 present the results of estimating *Eq. 4* using *Competitor Views*$_{Full\ Year}$ as the test variable. The coefficient for *Competitor Views*$_{Full\ Year}$ is negative (-0.485) and statistically significant ($p < 0.01$), which indicates that competitive bidding is associated with a smaller increase in audit fees. The second two columns of Table 8 present the results of

---

[23] Ex-ante, we believe audit pricing is less likely to be affected by a competitive bidding process that has already concluded before audit fee negotiations begin, or by a competitive bidding process that does not start until after audit fee negotiations are concluded and the engagement letter has been signed. We use this definition of the negotiation period because auditors typically negotiate the terms of the next year's audit after completing the current year's audit. As we discuss in Section V, our findings are robust to several alternative definitions of the negotiation period.

estimating Eq. 4 using *Competitor Views$_{Negotiation}$* as the test variable. The coefficient for

Competitor Views$_{Negotiation}$ is also negative (-0.580) and statistically significant ($p < 0.01$).

Moreover, consistent with competitive bidding during the negotiation period having a stronger

effect on audit fees than bidding during other times of the year, the coefficient for *Competitor*

Views$_{Negotiation}$ is significantly ($p < 0.10$) smaller (i.e., more negative) than the coefficient

Competitor Views$_{Full\ Year}$. In terms of economic significance, the coefficient for *Competitor*

Views$_{Full\ Year}$ indicates that a 100 (50) percent increase in competitor views during the negotiation

period is associated with a 58 (29) percent decrease in the change in audit fees over the prior

year. On average, this effect amounts to savings of approximately $50,000 (25,000).[24]

V. ROBUSTNESS TESTS

V.a Alternative Methods for Screening Bot Views

As we discuss in Section III.a, we use a series of screens to remove EDGAR views that

are related to bot or crawler activity. In this section we discuss the robustness of our findings to

several alternative screening methods.

Our first alternative method is similar to the primary method but does not apply the 80

percent working-hour rule. We exclude IP-minutes with excessive activity (>20 views per

minute) as well as IP-hours which include more than 30 IP-minutes of excessive activity. For our

second alternative method, we exclude all views that take place outside work hours (i.e., before 8

a.m. or after 8 p.m.). From the remaining views, we exclude IP-minutes with excessive activity

as well as IP-hours which include more than 30 IP-minutes of excessive activity. For our third

alternative method we include all views from IPs that have more than 80 percent of their activity

---

[24] The mean change in audit fees over the prior year for observations in our sample is approximately $90,000 (untabulated).

during working hours. No further screening is applied under this method. We find that our results are robust to each of these alternative screening methods.

V.b Excluding Views of Recent Filings

In our tabulated analysis, *Competitor Views* captures non-incumbent auditors' views of all company filings with the SEC. One concern with this approach is that some filings could announce major events at the company which draw the attention of non-incumbent auditors for reasons unrelated to the bidding process and also signal a likely auditor change. For example, a company may file an 8-K to announce a merger. Non-incumbent auditors may view such a filing, particularly if they have a client in the same industry, even if they are not actively bidding for the audit. At the same time, the company may change auditors (perhaps to the same auditor as the other company in the merger) without going through the standard bidding process. As we discuss in the previous sections, we include *Non-auditor Views* in our models in an attempt to control for this possibility. However, in an additional robustness test, we limit our definition of *Competitor Views* to include only filings that are at least 90 days old. Such filings are less likely to be of interest to auditors who are not actively preparing to submit a bid to the company but would almost certainly be of interest to auditors performing due diligence as part of the bidding process. In untabulated tests, we find that our results are unchanged using this alternative definition of *Competitor Views*.

V.c Alternative Definitions of the "Fieldwork" and "Negotiation" Periods

In our tabulated analysis we use competitor views during the fieldwork period to test whether competitive bidding affects audit quality. Fieldwork is when auditors perform their substantive procedures, and we believe that competitive bidding during this period is most likely to affect audit quality. If an incumbent auditor successfully retains its client during a competitive

bidding process that ends *prior* to the beginning of fieldwork, the auditor can perform its substantive procedures without the looming threat of dismissal. Similarly, we use competitor views during the negotiation period to test whether competitive bidding affects audit fees. Auditors and their clients sign engagement letters prior to the beginning of fieldwork, and these letters typically include a negotiated audit fee structure. It seems unlikely that competitive bidding that begins *after* the engagement contract has been signed will affect audit fees in the current year. However, we acknowledge that the best definitions of the fieldwork and negotiation periods are debatable. We therefore test the robustness of our analysis in Tables 7 and 8 to the use of *Competitor Views* measured during several alternative time periods.

We begin by extending both *Competitor Views$_{Fieldwork}$* and *Competitor Views$_{Negotiation}$* by one month in either direction, and then by one month in both directions. Each of these changes results in coefficients (or odds ratios) that are slightly weaker, but which are not significantly different from the those presented in Tables 7 and 8. For completeness, we re-estimate *Eq. 3* using *Competitor Views$_{Negotiation}$* in place of *Competitor Views$_{Fieldwork}$* and vice-versa for *Eq. 4*. Because the negotiation period ends long before fieldwork begins, any threat of being dismissed stemming from competitive bidding during the negotiation period should be resolved by the time auditors begin their substantive procedures during fieldwork. Similarly, because the engagement letter dictating the fee arrangement between auditors and their clients is typically signed long before fieldwork, competitive bidding that occurs during fieldwork should have little effect on

audit fees. Consistent with this view, we find that *Competitor Views$_{Negotiation}$* (*Competitor Views-$_{Fieldwork}$*) is not significant in *Eq. 3* (*Eq. 4*).

VI. CONCLUSION

In this paper, we examine competition among Big 4 auditors using a new measure that captures competitive bidding between auditors. We explore the relationship between competitive bidding and audit market concentration, audit quality, and audit pricing. Prior research has measured competition using market-share concentration measures. While market concentration is undoubtedly related to competition, the two constructs are distinct, and the exact nature of their relationship is unclear. As a result, it is not surprising that the findings in prior research about whether market concentration is beneficial or costly are mixed.

After developing our measure of competitive bidding and validating that it captures competition, we document its determinants. We find that there is no significant association between local-market concentration and competitive bidding, but strong evidence that industry-market concentration constrains competitive bidding. This finding suggests that when one or two of the Big 4 audit firms audit a large proportion of clients in an industry, the other Big 4 audit firms are less likely to compete for clients in that industry.

We also use our measure to test whether competitive bidding among the Big 4 has a positive or negative effect on audit quality and fees. We find that Big 4 competitive bidding during fieldwork is positively associated with audit quality as measured by a lower likelihood of misstatement. In addition, we find that Big 4 competitive bidding during the fee negotiation period is negatively associated with the change of fees from the previous year. These findings are robust to controlling for market concentration and market share leadership.

Our findings should be useful to policy-makers and regulators. On one hand, our results indicate that market concentration at the local level is *not* constraining meaningful competition among the Big 4 auditors. Rather, our study documents that Big 4 competition exists and has a positive effect on the audit process by improving both audit efficiency and effectiveness. On the other hand, our study also documents that concentration at the industry market level appears to constrain competition, thereby supporting regulatory concerns that companies within certain industries do not have sufficient choice of auditors. Our study contributes to the academic literature by providing a method of measuring audit competition at the client level. While our measure of competition likely includes some noise, we believe it provides a new perspective on how auditors compete with each other and how researchers can measure competition.

Our study has limitations that may provide opportunities for future research. First, our study focuses on competition among Big 4 auditors rather than competition among all (i.e., Big 4 and non-Big 4) auditors. As we have noted in previous sections, the method we use to identify Big 4 bidding becomes significantly noisier when applied to smaller auditors. We believe that our focus on the Big 4 is justified given the dominance of the Big 4 in the United States (GAO 2008). In fact, it is common for large publicly traded companies to solicit bids *solely* from the Big 4 (see footnote 12 for an example). However, we believe an interesting avenue for future research could be to study if (and when) smaller audit firms compete for Big 4 clients, and under what circumstances their bids are successful. In addition, our measure of competitive bidding is based on downloads of SEC filings for U.S. publicly-traded companies and is therefore inherently limited to the U.S. setting. Future research could examine whether the positive effects of competitive bidding also exist in markets outside of the United States.

Figure 1: Competitor auditor views prior to an announced auditor change
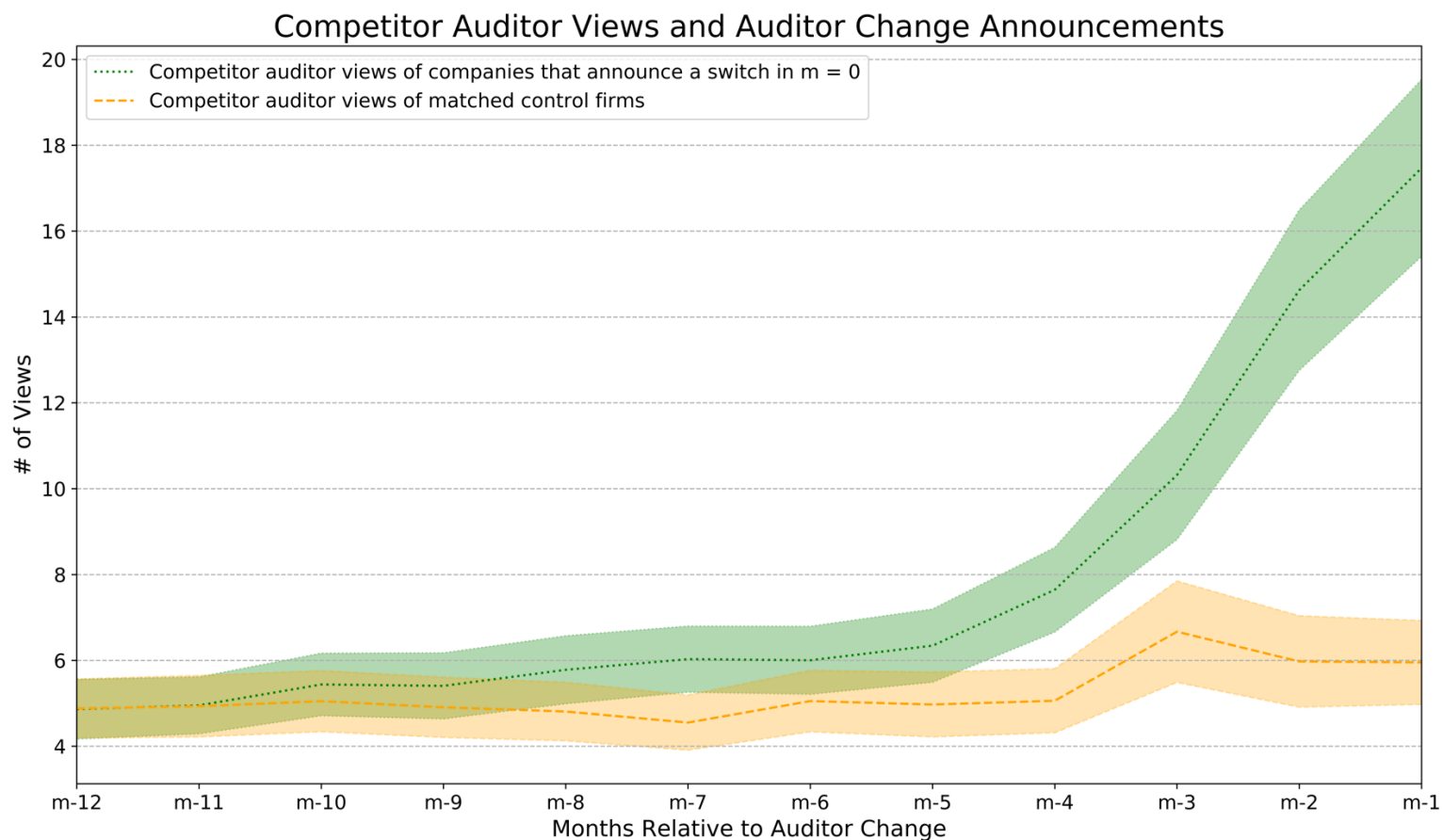
Note: This figure presents the average number of competitor auditor views for companies that announce an auditor change in month m = 0 and for a set of matched control companies with no announced auditor change (from Table 2). The shaded area around each line represents a 95 percent confidence interval.

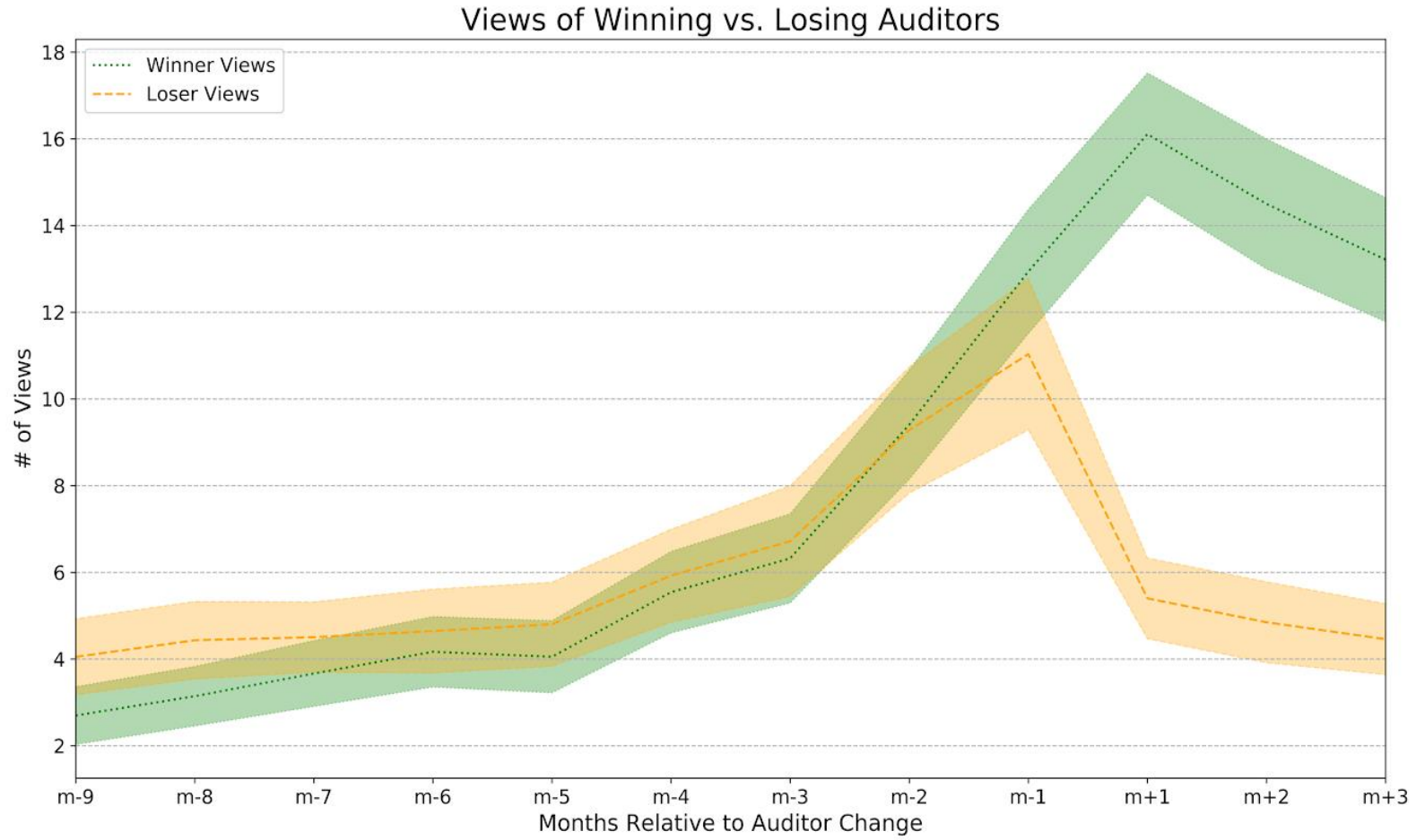**Figure 2**: Winning and losing competitor auditor views prior to an announced auditor change

Note: This figure presents the average number of competitor auditor views for the ex-post winners and losers of the audit bidding process (from Table 3). An auditor change is announced for all companies in m = 0. The shaded area around each line represents a 95 percent confidence interval.

REFERENCES

Advisory Committee on the Auditing Profession (ACAP). 2008. *Final Report to the U.S. Department of Treasury.* (October 6). Washington, D.C.: Government Printing Office.

The American Assembly. 2005. The future of the accounting profession: Auditor concentration. New York (May 23). The American Assembly Columbia University.

Bandyopadhyay and Kao. 2004. Market structure and audit fees: A local analysis. *Contemporary Accounting Research* 21 (3): 529-561.

Boone, Khurana, and Raman. 2012. Audit market concentration and auditor tolerance for earnings management. *Contemporary Accounting Research.* 29 (4): 1171-1203.

Choi, J-H., S. Kim, and K.K. Raman. 2017. Did the 1998 merger of Price Waterhouse and Coopers and Lybrand increase audit quality? *Contemporary Accounting Research* 34 (2): 1071-1102.

Choi, J., H. Kim, A. Qiu, and Y. Zang. 2012. Geographic proximity between auditor and client: How does it impact audit quality? *Auditing: A Journal of Practice & Theory* 31 (2): 43-72

Craswell, A.T., J.R. Francis, and S.L. Taylor. 1995. Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics* 20 (December) 297-322.

DeAngelo, L.A. 1981. Auditor size and audit quality. *Journal of Accounting and Economics* 3 (3): 183-199.

DeFond, M. and J. Zhang. 2014. A review of archival auditing research. *Journal of Accounting and Economics* 58 (2014): 275-326.

Drake, M. S., D. T. Roulsone, and J. R. Thornock. 2015. The Determinants and Consequences of Information Acquisition via EDGAR. *Contemporary Accounting Research* 32 (3): 1128-1161.

Drake, M.S., P.T. Lamoreaux, P.J. Quinn, and J.R. Thornock. 2018. Auditor disclosure benchmarking. Working paper, Brigham Young University, Arizona State University, and the University of Washington.

Eshleman, J.D. and B.P. Lawson. 2017. Audit market structure and audit pricing. *Accounting Horizons* 31 (1): 57-81.

European Commission. 2010. Consultation on audit policy – Lessons from the Crisis. Available at: http://ec.europa.eu/finance/consultations/2010/green-paper-audit/index_en.htm

Francis, J.R, N. Golshan, and N. J. Hallman. 2018. Does Audit Partner Proximity to Clients Matter? Working Paper, University of Missouri and the University of Texas at Austin.

Francis, Michas, and Seavey. 2013. Does audit market concentration harm the quality of audited earnings? Evidence from audit markets in 42 counties. *Contemporary Accounting Research.* 30 (1): 525-355.

Gong, Q., O.Z. Li, Y. Lin, and L. Wu. 2016. On the benefits of audit market consolidation: Evidence from merged audit firms. *The Accounting Review* 91 (2): 463-488.

Government Accountability Office (GAO). 2003. Public accounting firms: Mandated study on consolidate and competition. (July 30). Available at: https://www.gao.gov/products/GAO-03-864

Government Accountability Office (GAO). 2008. Audits of Public Companies: Continued Concentration in Audit Market for Large Public Companies Does Not Call for Immediate Action. GAO-08-163.

Lennox, C., and B. Li 2014. Accounting misstatements following lawsuits against auditors. *Journal of Accounting and Economics* 57 (1): 58-75.

Mayhew, B. and M. Wilkins. 2003. Audit firm industry specialization as a differentiation strategy: Evidence from fees charged to firms going public. *Auditing: A Journal of Practice & Theory* 22 (2): 33-52.

Moulds, J. and D. Feeney. 2013. Big four accountants reject claims over high prices and poor competition. (February 22). Available at: https://www.theguardian.com/business/2013/feb/22/big-four-accountancy-competition-commission-audits

Newton, N., J.S. Persellin, D. Wang, and M.S. Wilkins. 2016. Internal control opinion shopping and audit market competition. *The Accounting Review* 91 (2): 603-623.

Newton, N.J., D. Wang, and M.S. Wilkins. 2013. Does a lack of choice lead to lower quality? Evidence from auditor competition and client restatements. *Auditing: A Journal of Practice & Theory* 32 (3): 31-67.

Numan, W. and M. Willekens. 2012. An empirical test of spatial competition in the audit market. *Journal of Accounting and Economics* 53: 450 – 465.

Pearson, T. and G. Trompeter. 1994. Competition in the market for audit services: The effect of supplier concentration on audit fees. *Contemporary Accounting Research* 11 (1): 115 – 135.

Simunic, D.A. 1980. The pricing of audit services: Theory and evidence. *Journal of Accounting Research* 18 (1): 161-190.

United States Congress (U.S. Congress). 1977. The accounting establishment: A staff study prepared by the Subcommittee on Reports, Accounting and Management of the Committee on Government operations, United States Senate. Washington D.C.: Government Printing Office. Available at: https://archive.org/details/accstabl00unit

United States House of Representatives (U.S. House of Representatives). 2002. The Sarbanes-Oxley Act of 2002. Public Law 107-204 [H.R. 3763]. Washington D.C.: Government Printing Office.

Table 1: Variable Definitions

EDGAR Views Variables

Competitor Views	The natural log of 1 plus the number of times the company's SEC filings were viewed by any Big 4 auditor (e.g., EY LLP, Deloitte LLP, KPMG LLP, PwC LLP) other than the company's current auditor. *Competitor Views* for the univariate analyses in Tables 2 and 3 are presented unlogged for ease of interpretation.
Non-auditor Views	The natural log of 1 plus number of times that the company's SEC filings were viewed by anyone other than a top-eight auditor. The top-eight auditors include the Big 4 (e.g., EY LLP, Deloitte LLP, KPMG LLP, PwC LLP) along with BDO LLP, Grant Thornton LLP, Crowe LLP (formerly known as Crowe Horwath LLP), and RSM LLP (formerly known as McGladrey LLP).

Dependent Variables

Audit Firm Change	An indicator variable set equal to 1 if a company announces in a SEC filing that it has engaged (or agreed to engage) a new auditor, 0 otherwise.
Change in Fees	The natural log of 1 plus the absolute value of the difference in audit fees between year t and year t-1. When the signed difference in fees is negative, the natural log of 1 plus the absolute difference is multiplied by negative 1.
Misstatement	An indicator variable set equal to 1 the company's financial statements are subsequently restated and reissued, as reported in Item 4.02 of a form 8-K filing with the SEC, 0 otherwise.

Market Concentration Variables

Dist. - Industry Market	Within an industry market, the quintile rank of the absolute value of the difference in audit fee share between the incumbent auditor and the auditor with the next closest audit fee share. We define industry markets as all public company clients in an industry-year. We define industries using the twelve industry Fama-French classification scheme.
Dist. - Local Market	Within a local market, the quintile rank of the absolute value of the difference in audit fee share between the incumbent auditor and the auditor with the next closest audit fee share. We define local markets using Core-based Statistical Areas (CBSAs) as defined by the U.S. Census Bureau.
Herf. - Industry Market	The quintile rank of the industry-market Herfindahl index. The industry Herfindahl index is calculated as the sum of squared industry market shares (in audit fees) of all industries in a year. We define industries using the twelve industry Fama-French classification scheme.
Herf. - Local Market	The quintile rank of the local-market Herfindahl index. The local Herfindahl index is calculated as the sum of squared local market shares (in audit fees) of all local audit offices in a year. We define local markets using Core-based Statistical Areas (CBSAs) as defined by the U.S. Census Bureau.

Table 1 continues on the next page.

Table 1 (Continued): Variable Definitions

Leader - Industry Market	An indicator variable set equal to 1 if the company's current auditor has the highest market share in the company's industry and at least 10 percentage points more than the closest competitor. We define industries using the twelve industry Fama-French classification scheme and market share using audit fees.
Leader - Local Market	An indicator variable set equal to 1 if the company's current auditor has the highest local market share and at least 10 percentage points more than the closest competitor. We define local markets using Core-based Statistical Areas (CBSAs) as defined by the U.S. Census Bureau and measure market share using audit fees.

Additional Control Variables

Acquisition	An indicator variable set equal to 1 if the company engaged in an acquisition during the fiscal year, 0 otherwise.
Auditor Tenure	The number of previous consecutive years in which the company had the same auditor.
Business Segments	The number of business segments reported by the company.
Calendar Year End	An indicator variable set equal to 1 if the company has a December fiscal year end, 0 otherwise.
Cash Flows	Total operating cash flows scaled by total assets.
Company Age	The number of previous years the company appears in Compustat.
Company Assets	The log of 1 plus total assets.
Geographic Segments	The number of geographic segments reported by the company.
Going Concern Opinion	An indicator variable set equal to 1 if the company received a going concern audit opinion, 0 otherwise.
Growth	The percentage change in total assets from the previous year.
Inventory and Receivables	Total inventory plus total accounts receivable scaled by total assets.
Leverage	Total liabilities scaled by total assets.
Loss	An indicator variable set equal to 1 if the company reported negative earnings, 0 otherwise.
Material Weakness	An indicator variable set equal to 1 if the company's auditor discussed a material weakness in internal controls over financial reporting, 0 otherwise.
Return on Assets	Net income scaled by total assets.

Note: In Tables 2 and 3 *Competitor Views* are measured for the months denoted in the first column. In Tables 4, 5, and 6, all variables are measured in the most recently ended fiscal year prior to month *m* (i.e., year *t*) unless otherwise denoted in the subscript. In Table 8 all variables are measured for fiscal year *t* unless otherwise denoted in the subscript.

Table 2: Average number of competitor auditor views for months m-1 through m-12 and auditor changes in *m*.

Month	Full Sample (n = 237,007)	Mean *Competitor Views* for: Companies that Announce an Auditor Change in Month *m* (n = 427)	Matched Control Sample - No Auditor Change Announcement in Month *m* (n = 427)	Difference: Auditor Change vs. No Change
m-1	8	17	6	11 (183%)***
m-2	8	15	6	9 (150%)***
m-3	8	10	7	3 (43%)***
m-4	7	8	5	3 (60%)***
m-5	7	6	5	1 (20%)**
m-6	7	6	5	1 (20%)*
m-7	7	6	5	1 (20%)***
m-8	7	6	5	1 (20%)*
m-9	7	5	5	0 (0%)
m-10	6	5	5	0 (0%)
m-11	6	5	5	0 (0%)
m-12	6	5	5	0 (0%)

Note: This table presents the average number of competitor auditor views for (1) the full sample, (2) companies that announce an auditor change in month *m*, and (3) a set of matched control companies that do not announce an auditor change in month *m*. To create the matched sample, each observation with an auditor change announcement in month *m* is matched with a control observation without an auditor change announcement in month *m* that also (1) has the same fiscal year end, (2) is in the same industry, and (3) is headquartered in the same Core-Based Statistical Area (CBSA). If there are multiple potential matches meeting these criteria, we use the one that is closest is total assets. Matching is one-to-one and is performed with replacement. Observations with an auditor change announcement for which no match meeting the above criteria exists are dropped from the matched sample analysis. The symbols *, **, and *** indicate p-values of < .10, < .05, and < .01 respectively.

Table 3: Average number of views by winning and losing auditors before and after an auditor change announcement in *m*.

Month	Mean *Competitor Views* by:		Difference: Winner vs. Losers
	Winning Auditors	Losing Auditors	
m+3	13	4	9 (225%)***
m+2	14	5	9 (180%)***
m+1	16	5	11 (220%)***
m-1	13	11	2 (18%)*
m-2	9	9	0 (0%)
m-3	6	7	-1 (14%)
m-4	6	6	0 (0%)
m-5	4	5	-1 (20%)
m-6	4	5	-1 (20%)
m-7	4	5	-1 (20%)
m-8	3	4	-1 (25%)
m-9	3	4	-1 (25%)

Note: This table presents the average number of competitor auditor views for the ex-post winners and losers of the bidding process. Views are presented for the months prior to (m-9 through m-1) and subsequent to (m+1 through m+3) clients' announcement of an auditor change in *m*. The symbols *, **, and *** indicate p-values of $< .10$, $< .05$, and $< .01$ respectively.

Table 4: Univariate statistics

Variables	Full Sample (n = 237,006)			Companies that Announce an Auditor Change in Month m (n = 427)			Matched Control Sample - No Auditor Change Announcement in Month m (n = 427)			Difference in Means for Matched Sample
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	
Competitor Views										
Competitor Views$_{m-1}$	1.55	1.61	1.14	2.16	2.20	1.43	1.34	1.10	1.08	0.82***
Non-auditor Views										
Non-auditor Views$_{-1}$	7.17	7.21	0.95	7.11	7.18	0.91	7.03	7.16	0.89	0.07
Local-Market Variables										
Herf. - Local Market	2.99	3.00	1.42	2.61	3.00	1.28	2.61	3.00	1.28	0.00
Dist. - Local Market	3.00	3.00	1.41	2.68	3.00	1.29	2.67	3.00	1.30	0.01
Leader - Local Market	0.30	0.00	0.46	0.21	0.00	0.41	0.22	0.00	0.41	-0.01
Industry-Market Variables										
Herf. - Industry Market	2.95	3.00	1.39	3.08	3.00	1.34	3.08	3.00	1.34	0.00
Dist. - Industry Market	2.98	3.00	1.41	3.06	3.00	1.35	3.02	3.00	1.38	0.04
Leader - Industry Market	0.08	0.00	0.28	0.07	0.00	0.25	0.07	0.00	0.25	0.00
Auditor-Client Relationship Variables										
Going Concern Opinion$_{-1}$	0.01	0.00	0.08	0.02	0.00	0.15	0.01	0.00	0.08	0.02*
Material Weakness$_{-1}$	0.04	0.00	0.19	0.11	0.00	0.31	0.04	0.00	0.20	0.07***
Auditor Tenure	8.88	9.00	3.80	8.33	8.00	3.90	8.13	8.00	3.90	0.21

Table 4 is continued on the next page.

Table 4 (Continued): Univariate statistics

Variables	Full Sample (n = 237,006)			Companies that Announce an Auditor Change in Month m (n = 427)			Matched Control Sample - No Auditor Change Announcement in Month m (n = 427)			Difference in Means for Matched Sample
	Mean	Median	SD	Mean	Median	SD	Mean	Median	SD	
Client Characteristic Variables										
Company Age	2.26	2.30	0.38	2.18	2.20	0.43	2.17	2.20	0.44	0.01
Company Assets	21.17	21.15	1.86	20.01	20.02	1.85	20.25	20.16	1.73	-0.23
Acquisition	0.40	0.00	0.49	0.32	0.00	0.47	0.35	0.00	0.48	-0.02
Loss	0.25	0.00	0.43	0.48	0.00	0.50	0.36	0.00	0.48	0.12***
Calendar Year End	0.75	1.00	0.43	0.90	1.00	0.30	0.90	1.00	0.30	0.00
Return on Assets	0.00	0.03	0.17	-0.12	-0.01	0.27	-0.07	0.02	0.25	-0.05***
Growth	0.11	0.05	0.34	0.07	0.00	0.40	0.11	0.05	0.37	-0.03
Inventory and Receivables	0.22	0.18	0.18	0.22	0.18	0.19	0.20	0.15	0.18	0.02
Cash Flows	0.06	0.08	0.15	-0.01	0.04	0.22	0.02	0.07	0.20	-0.03**
Leverage	0.56	0.55	0.26	0.57	0.54	0.32	0.51	0.52	0.28	0.05**
Geographic Segments	1.54	1.61	0.96	1.44	1.10	0.97	1.41	1.10	1.00	0.03
Business Segments	1.55	1.10	0.85	1.40	1.10	0.78	1.41	1.10	0.74	0.00
Additional Variables Used in Table 8 (n = 18,067)										
Change in Fees	2.24	10.42	11.68	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Misstatement	0.02	0.00	0.14	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Note: This table presents summary statistics for (1) the full sample, (2) companies that announce an auditor change in month m, and (3) a set of matched control companies that do not announce an auditor change in month m. To create the matched sample, each observation with an auditor change announcement in month m is matched with a control observation without an auditor change announcement in month m that also (1) has the same fiscal year end, (2) is in the same industry, and (3) is headquartered in the same Core-Based Statistical Area (CBSA). If there are multiple potential matches meeting these criteria, we use the one that is closest is total assets. Matching is one-to-one and is performed with replacement. Observations with an auditor change announcement for which no match meeting the above criteria exists are dropped from the matched sample analysis. The symbols *, **, and *** indicate p-values of < .10, < .05, and < .01 respectively. All variables are defined in Table 1.

Table 5: Multivariate Analysis - Competitor views and the likelihood of auditor change announcements

Variables	Full Sample		Matched Sample	
	DV = Auditor Change□		DV = Auditor Change□	
	Odds Ratio	Test Stat.	Odds Ratio	Test Stat.
Competitor Views				
		16.02**		
Competitor Views$_{m-1}$	2.144	*	2.123	7.24***
Competitor Views$_{m-2}$	1.504	8.45***	1.839	5.85***
Competitor Views$_{m-3}$	1.122	2.23**	1.000	0.00
Competitor Views$_{m-4}$	1.002	0.05	1.087	0.80
Non-auditor Views				
Non-auditor Views$□_{-1}$ $□_o$ $□_{-4}$	0.613	4.75***	0.567	2.51**
Local Market Variables				
Herf. - Local Market	1.036	1.04	0.937	0.77
Dist. - Local Market	0.968	0.79	1.039	0.35
Leader - Local Market	1.045	0.39	0.935	0.23
Industry Market Variables				
Herf. - Industry Market	1.029	0.87	0.915	1.13
Dist. - Industry Market	1.067	1.94*	0.992	0.10
Leader - Industry Market	1.156	0.87	0.949	0.13
Auditor-Client Relationship Variables				
Going Concern Opinion $□_{-1}$	1.658	1.98**	4.508	1.72*
Material Weakness $□_{-1}$	2.002	5.40***	2.482	2.39**
Auditor Tenure	1.036	2.70***	1.036	1.01
Client Characteristic Variables	Included		Included	
Fixed Effects	Month, Fiscal Year End		Month, Fiscal Year End	
Observations	237,007		854	
AUROC	0.84		0.80	
AUROC without Views	0.76		0.65	
Percentage Improvement in AUROC	31%		100%	

Note: This table presents a multivariate analysis of the relationship between competitor auditor views in months m-4 through m-1 and auditor change announcements in month *m*. The analysis is performed in both the full sample and in a matched sample. To create the matched sample, each observation with an auditor change announcement in month m is matched with a control observation without an auditor change announcement in month m that also (1) has the same fiscal year end, (2) is in the same industry, and (3) is headquartered in the same Core-Based Statistical Area (CBSA). If there are multiple potential matches meeting these criteria, we use the one that is closest is total assets. Matching is one-to-one and is performed with replacement. Observations with an auditor change announcement for which no match meeting the above criteria exists are dropped from the matched sample analysis. The symbols *, **, and *** indicate p-values of < .10, < .05, and < .01 respectively. All variables are defined in Table 1.

Table 6: Multivariate analysis - Determinants of competitor views

Variables	DV = Competitor Views	
	Coeff.	Test Stat.
Local-Market Variables		
Herf. - Local Market	-0.003	0.47
Dist. - Local Market	0.001	0.18
Leader - Local Market	-0.004	0.24
Industry-Market Variables		
Herf. - Industry Market	-0.020	4.54***
Dist. - Industry Market	-0.002	0.58
Leader - Industry Market	-0.091	4.35***
Auditor-Client Relationship Variables		
Going Concern Opinion $_{-1}$	0.183	4.51***
Material Weakness $_{-1}$	0.172	7.39***
Auditor Tenure	-0.011	5.32***
Non-auditor Views		
Non-auditor Views	0.593	54.04***
Client Characteristic Variables	Included	
Fixed Effects	Month, Fiscal Year End	
Observations	237,007	
Adjusted R-squared	0.409	

Note: This table presents a multivariate analysis of the determinants of competitor auditor views. The symbols *, **, and *** indicate p-values of $< .10$, $< .05$, and $< .01$ respectively. All variables are defined in Table 1.

Table 7: Multivariate Analysis - The effect of competitor views on audit quality

Variables	DV = Misstatement		DV = Misstatement	
	Odds Ratio	Test Stat.	Odds Ratio	Test Stat.
Competitor Views				
Competitor Views$_{Full Year}$	0.804	2.03**		
Competitor Views$_{Fieldwork}$			0.715	4.47***
Non-auditor Views				
Non-Auditor Views$_{Full Year}$	1.042	0.20		
Non-auditor Views$_{Fieldwork}$			0.851	1.26
Industry-Market Variables				
Herf. - Industry Market	1.043	0.41	1.055	0.49
Dist. - Industry Market	0.939	0.97	0.957	0.69
Leader - Industry Market	1.081	0.23	1.059	0.16
Local-Market Variables				
Herf. - Local Market	1.054	0.84	1.049	0.68
Dist. - Local Market	1.018	0.22	1.027	0.29
Leader - Local Market	0.892	0.50	0.869	0.60
Auditor-Client Relationship Variables				
Going Concern Opinion$_{-1}$	0.793	0.29	0.746	0.35
Material Weakness$_{-1}$	0.199	6.76***	0.193	5.11***
Auditor Tenure	1.015	0.54	1.017	0.50
Additional Control Variables				
Material Weakness	2.990	5.60***	3.007	3.79***
Misstatement$_{t-1}$	172.648	29.14***	190.074	27.03***
Client Characteristic Variables	Included		Included	
Fixed Effects	Fiscal Year, Industry		Fiscal Year, Industry	
Observations	18,067		18,067	
AUROC	0.91		0.92	

Note: This table presents a multivariate analysis of the relationship between competitor auditor views and audit quality for cases where there is no subsequent announcement of an auditor change (i.e., cases where elevated *Competitor Views* indicate that the incumbent successfully defends against competing bids). The test variable is *Competitor Views*, which we measure for both the full year (from the signature date of the prior year's audit opinion through the signature date of the current year's audit opinion) and the fieldwork period (from one-month prior through two months following fiscal year end). The symbols *, **, and *** indicate p-values of < .10, < .05, and < .01 respectively. All variables are defined in Table 1.

Table 8: Multivariate Analysis - The effect of competitor views on audit fees

Variables	DV = Change in Fees Coeff.	DV = Change in Fees Test Stat.	DV = Change in Fees Coeff.	DV = Change in Fees Test Stat.
Competitor Views				
Competitor Views$_{Full\ Year}$	-0.485	3.86***		
Competitor Views$_{Negotiation}$			-0.580	5.19***
Non-auditor Views				
Non-Auditor Views$_{Full\ Year}$	0.492	1.91*		
Non-auditor Views$_{Negotiation}$			0.206	1.02
Industry-Market Variables				
Herf. - Industry Market	0.402	3.95***	0.400	3.94***
Dist. - Industry Market	0.053	0.74	0.052	0.73
Leader - Industry Market	-0.053	0.15	-0.070	0.19
Local-Market Variables				
Herf. - Local Market	0.109	1.57	0.102	1.46
Dist. - Local Market	-0.080	0.87	-0.079	0.86
Leader - Local Market	0.612	2.41**	0.596	2.35**
Auditor-Client Relationship Variables				
Going Concern Opinion$_{-1}$	0.298	0.21	0.343	0.24
Material Weakness$_{-1}$	-1.250	2.50**	-1.229	2.45**
Auditor Tenure	0.032	1.17	0.028	1.03
Additional Control Variables				
Material Weakness	1.856	3.76***	1.836	3.72***
Misstatement$_{t-1}$	1.589	2.98***	1.624	3.04***
Client Characteristic Variables	Included		Included	
Fixed Effects	Fiscal Year, Industry		Fiscal Year, Industry	
Observations	18,067		18,067	
Adjusted R-squared	0.100		0.100	

Note: This table presents a multivariate analysis of the relationship between competitor auditor views and audit fees for cases where there is no subsequent announcement of an auditor change (i.e., cases where elevated *Competitor Views* indicate that the incumbent successfully defends against competing bids). The test variable is *Competitor Views*, which we measure for both the full year (from the signature date of the prior year's audit opinion through the signature date of the current year's audit opinion) and the fieldwork period (from one-month prior through two months following fiscal year end). The symbols *, **, and *** indicate p-values of $< .10$, $< .05$, and $< .01$ respectively. All variables are defined in Table 1.