Does the Business Press Inform Investors of the Value of Big 4 Audits?

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Abstract: We examine whether equity investors respond to negative business press coverage of the Big 4. We find that the extent of negative business press coverage of a Big 4 is associated with a higher percentage of votes against auditor ratification, lower earnings response coefficients for clients, and negative client abnormal returns on the day of news release. Importantly, these results are robust to controlling for other information sources such as client news, audit quality indicators (restatements and auditor litigation), and regulator press releases. Results are driven by business press coverage that relates to audit quality issues. Also, the extent of Big 4 negative business press coverage is associated with a lower probability of gaining new clients and a greater probability of client misstatements. Overall, this evidence is consistent with the business press playing an important role in providing meaningful information to investors about the value of a Big 4 audit.

Key words: Business press coverage; audit value; auditor reputation capital; auditor litigation risk; Big 4 auditor

1. Introduction

Prior studies suggest that the business press plays an important role in shaping the information environment of public companies (e.g., Miller 2006; Tetlock 2007; Tetlock et al. 2008; Engelberg and Parsons 2011; Bushman et al. 2017). However, despite auditors playing a pivotal role in information production of public companies, we need to know more about the business press' interaction with auditors as it relates to the flow of information within financial markets (Miller and Skinner 2015). Thus, we examine whether negative business press coverage of the Big 4 accounting firms (hereafter "the Big 4") informs investors of the value of Big 4 audits.

While the value of an audit is difficult to assess directly because of the proprietary nature of audit engagements, theory suggests that audit firms supply high quality audits due to concerns about reputational capital and litigation risk (DeAngelo 1981; Ball 2009). Thus, if the market perceives a change in auditor reputational capital or litigation risk, then the market's perception of the value of the audit should change accordingly. If market participants such as investors perceive the business press' coverage of the Big 4 as credibly signaling changes in a Big 4's reputational capital or litigation risk, then the coverage should shift investors' perception of the value of the audit (e.g., due to perceived changes in audit quality or the ability to pay litigation claims). Therefore, investors should respond to negative news stories about a Big 4 in ways such as voting against the Big 4 in ratification votes and placing less reliance on audited earnings.

However, it is also possible that the business press does not provide meaningful information about the Big 4 to investors. Many companies are essentially required to hire a Big 4 (e.g., by a loan covenant, organizational complexity, or the potential negative perception of stakeholders should they hire a non-Big 4) and often have limited ability to switch among the

Big 4.[1] Clients of each Big 4 regularly announce restatements, and the Public Company Accounting Oversight Board (PCAOB) makes public numerous audit inspection deficiencies for each of the Big 4 every year.[2] Thus, given audit quality issues are relatively common for each of the Big 4 and the market power of the Big 4, it is possible that investors primarily care whether companies hire a Big 4 and care less about which Big 4 is hired. Even if investors do care about Big 4 audit quality, it is possible that investors pay more attention to news sources such as client restatement announcements and regulator press releases rather than the business press.

Using the RavenPack Dow Jones database, we search for US national business press (e.g., *Wall Street Journal* and *Dow Jones News Wire*) coverage on the Big 4. We identify 55 unique negative news events spanning from 2008 to 2017 where the Big 4 are the *primary* focus of the press coverage.[3] We gather articles from top national news sources related to these 55 unique negative news events from Factiva. This results in 716 news articles. We focus on negative and not positive business press coverage of the Big 4 because business press coverage of the Big 4 is generally negative. For example, the Big 4 are not praised when they stop the occurrence of management fraud, because fraud that does not happen is unobservable. Rather, when the business press covers the Big 4, it is because of a perceived audit failure or because of concerns relating to potential future failures (e.g., Gryta and Lublin 2018).

[1] Switching to another Big 4 is often limited for reasons such as: (1) the company receives consulting services from other Big 4 and receiving these services from the company's auditor would violate independence rules, (2) a company director is a former Big 4 partner who participates in the unfunded pension plan of their former Big 4 firm which means the Big 4 firm cannot be the auditor because of independence rules, or (3) a competitor utilizes a different Big 4 and there are concerns about proprietary information spillover (e.g., Coca-Cola and PepsiCo intentionally utilize different audit firms).

[2] For example, based on a query of Audit Analytics on April 29, 2019, Big 4 clients announced 234, 297, and 393 restatements during 2018, 2017, and 2016, respectively. See https://pcaobus.org/Inspections/Reports/Pages/default.aspx for PCAOB inspection reports.

[3] While the Big 4 are often mentioned in the national business press, they are less often the primary focus of the press coverage. For example, it is common for the press to mention a Big 4 when the press coverage is primarily about a client. To improve identification, we focus on unique news events where a Big 4 is the primary subject of the national business press coverage. The 55 unique news events are listed in Appendix A and include topics such as alleged audit failures, insider trading, independence violations, the sale of tax shelters, and illegal hiring practices.

Using the 716 news articles covering the 55 negative news events, we calculate measures of negative sentiment based on lists of words from Loughran and McDonald (2011). These measures include word counts based on category (i.e., negative and litigious) and a factor analysis. We then first examine whether equity investors cast more votes in auditor ratification voting against hiring audit firms that experience greater negative business press coverage. While results from investor auditor ratification votes are not legally binding, they reflect investors' sentiment against or in favor of the auditor's appointment and result in real consequences (Cassell et al. 2018). We find that greater negative business press coverage of an auditor is associated with more votes against the auditor's subsequent appointment. This result is driven by negative business press coverage of news events that relate to audit quality. This finding suggests that investors are more likely to express opposition to hiring auditors that have experienced negative business press coverage during the year prior to the voting date.

Next, we examine whether negative business press coverage of the Big 4 affects investor perception of audit quality, as measured by earnings response coefficients (ERCs). If negative business press coverage of auditors negatively impacts investors' perceptions of auditors, then investors should incorporate their assessments of auditor quality into pricing of earnings. We find that the positive association between annual returns and earnings is lower with the extent of negative business press coverage, and in particular audit-related coverage, of the auditor in the prior year. This finding suggests that negative business press coverage of auditors negatively affects investors' perception of audit quality.

Next, we examine if the market reacts to negative auditor news on the day of the news revelation. Using an event study methodology, we find that negative business press coverage of an auditor is negatively associated with client returns for the three-day window surrounding the

news disclosure date. This is consistent with clients experiencing declines in value based upon the business press' reporting and characterization of their auditor's news events. This suggests that the business press plays a role in providing investors with useful information about differences in the value of audits performed by the Big 4.

The results are robust to the inclusion of numerous control variables and fixed effects (e.g., client fixed effects), and the effect of negative business press coverage is economically significant. Holding all else constant, an interquartile increase in the count of negative words used by the business press corresponds to: (1) a 4.59% increase in proportion of votes against ratifying the auditor; (2) a decrease of 4.98% in client ERCs; and (3) a decrease of 0.068 percentage points in clients' three-day abnormal returns surrounding the release of the press articles (or 5.73 percentage points on an annualized basis).

In our primary research design we seek to control for sources of information other than the business press that investors may utilize to assess the value of a Big 4 audit (e.g., the total number of restatement announcements for the Big 4 auditor within the year). To further ensure that our results are not explained by alternative information sources, we next explore whether press releases from the institutions alleging improper behavior (e.g., the SEC, PCAOB, US Attorney's Office, etc.) affect our inferences on the role of the business press in informing the market about the value of Big 4 audits.[4] After an extensive search, we identify 22 news events with related regulatory press releases. This suggests that the business press is an important source of Big 4 news, as the business press is the primary source of news for 33 of 55 events. Additionally, after controlling for the sentiment of the regulatory press releases, we continue to find that investors respond to negative business press coverage within tests of auditor ratification

[4] For example, see https://www.sec.gov/news/pressrelease/2015-137.html.

votes, ERCs, and client returns. Results are also robust to controlling for litigation against the Big 4. These results are consistent with the business press disseminating Big 4 news that informs the market about the value of the audit and help mitigate concerns that inferences are due to alternative information sources.

We perform two additional analyses that, when combined with our primary results, help confirm that the business press informs investors about the value of Big 4 audits. First, we examine whether clients are less likely to select an auditor if the auditor has recently experienced negative press coverage. Clients have incentives and the ability to seek out private information related to an auditor's quality (e.g., when they consider hiring a new auditor). If negative business press coverage is diagnostic of the value of a Big 4 audit, then we expect negative business press coverage to be associated with a lower likelihood of recruiting new clients. Conditional on switching, we find evidence that auditors experiencing negative business press coverage, and in particular coverage of audit-related news events, are less likely to win new client engagements.

Second, we find that negative business press coverage of audit-related news events is positively associated with the likelihood that Big 4 clients' financial statements are misstated, which further suggests that negative business press coverage is a reliable indicator of poor audit quality. While this does not rule out the possibility that the business press is at times biased (Miller and Skinner 2015), this result is consistent with the business press informing investors about real audit quality issues, and thus further suggests that the business press provides useful information that allows investors to distinguish differences in the value of Big 4 audits.

Our results suggest that that the business press plays a role in informing the market about perceived reputational capital and litigation risk of audit firms, which contributes to the auditing

literature on reputation and litigation (e.g., Weber et al. 2008; Skinner and Srinivasan 2012; Lennox and Li 2014; DeFond and Zhang 2014). Our results suggest that business press coverage, which is outside of the auditor's control, can affect the market's perception of the auditor's reputational capital and litigation risk. From this perspective, the business press plays a disciplining role over auditors. Also, our findings are consistent with the argument in DeFond et al. (2016) that investors are not perfectly informed about audit quality, and, thus, our results indicate that the business press is a channel through which investors obtain audit quality information.

We also contribute to the literature on business press coverage, which has primarily focused on the business press' coverage of publicly-traded companies (e.g., Miller 2006; Dyck et al. 2008; Fang and Peress 2009; Bushee et al. 2010; Burke et al. 2017; Chen et al. 2018). In particular, Miller and Skinner (2015) call for research on how media interacts with various players in the capital market such as auditors. Our findings suggest that negative business press coverage of the Big 4 plays a role in informing investors of the value of a Big 4 audit. Thus, our results contribute to "our overall understanding of information flow in financial markets" (Miller and Skinner 2015, 233).

2. Literature Review and Research Questions

2.1. Literature Review and Hypothesis Development

2.1.1. The Role of Business Press Coverage

"The role of the media is to collect, select, certify, and repackage information" (Dyck et al. 2008, 1098). Therefore, business press coverage plays an informational role within markets by, among other things, disseminating news to a broad audience and providing commentary that

characterizes the content of the news.[5] For example, the business press help facilitate the distribution of information relating to firms' earnings announcements (Bushee et al. 2010). Additionally, negative words within news stories are positively associated with future negative earnings information, which is quickly reflected in stock prices (Tetlock et al. 2008).

Empirical research supports the informational role of business press coverage. For example, business press coverage affects asset prices (Chan 2003; Dyck and Zingales 2003; Fang and Peress 2009; Drake et al. 2014) and reduces information asymmetry (Bushee et al. 2010). The business press can also serve as a disciplining force. For example, business press coverage is positively associated with corporate governance reforms, negatively associated with insiders' future trading profits, and negatively associated with earnings management (Dyck et al. 2008; Dai et al. 2015; Chen et al. 2018). There is some evidence that suggests that auditors respond to business press coverage of clients (Penn 2012; Dhaliwal et al. 2014). The business press also helps in the early identification of accounting fraud (Miller 2006).[6]

2.1.2. Auditor Reputation and Litigation Risk

Reputation and litigation risk motivates auditors to perform high-quality audits. Reputation emerges from an audit firm's credible commitment to deliver high audit quality (DeAngelo 1981). This allows audit firms to earn fee premiums, which DeAngelo (1981) characterizes as "quasi-rents". Therefore, audit firms have incentives to provide high quality audits due to the threat of losing these quasi-rents upon revelation of low quality auditing. Additionally, because audit firms may be liable for damages suffered by investors as a result of

[5] The term "business press" generally refers to the subset of the media that writes and disseminates commentaries that broadly relates to business.

[6] There is also an "entertainment" view of the business press, which suggests that the business press focuses on customer demand (e.g., increasing readership) and thus plays no informational role (Jensen 1979). There is some evidence of this. For example, Bushee et al. (2010) find evidence that consumer demand is positively associated with business press coverage.

misstated or misleading financial reports, litigation also provides incentives for auditors to deliver high quality audits (Ball 2009).[7] Therefore, audit firms have strong incentives to protect their reputational capital and to minimize litigation risk.

Prior research finds evidence consistent with changes in reputation and litigation risk playing a role in audit firm selection and audit quality. For example, Swanquist and Whited (2015) provide evidence of clients avoiding auditor offices that have had more client restatement announcements. The loss (gain) of an industry client is associated with additional losses (gains) of industry clients in the next two years (Francis et al. 2017). Also, audit firms are less likely to have client misstatements after being sued, and this effect is more pronounced for audit offices accused of wrongdoing (Lennox and Li 2014).[8]

2.1.3. Hypothesis Development

Accounting firms, especially the Big 4, are sometimes the headlines of major news stories. For example, in 2017, PwC made headlines for playing a role in the incorrect announcement of the best-picture winner at the Oscars (Gelles and Maheshwari 2017). Also, KPMG made headlines for receiving confidential PCAOB information relating to the oversight of their auditing practice (Michaels and Rapoport 2017). When the Big 4 make headlines, it is generally for negative and not positive reasons. For example, we are unaware of any major news

[7] Ball (2009) notes how litigation incentives for providing high quality audits manifest via two mechanisms. First, because audit firms are partnerships, partners share some liability for legal claims against the firm and each other, which creates incentives for strong quality controls within the audit firm. Second, audit firms serve as a form of insurance for legal claims brought by shareholders because auditors can be named in lawsuits upon the realization of accounting misstatements.

[8] Reputation and litigation effects are very difficult to separate, especially in the United States (Ball 2009). For example, clients may avoid a particular audit office that is associated with restatements because of reputation or litigation risk concerns. If the client selects an auditor associated with restatements then the client's litigation risk could increase due to hiring a low quality auditor. Also, the loss of clients reduces the insurance role of the auditor. Because of the difficulty in separating litigation and reputation effects, a few studies have examined and found evidence of reputation effects in jurisdictions with very low litigation risk (e.g., Weber et al. 2008; Skinner and Srinivasan 2012).

story that touts how great a job one of the Big 4 did with respect to an audit.

We propose that the business press can shape market participants' views of the Big 4. Specifically, by writing stories about the various perceived failures of the Big 4, the business press publicizes information that investors may perceive to be relevant to the reputation and litigation risk of the Big 4. If investors perceive the business press as credible, then these stories should affect investors' perception of the value of the audit. For example, business press coverage that damages an auditor's reputation could signal reduced audit quality, which would reduce the value of the audit for investors. Business press coverage that increases litigation risk (whether or not the underlying event has to do with audit quality) could reduce the value of the audit for investors because the insurance value of the audit decreases when the audit firm loses revenue. This leads us to our first hypothesis.

> **H1:** Negative business press coverage of an accounting firm lowers investors' assessments of the value of an accounting firm's audit.

Business press coverage of the Big 4 relates to news events that directly relate to audit quality and news events that are unrelated to audit quality. For example, coverage of PwC's blunder at the Oscars arguably has little to do with PwC's audit quality. While business press coverage of the Big 4 that is unrelated to audit quality may affect investors' assessment of the value of the audit (e.g., see Donelson et al. 2019 for how perceptions of reputation are imprecise), our expectation is that investor's will react more strongly to business press coverage of the Big 4 that is related versus unrelated to audit quality. This expectation is based on the fact that business press coverage directly related to audit quality should be a stronger signal to investors of potential audit quality issues compared to coverage that is unrelated to audit quality. This leads us to our second hypothesis.

> **H2:** Negative business press coverage of an accounting firm that is directly related to audit quality lowers investors' assessments of the value of an accounting firm's audit

more so than negative business press coverage of an accounting firm that is unrelated to audit quality.

While we expect the business press to play a role in shaping investors' perception of the Big 4, there are reasons why this may not be so. First, investors may primarily rely on sources other than the press for information related to a Big 4's audit quality. For example, restatements, which often can be at least partially blamed on auditors, are publicly disclosed by clients via Form 8-K and press releases. Also, the PCAOB regularly publishes inspection reports that detail deficiencies in audit procedures. Thus, the business press may simply repeat information relevant to assessing audit quality that is accessible elsewhere.

Second, while an extreme view, some suggest that audit quality differences among public companies may not be a primary concern for equity investors (Donovan et al. 2014). Even if equity investors do care about audit quality differences among public companies, it is possible that they do not care about audit quality differences between the Big 4. Indeed, all of the Big 4 are regularly associated with observable proxies of poor audit quality such as client restatements and PCAOB inspection deficiencies. Also, the Big 4 have stronger reputations and significantly greater revenues that can cover litigation claims compared to smaller audit firms. Thus, investors may not differentiate between the Big 4.

Third, investors may think that companies ensure high quality financial reporting outside of their choice of a Big 4 auditor because of practical limitations on auditor choice. Public companies, particularly large public companies, essentially have to engage a Big 4 due to factors such as organizational complexity (e.g., only a Big 4 has the worldwide scope to audit all foreign locations) and pressure from other stakeholders (e.g., loan covenants often require a Big 4 auditor). However, once engaged, it is often difficult for clients of the Big 4 to switch to another Big 4 for independence and competitive reasons. For example, clients often receive consulting

services from some of the Big 4, which can create independence issues such that the client is unable to switch to certain Big 4. Also, competitors sometimes do not want to have the same auditor, as evidenced by Coca-Cola encouraging EY to drop PepsiCo as an audit client upon the merger of its legacy firms (Chasan 2012). Therefore, clients often have very limited ability to switch to another Big 4, which could result in clients ensuring high quality financial reporting in ways outside of auditor choice (e.g., having strong internal controls or a strong board of directors). Thus, it is possible that investors ignore business press coverage of the Big 4.

2.2. Measures of Investor Perception of the Big 4

We utilize three primary measures of investors' perception of the Big 4: auditor ratification votes, earnings response coefficients (ERCs), and clients' stock price reaction.

2.2.1. Auditor Ratification

Our first measure of investor perception is based on whether investors express objections to hiring auditors receiving negative business press coverage when they vote to ratify hiring the auditor. Prior studies show that more votes against ratifying hiring the proposed auditor are positively associated with client restatements (Liu et al. 2009), non-audit fees (Raghunandan 2003; Mishra et al. 2005), and auditor tenure (Dao et al. 2008). Cassell et al. (2018) find that, on average, "against" votes are not based on auditor quality (i.e., they are uninformed). However, sophisticated investors (institutional ownership) do appear to make informed auditor ratification votes. If investors pay attention to negative business press coverage of auditors, we expect more investors are likely to vote against ratifying that auditor.

Based on prior literature (e.g., Cassell et al. 2018), we adopt the following model to examine the relation between negative news and auditor ratification votes by investors, with standard errors clustered by client:

$$LN\_AGAINST_{t+1} = \beta_0 + \beta_1*(\textit{Measures for Business Press Sentiment}) + \lambda*Controls_t + \varepsilon \quad (1)$$

where $LN\_AGAINST_{t+1}$ is the natural logarithm of the proportion of votes that are against ratifying hiring the nominated Big 4 audit firm in the year after the end of fiscal year *t*. We use three measures to capture negative business press coverage sentiment one year before voting dates. These measures are defined in the next section. A positive estimate of β_1 indicates greater negative business press sentiment during the year leading up to voting dates is associated with a greater level of "against" auditor ratification votes. Control variables include the following factors related to audit risk and client performance and are measured as of the end of year *t*: client size measured as the natural logarithm of market value of equity (*SIZE*), growth opportunities (*BTM*), mergers (*MERGER*), acquisitions and restructuring (*RESTUCT*), accruals (*ACCR*), inventory (*INV*), accounts receivables (*REC*), dividend payments (*DIV*), profitability (*ROA* and *LOSS*), an indicator variable for a December fiscal year end (*DEC*), and 12-month cumulated abnormal stock returns (*RET*). We also control for auditor going-concern opinions (*GC*), whether the financial statements are subsequently restated (*RESTATE*), and votes against ratification in the previous year (*LAG_LN_AGAINST*). To avoid the possibility that our variable of interest captures business press coverage of clients, we control for the number of client business press articles (*CLIENT_NEWS*) during year *t*. Because we are interested in the incremental effect of business press sentiment beyond observable auditor quality, we control for the number of restatements associated with the client's audit firm office (*AUD_REST*) during year *t*. Restatements are a measure of audit firm audit quality that is very observable to the market. Lastly, we include client and year fixed effects in all our models. For brevity, we present detailed definitions of these variables in Appendix B.

2.2.2. Perceived Credibility of Earnings

Next, we explore whether investors perceive earnings of clients audited by an auditor experiencing negative business press coverage are of lower quality. Teoh and Wong (1993) argue that an auditor's reputation affects the credibility of client earnings. Thus, if negative business press coverage negatively impacts the perception of audit quality, then we expect that earnings of clients whose auditors experience negative business press coverage will be perceived as less credible. In other words, ERCs should be lower for clients audited by Big 4 that experience negative business press coverage.

We estimate the following model based on Teoh and Wong (1993), with standard errors clustered by client. Similar designs are adopted in Wang (2006), Fan and Wong (2002) and Carcello and Li (2013).

$$RET_t = \beta_0 + \beta_1 * EARN_t + \beta_2 * EARN_t * (\textit{Measures for Business Press Sentiment}) + \delta * Controls_t + \lambda * EARN_t * Controls_t + \varepsilon \quad (2)$$

where RET_t is the 12-month cumulative market adjusted abnormal return, ending three months after the fiscal year end of *t*. Abnormal return is calculated as the difference between the stock return for the client and the corresponding CRSP value-weighted market return. $EARN_t$ is earnings per share for the client in fiscal year *t* scaled by the price per share at the beginning of fiscal year *t*, both adjusted for stock splits and stock dividends. The controls include client size (*SIZE*), growth potential (*BTM*), whether a client reports a loss (*LOSS*), whether the financial statements are subsequently restated (*RESTATE*), auditor fees (*LN_FEES*), auditor tenure (*LN_TENURE*), and the total number of restatement announcements associated with the client's audit firm office (*AUD_REST*) during year *t*. Additionally, we control for the total number of news articles for clients (*CLIENT_NEWS*) during year *t*. Lastly, we control for client and year fixed effects. A negative estimate of β_2 suggests greater negative business press sentiment is

associated with lower perceived auditor quality.

2.2.3. Clients' Stock Prices

Our third measure of investors' perception of auditors is the market prices of an auditor's clients around the date of negative news revelation. If the business press affects an auditor's reputation or litigation risk by disseminating and characterizing negative news related to the auditor, then we expect a negative market reaction for an auditor's clients when the auditor experiences negative news (e.g., see Weber et al. 2008). To examine the market's reaction to negative news events about the Big 4, we estimate the following regression with standard errors clustered by client:

$$CAR = \beta_0 + \beta_1*(\textit{Measures for Business Press Sentiment}) + \lambda*Controls_t + \varepsilon \quad (3)$$

The dependent variable (*CAR*) is a client's cumulative market-adjusted abnormal returns during a 3-day window around the day when its auditor experiences negative business press, and is expressed as a percentage. Using a short window around the news revelation day as the event window helps reduce potential confounding events. However, to control for other factors that might affect stock returns, our model also includes several client-specific control variables: client size (*SIZE*), growth potential (*BTM*), leverage (*LEV*), and profitability (*ROA* and *LOSS*). In general, we expect the clients' valuations to vary with their financial performance and capital structure. Additionally, we control for auditor going-concern opinions (*GC*), whether the financial statements are subsequently restated (*RESTATE*), and attributes of the auditor-client relationship (*LN_FEES* and *LN_TENURE*). We also include the total number of restatement announcements associated with the client's audit firm office (*AUD_REST*) during year *t* to control for auditor quality. Moreover, to avoid the potential confounding effect of business press coverage of clients, we control for the total number of news articles for clients (*CLIENT_NEWS*)

during year *t*. If negative business press attention negatively affects the market's assessment of the auditor's quality, we expect the coefficient on β_1 to be negative.

3. Negative Business Press Coverage, Sample Selection, and Descriptive Statistics

3.1. Negative Business Press Coverage

We employed a two-step process to identify negative news articles about the Big 4. First, we utilized RavenPack to identify unique negative news events. Then, we utilized Factiva to identify news articles that cover the unique news events. This process is further described below.

We identified unique negative news events for the Big 4 using the RavenPack Dow Jones Edition 4.0 dataset of real time news coverage from 2008 to 2017.[9] RavenPack provides data analytics for all news items disseminated via the Dow Jones Newswire service, which includes Dow Jones Newswires, the Wall Street Journal, Barron's, and MarketWatch. RavenPack also assigns a relevance score between 0 and 100 to indicate how strongly the firm is related to the underlying news story.

To identify unique news events, we limited business press coverage to news articles on the Big 4 with a relevance score of 100 or 99 to ensure that the particular Big 4 plays the most prominent role in the story.[10] Thus, by construction, our sample of news events includes events where a particular Big 4 is the subject of the event and excludes events where a particular Big 4 is not the primary subject of the event. For those articles with a relevance score of 100, RavenPack also classifies the news articles into news event categories (such as legal issues, executive resignation, and business contract, etc.) and then assigns event sentiment scores to

[9] We start our search in 2008 because of data limitations for our dependent variables of interest (i.e., Audit Analytics started covering auditor ratification from 2010). These limitations are noted in the sample selection section.
[10] RavenPack assigns a relevance score of 100 or 99 when the firm is the primary focus of the underlying news coverage. The difference between a score of 100 and 99 is that RavenPack assigns a score of 100 only when the RavenPack algorithms can assign the news to predefined news categories. Also, RavenPack assigns event sentiment scores only for those articles assigned to a predefined news category. Thus, for articles with a relevance score of 99, the firm is the primary focus of the underlying news coverage, but there is no event sentiment score.

news articles using proprietary algorithms.[11] Sentiment scores have a value between 0 and 100 where higher (lower) values indicate more positive (negative) sentiment. We manually screened all the negative news articles and decided to focus on 50 unique news articles with a sentiment score lower than 40.[12] These 50 unique news articles represent 50 unique Big 4 news events. For those articles with a relevance score of 99, we identified potential unique news events as those with at least two articles on a single day and at least one article on the subsequent day.[13] We then manually screened the articles and identified five additional unique news events.[14] Thus, our final sample of news events contains 55 unique Big 4 news events.

For each news event, we then manually searched Factiva to identify related articles that make up the timeline of business press coverage for the event. Specifically, we searched for full news articles from top US national news sources (i.e., The Wall Street Journal, The New York Times, Washington Post, Financial Times, Dow Jones Newswires, Reuters Newswires, and USA today) by requiring Big 4 in the news title, matching news events, and excluding exact

[11] Several studies use news sentiment scores developed by RavenPack in different contexts. For example, Bushman et al. (2017) find that the probability of non-relationship lenders joining syndicate loans increases in business press sentiment. Dang et al. (2015) aggregate weekly business press sentiment scores to measure company-specific news and examine the effect of country-level institutional infrastructures on company-specific information production. Dhaliwal et al. (2017) find high levels of tax avoidance are positively associated with company reputational costs as measured by negative business press sentiment. Warren and Sorescu (2017) show that the stock market reaction to a new product announcement is negatively related to the average sentiment of past business press coverage.

[12] A value above (below) 50 indicates positive (negative) sentiment of a given news article, as classified by RavenPack. We manually screen 186 unique news articles with sentiment scores lower than 50 and set our cutoff line for negative news articles as 40, because news articles with scores above 40 are mainly related to accounting firms' organization restructure such as mergers and acquisitions which are not necessarily perceived as bad news by investors. For similar reasons, we also exclude news articles about audit firm revenue and audit firm resignations.

[13] Our sample selection involves significant manual data collection. Because news articles with a relevance score of 99 do not have sentiment scores, we have to read these articles to determine whether each article is negative. To balance the benefits and costs of using the articles with relevance scores of 99, we identify potential unique news events as those with at least two articles on a single day and at least one article on the subsequent day. In so doing, we aim to supplement our sample based on relevance scores of 100 in a way that is cost effective. Our inferences are the same if we exclude unique news events identified based on articles with relevance scores of 99.

[14] There were 13 potential news events with articles having a relevance score of 99. Our manual screen of these articles revealed that six events were already identified in our sample of articles with a relevance score of 100, one event was not a negative event, and two of the potential news events were duplicates. Thus, our process of reviewing news articles with a relevance score of 99 resulted in an additional five unique news events.

duplicates.[15] This search results in 716 news articles from 2008 to 2017 that relate to the 55 news events. Appendix A lists relevant details about each news event.

There is significant variation in the news events. For example, unsurprisingly, many news events allege audit failures, but there are also events that relate to independence violations, tax shelters, and insider trading. The business press covered some events in detail over a long period of time, but covered other events on only a single day. Additionally, some events have related press releases from organizations such as the PCAOB and the SEC, while other events do not. Finally, the news events are from many jurisdictions, which represents the global reach of the Big 4 and the relevance of these events to the readership of top US national news sources.

3.2. Business Press Sentiment Measures

We construct three measures of negative business press sentiment using the 716 news articles. Specifically, we use the Loughran and McDonald (2011) lists of negative and litigious words, and count the total number of negative and litigious words for each news article. The first two measures (i.e., *LN_COUNTNEG* and *LN_COUNTLIT*) are based on the total count of negative and litigious words for the articles associated with each unique news event. Because the total number of negative and litigious words are highly right-skewed, we use a log transformation in the empirical analyses. Given the high correlation among the negative and litigious word counts (untabulated), we construct a third measure, *PC_SENTIMENT*, as the first principal component of the first two measures. *PC_SENTIMENT* serves as an aggregate measure

[15] Full articles, which are the focus of our study, typically contain event details and related editorial content. Prior literature (e.g., Drake et al. 2014; Bushman et al. 2017; Ahn et al. 2019) has used full articles as proxies for the information creation role of the business press. The business press can also serve an information dissemination role. Prior literature has generally used news flashes, which contain no editorial content (Drake et al. 2014), as proxies for the information dissemination role of the business press. Thus, full articles are more likely to contain information that is not available from other sources, whereas news flashes are more likely to repeat information that is available from other sources (e.g., a restatement announced via an 8-K or a company press release).

of negative business press sentiment.[16]

Table 1, Panel A summarizes the categories of news events, number of news articles, and average negative, litigious, and positive word counts for each Big 4 over our sample period. The total number of news events ranges from 12 (KPMG) to 16 (PwC) over the ten-year period. The total number of negative news articles ranges from 94 (Deloitte) to 231 (PwC) over the ten-year period. For comparison, we also count the positive words in each article. Because we focus on negative business press coverage, not surprisingly, on average, there are only 3 positive words versus 27 negative words per news article (untabulated).[17]

Table 1, Panel B presents the distribution of the numbers of news events and articles by Big 4 and year. There is significant variation in the number of news events and articles among the Big 4 both overall and by year.[18] Moreover, there is significant variation of negative business press sentiment across the Big 4 during the sample period. For example, both Deloitte and EY have three unique negative news event in 2010. However, the number of negative articles and negative word counts for Deloitte (EY) for these events is 14 (51) and 451 (1,379), respectively. Descriptively, the variation in Table 1 is consistent with the business press conveying meaningful differences in negative news events between the Big 4 within and across years.

3.3. Sample Selection

To construct our auditor ratification sample, we begin with the Compustat annual file from 2009 to 2017 and obtain corresponding auditor data from Audit Analytics. We keep the

[16] Following Tetlock (2007) and Bushman et al. (2017), we do not control for the number of articles in our primary analyses. By construction, the number of negative words increases with the number of negative articles. The correlation between our measures of negative sentiment and the number of negative articles is over 90%.
[17] We do not consider positive words in our tone measures for two reasons. It is practically problematic to identify positive words to calculate positive and net tone (see Section 6.3 of Loughran and McDonald 2016). Moreover, in our setting, there were very few positive words.
[18] Note that a unique news event can span several years. Thus, in Table 1, Panel B, the total number of news events is greater than 55 (i.e., the number of unique news events).

client-year observations with Big 4 auditors. Then, we obtain the Audit Analytics Auditor Ratification dataset from 2010 to 2017. The first year with complete auditor ratification voting data available in Audit Analytics is 2010. We match the financial data for year *t* to the auditor ratification data that immediately succeeds year *t*, and match the auditor ratification data to negative news articles over the year prior to voting date. For example, if the auditor ratification vote takes place on June 15, 2012, then we match in negative news for the auditor up for ratification from June 16, 2011 to June 15, 2012. We remove client-years that do not have sufficient data to calculate control variables. We also require voting data for *t-1* to control for the lag of votes against the auditor. We remove observations where there are no votes against the auditor because we take the natural log of the votes against the auditor in our multiple regression analysis. This yields a sample of 13,461 client-year observations for examining the effect of negative business press sentiment on investors' voting against accounting firms. Table 2 provides the details of our sample selection.

For the ERC test, we compile our sample using the intersection of the Compustat annual file, Audit Analytics, and CRSP from 2009 to 2017. We keep all client-years audited by Big 4 auditors and having sufficient data to calculate control variables. We then match client-years to negative news articles over the year prior to the fiscal year ending date. For example, if the year-end is June 30, 2009, then we match in negative news from July 1, 2008 to June 30, 2009 for the auditor of the financial statements. These procedures yield a sample of 21,247 client-year observations for the ERC analysis.

For the clients' market reaction test, we obtain financial data from Compustat, auditor-related data from Audit Analytics, and daily stock returns from CRSP from 2009 to 2017. We match the 716 negative news articles to client-days based upon whether the news was about the

client's auditor. We then remove client-days with missing stock price data over the three-day window surrounding the client-day. We then remove client-days that do not have necessary data for controls. These procedures yield a sample of 177,907 client-day observations for the analysis of the relation between negative business press sentiment of the Big 4 and clients' stock price reactions.

3.4. Descriptive Statistics

Descriptive statistics for the primary variables used in our study are reported in Table 3. On average, client-years in our sample are associated with an auditor that had 491 negative words and 235 litigious words in news articles matched to the given client-year. *V_AGAINST* has a mean value of 1.3% and a median value of 0.8%, indicating that only a small proportion of votes are against ratifying nominated candidate audit firms, consistent with Cassell et al. (2018). Because *V_AGAINST* is highly rightly skewed, we use a log transformation in the empirical analyses.[19] The mean and median of abnormal annual returns (*RET*) are 5.0% and 3.2%, respectively. Earnings scaled by beginning equity market value (*EARN*) have a mean value of -0.004 and a median value of 0.044. The mean and the median 3-day abnormal returns for clients on the day of news event (*CAR*) are 0.193% and 0.035%.

4. Empirical Results

4.1. Auditor Ratification

Results for equation (1) are reported in Table 4. In panel A, we use the full sample to test Hypothesis 1. The coefficients on all three variables of interest are positive and significant, suggesting that greater negative business press sentiment before auditor ratification dates leads to a higher portion of votes against ratifying the candidate Big 4 as the independent auditor. For

[19] Using the raw value of the proportion of votes against produces similar results.

example, the coefficient on *LN_COUNTNEG* is 0.016 ($p < 0.05$). In terms of the economic significance, this suggests that for every *one* percent increase in the number of negative words in the year leading up to the auditor ratification vote, there is a 0.016% increase in the proportion of votes against the auditor, holding everything else constant. The interquartile change of the count of negative words (*COUNTNEG*) is 408 (i.e., 550-142) or 287% (i.e., =408/142). As a result, the corresponding economic effect on *V_AGAINST* is 4.59% (i.e., 287*0.016).

[Insert Table 4 here]

In panel B, we test whether the effect of negative business press coverage that is directly related to audit quality is different from the effect of negative business press coverage that is not directly related to audit quality (Hypothesis 2). We find that the coefficients on audit-related negative business press sentiment (*LN_COUNTNEG_AUD*, *LN_COUNTLIT_AUD* and *PC_SENTIMENT_AUD*) are positive and significant, while the coefficients on negative business press sentiment unrelated to audit are insignificant. Additionally, the differences between the coefficients on audit-related negative business press sentiment and the corresponding coefficients on non-audit-related negative business press sentiment are statistically significant (one-tailed $p< 0.10$) in two of the three models. This suggests that investors react to business press coverage of the Big 4 when the coverage relates to audit quality but investors do not react to other types of business press coverage of the Big 4.

4.2. Earnings Response Coefficients

Results of estimating equation (2) are reported in Table 5. Panel A tests Hypothesis 1. As expected, earnings (*EARN*) is positively associated with annual returns (*RET*) ($p<0.05$ in all three models). Our variable of interest is the interaction term between *EARN* and measures of negative business press sentiment. In all three models, the coefficients on the interaction terms

(*EARN*LN_COUNTLIT*, *EARN*LN_COUNTNEG*, and *EARN*PC_SENTIMENT*) are negative and significant ($p<0.05$). From an economic perspective, holding everything else constant and considering the -0.055 coefficient in column (1), an interquartile increase from the 25th to the 75th percentile of the number of negative words in news articles represents a decrease of 4.98% in the ERC.[20] These findings suggest that negative business press coverage of the Big 4 affects investors' perceptions of audit quality, which results in investors perceiving earnings to be less informative.

[Insert Table 5 here]

In panel B, we test if there is a differential effect based on whether the news is directly related to audit quality (Hypothesis 2). We find that the coefficients on the interaction terms related to audit news (*EARN*LN_COUNTNEG_AUD*, *EARN*LN_COUNTLIT_AUD* and *EARN*PC_SENTIMENT_AUD*) are negative and significant, while the coefficients on negative business press sentiment that are not directly related to audit quality (*EARN*LN_COUNTNEG_ OTHER*, *EARN*LN_COUNTLIT_ OTHER* and *EARN*PC_SENTIMENT_OTHER*) are insignificant. Additionally, the differences between the coefficients on audit-related negative business press sentiment and the corresponding coefficients on non-audit-related negative business press sentiment are statistically significant (one-tailed $p< 0.01$). As with the auditor ratification tests, this suggest that the effects are driven by business press coverage that relates to auditing.

4.3. Clients' Stock Market Impact

Next, using an event study method, we investigate the impact of negative business press

[20] In column (1), the coefficient on *EARN* is 1.526. The 25th (75th) percentile of the number of negative words in news articles is 142 (550). Thus, an increase from 142 to 550 negative words represents a 0.076 decrease in the ERC (i.e., -0.055*(ln(550)-ln(142))). This represents a 4.98% (i.e., 0.076 / 1.526) decrease in the ERC.

coverage of the Big 4 on their clients' stock prices during a three-day window around the corresponding news report dates. Table 6 presents the results of estimating equation (3). Panel A tests Hypothesis 1. The coefficients on the measures of business press sentiment are all significant and negative, suggesting that the market revises downward the value it places on audits executed by the Big 4 based upon the negativity of the business press within news stories about the Big 4. From an economic perspective, holding everything else constant and considering the -0.050 coefficient in column (1), an interquartile increase from the 25th percentile to the 75th percentile of the number of negative words (*COUNTNEG*) in news articles represents a decrease of 0.068 percentage points in the three-day abnormal return, or, 5.73 percentage points on an annualized basis.[21]

[Insert Table 6 here]

In panel B, we test if there is a differential effect based on whether the news is directly related to audit quality (Hypothesis 2). We find that the coefficients on audit-related negative business press sentiment (*LN_COUNTNEG_AUD*, *LN_COUNTLIT_AUD*, and *PC_SENTIMENT_AUD*) are negative and significant. One coefficient on negative business press sentiment that is not directly related to audit quality (*LN_COUNTNEG_ OTHER*) is negative and significant, while the coefficients on *LN_COUNTLIT_ OTHER* and *PC_SENTIMENT_OTHER* are insignificant. The differences between the coefficients on audit-related negative business press sentiment and the corresponding coefficients on non-audit-related negative business press sentiment are statistically significant in all three models (one-tailed $p < 0.05$). These results

[21] The 25th (75th percentile) of the number of negative words in news articles is 142 (550). Thus, an increase from 142 to 550 negative words represents a 0.068 decrease in the three-day return (i.e., -0.050*(ln(550)-ln(142))). Assuming there are 253 trading days in a year, it represents 5.73 percentage point discount in a year (i.e., 253/3*0.068).

suggest that the effects are stronger (i.e., more negative) for business press coverage that relates to auditing and, thus, support the prediction in H2.

Overall, these analyses provide evidence that the market finds negative Big 4 business press coverage as informative of the value of the Big 4 audit. The results from estimating equation (3) are particularly convincing in supporting H1 and H2 because the news events are distributed throughout the sample period, which reduces the likelihood that confounding events affect inferences. Therefore, these results when combined with the results for shareholder voting on auditor ratification and ERCs provide robust evidence that suggests that the business press plays a role in forming market perceptions about the value of Big 4 audits.[22]

5. Additional Analyses

5.1. Disclosure via Other Channels

Investors obtain information from various sources. For example, investors may become aware of restatements when companies file an 8-K, when companies issue a press release, or when the business press writes about the restatement. Therefore, a natural question is whether our results indicate that the business press provides new information to the market (whether by providing notice of an event or whether by characterizing the event) or whether our results indicate that negative business press coverage is a proxy for major events that are disclosed through other channels. In our primary analyses, we attempt to rule out the latter explanation by including controls for client news and readily available indicators of auditor quality (e.g., the total number of restatement announcements for the Big 4 auditor within the year). The goal of

[22] We have purposely identified news events that focus on a particular Big 4 audit firm. However, some of the events also involve a Big 4 client. As a robustness test, we identify 14 news events that specifically mention U.S. public clients in the articles and remove observations related to these companies within our sample and re-estimate all equations (Equations (1) through (5)). Our results remain the same after excluding these observations.

these controls is to isolate the effects of business press coverage of the Big 4.

To further explore whether the business press plays a role in providing original information related to the Big 4, we search for press releases from institutions that play a governing role over the Big 4. For example, in its role of overseeing the quality of public-company audits, the PCAOB releases information that it deems relevant for public dissemination (e.g., https://pcaobus.org/News/Releases/Pages/02082012_DisciplinaryOrderEY.aspx). As noted in Appendix A, we identify 44 related press releases from governing institutions for 22 out of 55 negative news events. This suggests that the business press serves as an original and unique source of information pertaining to the Big 4 for investors (e.g., 44 regulatory press releases versus 716 business press articles). Sometimes, the business press is the only source of information pertaining to a news event.

Even when there are related regulatory press releases, the business press can provide unique information in the way that they characterize and contextualize the news event. Therefore, we next formally test the incremental effects of business press sentiment beyond the information contained in press releases from institutions that play a governing role over the Big 4. We create sentiment measures for the press releases (*LN_COUNTNEG_PR*, *LN_COUNTLIT_PR* and *PC_SENTIMENT_PR*).[23] Then, we re-estimate equations (1), (2), and (3) after including the press-release sentiment measures.

[Insert Table 7 here]

Panel A, B, and C of Table 7 report results for auditor ratification (equation (1)), ERCs (equation (2)), and client returns (equation (3)), respectively. All coefficients of interest are significant in the predicted direction with the exception of *LN_COUNTLIT* in column (2) of

[23] We append "*_PR*" to the end to signify that the sentiment measure relates to a press release.

Panel C. In Panel C, the coefficients on the sentiment measures of press releases are negative and significant, suggesting that the press releases influence the market's perception of the value of the audit. Importantly, after controlling for the effects of press releases from sources such as the SEC and PCAOB, the results suggest that the business press plays a significant role in shaping investors' perception of auditors' reputational capital and litigation risk. Therefore, these results corroborate the findings in the main analyses that the business press provides new and unique information to the market that is relevant to assessing the value of a Big 4 audit.[24]

5.2. New Client Engagements

Given evidence above that the market interprets negative business press coverage of the Big 4 as diagnostic of the value of a Big 4 audit, a natural question is whether the market's assessment is reliable. Therefore, we next examine whether clients are less likely to select an auditor if the auditor has recently experienced negative business press coverage.[25] Clients have incentives to seek out private information related to the value of the audit when they consider hiring a new auditor (e.g., they interview potential auditors). If negative business press coverage is diagnostic of the value of a Big 4 audit, then we expect negative business press coverage of the Big 4 to be associated with a lower likelihood of recruiting new clients.[26] Thus, we adopt the following logistic model to examine whether negative business press coverage of the Big 4 is

[24] In an untabulated robustness test, we control for the yearly number of lawsuits where the auditor is named as a defendant (per Audit Analytics), and inferences remain the same. In an additional untabulated robustness test, we control for the ex post settlement amount of the underlying news event, where available. Only 19 out of the 55 news events have ex post settlement amount. The settlement amount represents a measure of event severity. Inferences remain the same after controlling for the settlement amount.

[25] It is also possible that clients are more likely to dismiss auditors that experience negative business press coverage. However, switching auditors is very costly. Thus, the power of a test of auditor dismissal is likely low. In untabulated tests, we find that proxies for negative business press coverage are insignificantly related to the likelihood of auditor dismissal. There are also insignificant results when using audit-related negative business press coverage.

[26] The association could be causal if business press coverage provides information to potential clients that the clients do not already know. For our purposes, we examine whether there is an association, as this would be consistent with business press coverage of the Big 4 being diagnostic of the true value of the audit and, thus, being informative to investors.

associated with the likelihood of recruiting new clients:

$$\text{Prob}(ENGAGE_{t+1} = 1) = F\,[\beta_0 + \beta_1 * (\textit{Measures for Business Press Sentiment}) + \lambda * \textit{Controls}_t] \quad (4)$$

where *ENGAGE* is an indicator variable equal to one if a client hires a new auditor in year *t+1*, and zero otherwise. "Measures for Business Press Sentiment" is defined as the business press sentiment in year *t* for the auditor engaged in year *t+1*. Therefore, if the client engages a new auditor in *t+1*, then "Measures for Business Press Sentiment" is defined as the business press sentiment in year *t* for the *new* engaging auditor. If clients stay with the same auditor in *t+1* as they had in *t*, then "Measures for Business Press Sentiment" is defined as the business press sentiment in year *t* for the existing auditor. We append "*_NEW*" to each of the "Measures for Business Press Sentiment" to distinguish them from the measures we have used in previous equations. See the Appendix B for detailed variable definitions. We expect that the coefficient on "Measures for Business Press Sentiment" (β_1) to be negative which means auditors with more negative business press coverage are less likely to recruit new clients.

[Insert Table 8 here]

Results are reported in Table 8. In columns (1)-(3), all coefficients on the variables of interest (*LN_COUNTLIT_NEW*, *LN_COUNTNEG_NEW* and *PC_SENTIMENT_NEW*) are negative and significant at $p < 0.05$.[27] In columns (4)-(6), all coefficients on the audit-related news variables (*LN_COUNTLIT_AUD_NEW*, *LN_COUNTNEG_AUD _NEW* and *PC_SENTIMENT_AUD_NEW*) are negative and significant at $p < 0.01$, while the coefficients on negative business press sentiment that are not directly related to audit quality are insignificant.[28]

[27] In this test, we exclude the client-year observations switching to non-Big 4 auditors. Our results are robust to including them.

[28] The coefficient on *LN_COUNTNEG_NEW* is -0.080 in column (1). The 25th (75th) percentile of *COUNTNEG_NEW* is 142 (550). Holding the control variables at their mean values, the predicted probability of recruiting a new client is 0.14% lower for an interquartile increase in the count of negative words. The mean of new

Overall, these results suggest that clients are less likely to select an auditor if the auditor has recently experienced negative business press coverage and that negative business press coverage is diagnostic of the value of a Big 4 audit.

5.3. Audit Quality Measured by Restatement

Next, we examine whether negative business press coverage is diagnostic of actual audit quality. Specifically, we examine whether negative business press coverage of the Big 4 is associated with misstated client financial statements. We adopt the following logistic model:

$$\text{Prob}(\textit{RESTATE8K}_t = 1) = F\,[\beta_0 + \beta_1 * (\textit{Measures for Business Press Sentiment}) + \lambda * \textit{Controls}_t] \quad (5)$$

where *RESTATE8K* is an indicator variable equal to one if a client-year is materially misstated as identified by a subsequent restatement announcement, and zero otherwise. In other words, *RESTATE8K* identifies year *t* financial statements that are materially misstated. Our variables of interest, "Measures for Business Press Sentiment", are measured as the auditor's business press sentiment in year *t*, which tests whether audit quality is lower when negative business press sentiment is greater. A positive estimated coefficient on β_1 suggests that a client is more likely to have misstated financial statements if its auditor receives greater negative business press coverage in the same year. In addition to year fixed effects and industry fixed effects, we control for factors that are likely to affect misstatement likelihood: client size (*SIZE*), leverage (*LEV*), profitability (*ROA* and *LOSS*), growth opportunities (*BTM*), an indicator variable for December fiscal year end (*DEC*), auditor tenure (*LN_TENURE*), and auditor effort (*LN_FEES*). Like previous models, we also control for the number of client business press articles (*CLIENT_NEWS*) and the number of restatements at the audit firm office level (*AUD_REST*).

engagement in our sample is 0.017, which translates into a 8.24% decrease in the likelihood of recruiting a new client relative to the unconditional probability of recruiting a new client (0.0014/0.017).

[Insert Table 9 here]

Results are reported in Table 9. In columns (1) – (3), all coefficients on the variables of interest (*LN_COUNTLIT*, *LN_COUNTNEG* and *PC_SENTIMENT*) are positive and significant at $p < 0.01$.[29] In columns (4) – (6), we find that the results are driven by audit-related negative business press coverage. Overall, these results are consistent with the negative business press coverage of the Big 4 being diagnostic of actual audit quality.[30]

5.4. Initial News versus Later News

In this section, we test whether the novelty of the news affects investors' perception of audit quality. It is possible that initial news (i.e., news about an event in its first year) would have a greater effect on investors' perception than later news (i.e., news about an event not in its first year) because the initial news is the first time investors learn about the particular event. However, it is also possible that later news provides clarification or additional facts about an event that are important for investors in assessing the value of the audit.

For the auditor ratification and ERC tests, we calculate negative business press sentiment separately using the first-year news and non-first-year news, and append "*_FY*" and "*_NFY*" to each of the "Measures for Business Press Sentiment" to distinguish them from the measures we have used in previous equations. For the client-level market tests we separate news into first-day news (news about an event in its first two days) versus non-first-day news (news about an event after its first two days), and append "*_FD*" and "*_NFD*" to the "Measures for Business Press

[29] The coefficient on *LN_COUNTNEG* is 0.188 in column (1). The 25th (75th) percentile of *COUNTNEG* is 142 (550). Holding the control variables at their average values, the predicted probability of non-reliance restatement is 0.20% higher for an interquartile increase in the count of negative words. The mean of non-reliance restatement in our sample is 0.013, which translate into a 15.38% increase in the likelihood of restatement relative to the unconditional probability of a restatement (0.0020/0.013).

[30] In untabulated tests, we also find that negative business press coverage in year *t*, and in particular audit-related negative business press coverage, is negatively associated with audit fees in year *t*. To the extent that fees capture auditor effort, these results suggest that negative business press coverage signals worse audit quality, further supporting that negative business press coverage is diagnostic of the value of a Big 4 audit.

Sentiment".[31] Then we re-estimate equations (1) through (3) using these negative sentiment measures.

Auditor ratification results are presented in Panel A of Table 10. The coefficients for first-year and non-first-year news are significant and positive in all specifications. In the case of ERCs, we find that the coefficients for first-year news are negative and significant while the coefficients on non-first-year news are insignificant (see Panel B). For client-level market reactions, we find that all coefficients for first-day news and two of three coefficients for non-first-day news are negative and significant (see Panel C). Therefore, while not true of the ERC tests, the tests for auditor ratification and market returns suggest that both initial and later news provided by the business press are informative to investors in determining the value of Big 4 audits.

[Insert Table 10 here]

5.5. Office-level Effect of News Events

We next explore the influence of auditor negative business press coverage at the audit office level, as defined by the metropolitan statistical area (MSA).[32] Extant literature finds that audit quality varies by auditor office (e.g., Francis and Michas 2013). Thus, we investigate whether negative business press coverage that can be linked to a specific audit office results in greater investor reactions for clients of the affected audit office compared to clients of other audit offices.

However, this test is exploratory in nature because much of the press coverage cannot be

[31] For example, if the first news date about an event is on 11/30/2010, then we define the news articles on 11/30/2010 and 12/1/2010 as first-day news. News articles reported after 12/1/2010 are defined as non-first-day news.

[32] It is common to define auditor offices by MSA (e.g., Francis and Michas 2013; Reichelt and Wang 2010; Swanquist and Whited 2015).

linked to specific audit offices. Specifically, in our negative news event sample, there are 20 news events (399 articles) that can be tied to a specific US audit office.

We calculate negative business press sentiment for clients within the same MSA and within different MSAs as the audit office that received negative business press coverage, using these 20 news events.[33] We append "*_SMSA*" and "*_DMSA*" to each of the "Measures for Business Press Sentiment" to distinguish them from the measures we have used in previous equations.

[Insert Table 11 here]

Table 11 reports the results of our main analyses using negative business press sentiment measures based on MSA. Panel A reports the audit ratification results. We find that coefficients on the same MSA news sentiment (*LN_COUNTLIT_SMSA*, *LN_COUNTNEG_SMSA* and *PC_SENTIMENT_SMSA*) are significant and positive, while the coefficients on the different MSA news sentiment (*LN_COUNTLIT_DMSA*, *LN_COUNTNEG_DMSA* and *PC_SENTIMENT_DMSA*) are insignificant. In tests of differences in the magnitude of the coefficients, we find that the coefficients on same MSA news sentiment are significantly more positive (one tailed $p < 0.10$) than those for the coefficients on different news sentiment in two of the three models.

Panel B reports the ERC test results. We do not find significant coefficients on our variables of interests, the only exception being the coefficient on *EARN*LN_COUNTLIT_DMSA*. Panel C reports clients' market responses around auditor's news

[33] Because only 20 of 55 events can be tied to a specific auditor office, there is less variation in the negative business press measures in these MSA tests. Thus, we include industry fixed effects and MSA fixed effects instead of client fixed effects for these tests. If we use client fixed effects, none of the coefficients of interest are significant. We further emphasize that these MSA-level tests are exploratory in nature and that the results are sensitive to this design choice.

report dates. The coefficients for same and for different MSA news in columns (2) and (3) are negative and significant. The coefficients of interest in column (1) are insignificant. In tests of differences in the magnitude of the coefficients for same versus different MSAs, we find there are no significant differences.

Overall, we find some evidence that results for auditor ratification are more pronounced for audit clients within the same MSA as the audit office that received negative business press coverage. However, inferences from this analysis should be made with caution given only 20 of 55 news events can be linked to specific audit offices. This suggests that business press coverage of the Big 4 is often more of a national than a local event.

5.6. Foreign versus Domestic News Events

As can be seen from Appendix A, some of the news events in our sample stem from actions of foreign affiliates of the Big 4 as opposed to US affiliates of the Big 4.[34] A natural question is whether investors in clients of the Big 4 react differently to news from top US sources depending on whether the news is about foreign versus US affiliates of the Big 4.

In untabulated tests, we find mixed results. Specifically, in ERC tests, we find the effect of news about US Big 4 affiliates is stronger than the effect of news about foreign Big 4 affiliates. However, we do not find consistent significant differences in auditor ratification tests and market return tests. The mixed results could be due to (1) a lack of understanding by investors that the Big 4 are made up of jurisdiction-based affiliates and / or (2) top US news sources reporting news events that are relevant to assessing the value of Big 4 audits to the US

[34] It is important to note that news regarding foreign affiliates of the Big 4 can have implications for US markets. For example, foreign Big 4 affiliates often audit clients that access the US capital markets. Also, US regulators have oversight of foreign Big 4 affiliates in certain circumstances. Consider the news event on 5/23/2011 regarding KPMG's audit of Wipro (see Appendix A). This news event is about the SEC asking KPMG India's independence of Wipro. Thus, this is an example of a US regulator questioning an event that occurred in India.

capital markets regardless of whether the news event occurred in or outside the US.[35]

6. Conclusion

Prior studies have shown that the business press plays a role in forming the information environment of publicly traded companies. In this study, we explore whether investors respond to negative business press coverage of the Big 4.

We provide evidence that negative business press coverage of the Big 4 is associated with a greater level of investor votes against auditor ratification, with lower earnings response coefficients, and with negative short-window audit client abnormal returns. These results are driven by negative business press coverage of news events that relate to audit quality. Importantly, these results hold after controlling for other readily available sources of information related to audit quality such as client news, restatement announcements, and press releases from regulators. In further analyses we find that auditors experiencing audit-related negative business press coverage are less likely to win new client engagements and that audit-related negative business press coverage of the Big 4 is positively associated with the likelihood of a misstatement in the same year. These results suggest that press coverage is diagnostic of audit quality. Collectively, our results suggest that negative business press coverage of the Big 4 is an important source of information that investors use to assess the value of a Big 4 audit.

We contribute to the literature on auditor reputation and litigation by providing evidence consistent with the business press informing market participants about reputation capital and litigation risk of the Big 4 (e.g., Weber et al. 2008; Skinner and Srinivasan 2012; Lennox and Li 2014). Our findings also add to the debate on whether investors care about audit quality (DeFond

[35] For example, the audits of clients in the US market are becoming more and more global. Indeed, the audit quality of foreign affiliates of Big 4 global networks is an integral part of audits of US clients (Ege et al. 2019a; 2019b; Gunn and Michas 2018).

et al. 2016; Donovan et al. 2014) and respond to the general call of Donovan et al. (2014) to examine whether equity investors care about audit quality. Also, our study contributes to the literature on business press coverage of public companies (e.g., Dyck et al. 2008; Fang and Peress 2009; Bushee et al. 2010; Drake et al. 2014; Dai et al. 2015; Chen et al. 2018). We extend this literature by examining whether the business press affects the information environment related to the value of the Big 4 audit, which responds to the call in Miller and Skinner (2015) for research on the interaction between the business press and auditors.

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Appendix A: News Events

Auditor	News Category	News Event Description	First News Date	Last News Date	Length in Days	Number of Articles	Related Regulatory Press Releases (Dates)
Deloitte	Audit	Audit of Parmalat	1/9/2008	1/29/2009	386	4	None
Deloitte	Audit	Audit of Taylor Bean	8/28/2009	1/20/2016	2336	10	None
Deloitte	Other	Insider trading - former vice-chairman and his son	8/4/2010	8/8/2012	735	8	SEC (8/4/2010)
Deloitte	Other	Insider trading - former partner and his wife	11/30/2010	12/1/2010	1	7	SEC (11/30/2010)
Deloitte	Audit	Audit of Carrefour	1/6/2011	1/6/2011	0	1	None
Deloitte	Audit	Professional services provided to Tom Petters' companies	5/4/2011	5/4/2011	0	1	None
Deloitte	Audit	Audit of Longtop	9/8/2011	3/6/2013	545	14	SEC (9/8/2011)
Deloitte	Other	Audit of MG Rover and related advisory services	2/1/2012	4/14/2015	1168	29	UK Financial Reporting Council (2/2/2012; 7/18/2012; 2/13/2013; 7/15/2013; 7/29/2013; 9/9/2013; 11/20/2013; 10/9/2014; 1/27/2015; 1/30/2015; 4/13/2015)
Deloitte	Audit	Audit of Livent Inc.	4/15/2013	4/15/2013	0	2	None
Deloitte	Audit	Independence violations by Chief Risk Officer	5/20/2014	5/20/2014	0	2	SEC (5/20/2014)
Deloitte	Audit	Independence violations – business relationship with Andrew Boynton, who served on boards of audit clients	7/1/2015	7/1/2015	0	4	SEC (7/1/2015)
Deloitte	Audit	Audit of Lebanese Canadian Bank	8/22/2016	8/23/2016	1	3	None
Deloitte	Other	Cyberattack on Deloitte systems	9/25/2017	10/13/2017	18	9	None
EY	Tax	Sale of questionable tax shelters	2/20/2008	3/2/2013	1837	14	None
EY	Audit	Audit of Broadcom	4/24/2008	4/14/2011	1085	2	None
EY	Other	Insider trading - partner passed client information to friend	5/29/2008	2/9/2010	621	9	SEC (5/29/2008; 8/18/2010)
EY	Audit	Audit of Lehman Brothers	3/17/2009	6/8/2015	2274	78	None
EY	Audit	Audit of Bally Total Fitness	12/17/2009	12/18/2009	1	4	SEC (12/17/2009)

EY	Audit	Audit of Anglo Irish Bank	5/2/2011	11/29/2012	577	10	Chartered Accountants Ireland (9/6/2011)
EY	Audit	Audit of Medicis Pharmaceutical Corp.	2/8/2012	2/9/2012	1	5	PCAOB (2/8/2012)
EY	Audit	Independence violations – lobbying for audit clients	8/8/2012	7/14/2014	705	9	SEC (7/14/2014)
EY	Audit	Audit of Standard Water Ltd	8/27/2012	7/23/2015	1060	15	HK Securities and Futures Commission (8/27/2012; 9/7/2012; 10/12/2012; 9/20/2012; 6/23/2014)
EY	Other	Express Scripts sues EY alleging document theft	2/15/2013	2/19/2013	4	3	None
EY	Audit	Independence violations – audit partners' personal relationships with company officials	9/19/2016	9/19/2016	0	6	SEC (9/19/2016)
EY	Audit	Audit of Weatherford	10/18/2016	10/18/2016	0	6	SEC (10/18/2016)
EY	Audit	Audit of Weavering Macro	4/13/2017	4/13/2017	0	1	None
EY	Audit	Audit of Tech Data Ltd	10/16/2017	10/16/2017	0	4	UK Financial Reporting Council (10/16/2017)
KPMG	Tax	Sale of questionable tax shelters	3/18/2008	8/27/2010	892	34	None
KPMG	Audit	Audit of New Century Financial Corp.	3/26/2008	4/2/2009	372	10	None
KPMG	Audit	Portugal regulator investigating KPMG related to Millennium BCP share buybacks	5/27/2008	5/27/2008	0	1	None
KPMG	Audit	Audit of Westpoint Group	10/14/2008	10/14/2008	0	1	Australian Securities and Investments Commission (10/13/2008; 2/4/2011)
KPMG	Audit	Audit of feeder funds for Bernard Madoff's brokerage	12/18/2008	11/7/2011	1054	5	None
KPMG	Audit	Audit of Wipro - independence in question	5/23/2011	5/23/2011	0	1	None
KPMG	Audit	Audit of TierOne Bank	1/9/2013	6/27/2014	534	8	SEC (1/9/2013)
KPMG	Other	Insider trading – related to Herbalife	4/9/2013	6/8/2015	790	137	None
KPMG	Audit	Audit of Wells Fargo	10/28/2016	4/25/2017	179	5	None
KPMG	Audit	Audit of Rolls-Royce	1/24/2017	5/5/2017	101	8	UK Financial Reporting Council (5/4/2017)

KPMG	Audit	PCAOB confidential information leak	4/11/2017	4/18/2017	7	9	None
KPMG	Audit	Audit of Miller Energy Resources	8/15/2017	8/16/2017	1	6	SEC (8/15/2017)
PwC	Tax	Participation in Russian Yukos tax evasion	1/28/2008	9/7/2010	953	8	None
PwC	Audit	Audit of feeder funds for Bernard Madoff's brokerage	12/17/2008	5/6/2016	2697	12	None
PwC	Audit	Audit of Satyam	1/7/2009	2/14/2012	1133	39	None
PwC	Audit	Audit of Cattles plc	7/23/2009	9/1/2016	2597	12	UK Financial Reporting Council (7/23/2009; 8/31/2016)
PwC	Audit	Audit of Connaught plc	11/29/2010	10/5/2017	2502	26	UK Financial Reporting Council (11/29/2010; 5/31/2017; 10/12/2015; 5/11/2017; 10/20/2016; 3/10/2017)
PwC	Audit	Audit of Colonial BancGroup Inc.	9/22/2011	12/31/2017	2292	28	None
PwC	Audit	Audit of MF Global Holdings Ltd.	11/3/2011	3/24/2017	1968	56	None
PwC	Tax	U.K. lawmakers accuse PwC of promoting tax avoidance	1/21/2013	2/6/2015	746	5	None
PwC	Audit	Audit of SemGroup LP	2/13/2014	2/13/2014	0	1	None
PwC	Tax	Tax services for Caterpillar	4/1/2014	11/19/2014	232	8	None
PwC	Audit	PCAOB inspection deficiencies	6/30/2014	6/30/2014	0	3	None
PwC	Audit	Audit of Burrill Life Sciences Capital Fund III LP	11/2/2015	11/2/2015	0	1	None
PwC	Other	Lawsuit over hiring practices	4/28/2016	4/18/2017	355	3	None
PwC	Audit	Potential independence violations – "Loan Rule" related to mutual-fund clients	6/13/2016	6/13/2016	0	1	None
PwC	Other	Oscar award mix up	2/27/2017	3/31/2017	32	24	None
PwC	Audit	Audit of Merrill Lynch	8/2/2017	8/3/2017	1	4	PCAOB (8/2/2017)

Note: To identify unique news events, we searched RavenPack for news coverage from 2008 to 2017. Thus, some of the unique news events in the sample could have begun before 2008 or ended after 2017. For example, news of the leak of PCAOB confidential information to KPMG broke on 4/11/2017. Based on our searches of Factiva, there were additional news stories through 4/18/2017, after which there were no other related-news coverage by the news sources we searched until January 2018. See Section 3.1 for additional details on the process we undertook to identify unique news events and related news coverage.

Appendix B: Variable Definitions

Variable	Definition	Source
LN_COUNTNEG	The natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors in year *t*.	Loughran and McDonald (2011)
LN_COUNTLIT	The natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors in year *t*.	Loughran and McDonald (2011)
PC_SENTIMENT	The first principal component of *LN_COUNTLIT* and *LN_COUNTNEG*.	Loughran and McDonald (2011)
LN_COUNTLIT_AUD	The natural log of the count of words from the litigious list in audit-related news articles (i.e., news category is audit in Appendix A) about auditors in year *t*.	Loughran and McDonald (2011)
LN_COUNTNEG_AUD	The natural log of the count of words from the negative list in audit-related news articles (i.e., news category is audit in Appendix A) about auditors in year *t*.	Loughran and McDonald (2011)
PC_SENTIMENT_AUD	The first principal component of *LN_COUNTLIT_AUD* and *LN_COUNTNEG_AUD*.	Loughran and McDonald (2011)
LN_COUNTLIT_OTHER	The natural log of the count of words from the litigious list in non-audit-related news articles (i.e., news category is tax or other in Appendix A) about auditors in year *t*.	Loughran and McDonald (2011)
LN_COUNTNEG_OTHER	The natural log of the count of words from the negative list non-audit-related news articles (i.e., news category is tax or other in Appendix A) about auditors in year *t*.	Loughran and McDonald (2011)
PC_SENTIMENT_OTHER	The first principal component of *LN_COUNTLIT_OTHER* and *LN_COUNTNEG_OTHER*.	Loughran and McDonald (2011)
V_AGAINST	The proportion of votes against auditor ratification for year *t+1*.	Audit Analytics
LN_AGAINST	The natural log of the proportion of votes against auditor ratification for year *t+1*.	Audit Analytics
SIZE	The natural log of total assets (AT)	Compustat
RET	The 12-month cumulative market adjusted stock abnormal return for year *t*, ending three months after the fiscal year end of year *t*. Abnormal return is calculated as the difference between the stock return for the client and the corresponding CRSP value-weighted market return.	CRSP
ROA	Earnings before interests and taxes (EBIT) scaled by total assets (AT)	Compustat
LOSS	An indicator variable that equals one if a client reports earnings before extraordinary items (IB) less than zero, and zero otherwise	Compustat
BTM	Book value of equity (CEQ) divided by market value of equity (PRCC_F*CSHO).	Compustat
LEV	Total long-term debt (DLTT) scaled by total assets (AT)	Compustat
MERGER	Indicator variable that equals one if the client is engaged in a merger or acquisition (AQP or AQEPS), and zero otherwise.	Compustat
RESTRUCT	Indicator variable that equals one if the company has any restructuring charges (RCP or RCEPS), and zero otherwise.	Compustat
DEC	Indicator variable that equals one if the fiscal year end is in December.	Compustat
DIV	Indicator variable that equals one if a firm pays a cash dividend to common stockholders (DVC), and zero otherwise.	Compustat
ACCR	Net income before extraordinary items (IB) less operating cash flows (OANCF) scaled by lagged total assets (AT).	Compustat

REC	Receivables divided by total assets (AT).	Compustat
INV	Inventory divided by total assets (AT).	Compustat
RESTATE	Indicator variable that equals one if the client subsequently restates their financial statements, and zero otherwise.	Audit Analytics
AUD_REST	Total number of restatements for the auditor's office during a year	Audit Analytics
CLIENT_NEWS	Clients' news coverage, measured as the number of news articles during a fiscal year.	RavenPack
GC	Indicator variable that equals one if the client's auditor issued a going concern opinion, and zero otherwise.	Audit Analytics
LN_FEES	The natural log of audit fees in $thousands (*AUDIT_FEES*)	Audit Analytics
LN_TENURE	The natural log of number of continuous years of the auditor-client relationship.	Compustat
ENGAGE	Indicator variable that equals one if a client engaged in a new auditor from year *t* to year *t+1*.	Audit Analytics
CAR	The client market adjusted abnormal return during three-day window around its auditor's negative news report date. Abnormal return is calculated as the difference between the stock return for the client and the corresponding CRSP value-weighted market return. This difference is then multiplied by 100 (i.e., converted to a percent).	CRSP
RESTATE8K	Indicator variable that equals one for materially misstated financial statements, as identified by a subsequently issued non-reliance restatement on a Form 8-K 4.02, and zero otherwise.	Audit Analytics
LN_COUNTLIT_NEW	The natural log of the count of words from the litigious list in news articles (*COUNTLIT*) in year *t* for auditors engaged in year *t+1*.	Loughran and McDonald (2011)
LN_COUNTNEG_NEW	The natural log of the count of words from the negative list in news articles (*COUNTNEG*) in year *t* for auditors engaged in year *t+1*.	Loughran and McDonald (2011)
PC_SENTIMENT_NEW	The first principal component of *LN_COUNTLIT_NEW* and *LN_COUNTNEG_NEW*.	Loughran and McDonald (2011)
LN_COUNTLIT_LAG	The natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors in year *t-1*.	Loughran and McDonald (2011)
LN_COUNTNEG_LAG	The natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors in year *t-1*.	Loughran and McDonald (2011)
PC_SENTIMENT_LAG	The first principal component of *LN_COUNTLIT_LAG* and *LN_COUNTNEG_LAG*.	Loughran and McDonald (2011)
LN_COUNTLIT_SMSA	Same MSA auditor news litigious word count, measured as the natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors in year *t*, if the auditor's office is in the same MSA as the auditor office associated with the news.	Loughran and McDonald (2011)
LN_COUNTNEG_SMSA	Same MSA auditor news negative word count, measured as the natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors in year *t*, if the auditor's office is in the same MSA as the auditor office associated with the news.	Loughran and McDonald (2011)
PC_SENTIMENT_SMSA	The first principal component of *LN_COUNTLIT_SMSA* and *LN_COUNTNEG_SMSA*.	Loughran and McDonald (2011)
LN_COUNTLIT_DMSA	Different MSA auditor news litigious word count, measured as the natural log of the count of words from the litigious list in	Loughran and McDonald (2011)

	news articles (*COUNTLIT*) about auditors in year *t*, if the auditor's office is in a different MSA than the auditor office associated with the news.	
LN_COUNTNEG_DMSA	Different MSA auditor news litigious word count, measured as the natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors in year *t*, if the auditor's office is in a different MSA than the auditor office associated with the news.	Loughran and McDonald (2011)
PC_SENTIMENT_DMSA	The first principal component of *LN_COUNTLIT_DSMA* and *LN_COUNTNEG_DSMA.*	Loughran and McDonald (2011)
LN_COUNTLIT_PR	The natural log of the count of words from the litigious list in press releases associated with news events about auditors in year *t*.	Loughran and McDonald (2011)
LN_COUNTNEG_PR	The natural log of the count of words from the negative list in press releases associated with news events about auditors in year *t*.	Loughran and McDonald (2011)
PC_SENTIMENT_PR	The first principal component of *LN_COUNTLIT_PR* and *LN_COUNTNEG_RP*.	Loughran and McDonald (2011)
LN_COUNTLIT_FY	First-year news litigious word count, measured as the natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors in year *t*, if the news is about an event in its first year.	Loughran and McDonald (2011)
LN_COUNTNEG_FY	First-year news negative word count, measured as the natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors in year *t*, if the news is about an event in its first year.	Loughran and McDonald (2011)
PC_SENTIMENT_FY	The first principal component of *LN_COUNTLIT_FY and LN_COUNTNEG_FY.*	Loughran and McDonald (2011)
LN_COUNTLIT_NFY	Non-first-year news litigious word count, measured as the natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors in year *t*, if the news is about an event subsequent to its first year.	Loughran and McDonald (2011)
LN_COUNTNEG_NFY	Non-first-year news negative word count, measured as the natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors in year *t*, if the news is about an event subsequent to its first year.	Loughran and McDonald (2011)
PC_SENTIMENT_NFY	The first principal component of *LN_COUNTLIT_NFY and LN_COUNTNEG_NFY.*	Loughran and McDonald (2011)
LN_COUNTLIT_FD	First-day news litigious word count, measured as the natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors during the first two days of the news event.	Loughran and McDonald (2011)
LN_COUNTNEG_FD	First-day news negative word count, measured as the natural log of the count of words from the negative list in news articles (*COUNTNEG*) about auditors during the first two days of the news event.	Loughran and McDonald (2011)
PC_SENTIMENT_FD	The first principal component of *LN_COUNTLIT_FD and LN_COUNTNEG_FD.*	Loughran and McDonald (2011)
LN_COUNTLIT_NFD	Non-first-day news litigious word count, measured as the natural log of the count of words from the litigious list in news articles (*COUNTLIT*) about auditors after the first two days of the news event.	Loughran and McDonald (2011)
LN_COUNTNEG_NFD	Non-first-day news negative word count, measured as the natural log of the count of words from the negative list in news	Loughran and McDonald (2011)

	articles (*COUNTNEG*) about auditors after the first two days of the news event.	
PC_SENTIMENT_NFD	The first principal component of *LN_COUNTLIT_NFD and LN_COUNTNEG_NFD.*	Loughran and McDonald (2011)

Table 1: Negative News Event Types and Number of Articles by Accounting Firm from 2008 – 2017

Panel A: Negative News Event Types and Number of Articles by Accounting Firm

Deloitte

News Event Category	Number of Events	Number of Articles	Count of Negative Words	Count of Litigious Words	Count of Positive Words
Audit	9	41	1,125	627	112
Other	4	53	1,230	547	145
Total	**13**	**94**	**2,355**	**1,174**	**257**

EY

News Event Category	Number of Events	Number of Articles	Count of Negative Words	Count of Litigious Words	Count of Positive Words
Audit	11	140	3,399	1,869	371
Other	2	12	333	221	30
Tax	1	14	420	291	26
Total	**14**	**166**	**4,152**	**2,381**	**427**

KPMG

News Event Category	Number of Events	Number of Articles	Count of Negative Words	Count of Litigious Words	Count of Positive Words
Audit	10	54	1680	539	260
Other	1	137	3,504	1,449	332
Tax	1	34	1,117	942	59
Total	**12**	**225**	**6,301**	**2,930**	**651**

PwC

News Event Category	Number of Events	Number of Articles	Count of Negative Words	Count of Litigious Words	Count of Positive Words
Audit	11	183	5,459	2,327	491
Other	2	27	659	134	237
Tax	3	21	529	417	77
Total	**16**	**231**	**6,647**	**2,878**	**805**
Overall Total	**55**	**716**	**19,455**	**9,363**	**2,140**

Table 1 (Cont'd)

Panel B: Number of News Articles and Article Tone per News Event by Year

Year	Number of News Events	Number of Articles	Count of Negative Words	Count of Litigious Words	Count of Positive Words
Deloitte					
2008	1	1	10	12	1
2009	2	4	89	54	6
2010	3	14	451	314	28
2011	4	9	386	228	28
2012	3	17	400	155	53
2013	4	24	567	208	63
2014	1	2	40	9	4
2015	2	9	120	62	33
2016	2	5	150	87	13
2017	1	9	142	45	28
Total	**23**	**94**	**2,355**	**1,174**	**257**
EY					
2008	3	7	216	133	9
2009	4	10	258	106	20
2010	3	51	1,379	661	117
2011	3	14	359	211	33
2012	5	25	550	385	65
2013	4	14	359	233	42
2014	3	17	316	332	49
2015	2	11	343	207	45
2016	2	12	275	85	39
2017	2	5	97	28	8
Total	**31**	**166**	**4,152**	**2,381**	**427**
KPMG					
2008	5	29	1,032	692	75
2009	3	17	578	376	33
2010	1	3	65	65	4
2011	2	3	61	42	4
2012	0	0	0	0	0
2013	2	129	3,317	1,324	324
2014	2	15	381	208	21
2015	1	1	19	5	2
2016	1	3	89	23	10
2017	4	25	759	195	178
Total	**21**	**225**	**6,301**	**2,930**	**651**

Table 1 (Cont'd)
Panel B: Number of News Articles and Article Tone per News Event by Year

PwC

Year	Number of News Events	Number of Articles	Count of Negative Words	Count of Litigious Words	Count of Positive Words
2008	2	8	170	192	15
2009	3	37	611	262	81
2010	3	7	249	175	20
2011	4	10	284	138	29
2012	3	8	325	153	24
2013	3	8	339	136	28
2014	6	29	791	359	83
2015	4	9	191	105	37
2016	6	28	1,017	526	83
2017	6	87	2,670	832	405
Total	**40**	**231**	**6,647**	**2,878**	**805**

Table 2: Sample Selection

Auditor Ratification Sample	
Client-year observations having necessary client characteristic variables in Compustat from 2009 to 2017	41,442
Delete client-year observations missing auditor data or having non-Big 4 auditors from Audit Analytics	(16,274)
Client-year observations with Big 4 ratification data from Audit Analytics	(7,560)
Delete client-year observations without necessary control variables	(1,242)
Delete client-year observations missing prior year voting data or with zero votes against the auditor	(2,905)
Sample size for Auditor Ratification test	13,461
ERC Sample	
Client-year observations having necessary client characteristic variables in Compustat from 2009 to 2017	41,442
Delete client-year observations missing auditor data or having non-Big 4 auditors from Audit Analytics	(16,274)
Delete observations without necessary stock price data from CRSP	(3,615)
Delete client-year observations without necessary control variables	(306)
Sample size for ERC test	21,247
Clients' Market Reaction Sample	
Client-day observations corresponding to Big 4 negative news coverage from 2009 to 2017	205,748
Delete observations without PERMNO	(20,267)
Delete observations without necessary stock price data on the news report date from CRSP	(4,874)
Delete observations without necessary client characteristic variables from Compustat and auditor related variables from Audit Analytics	(2,700)
Sample size for Clients' Market Reaction test	177,907

Table 3: Summary Statistics for Pooled Sample

VARIABLE	N	MEAN	STD	P10	P25	P50	P75	P90
COUNTNEG	21,247	491.321	642.367	61	142	339	550	1017
COUNTLIT	21,247	235.186	253.600	28	65	175	314	526
LN_COUNTNEG	21,247	5.546	1.362	4.127	4.963	5.829	6.312	6.926
LN_COUNTLIT	21,247	4.857	1.347	3.367	4.190	5.170	5.753	6.267
PC_SENTIMENT	21,247	0.000	1.401	-1.425	-0.765	0.333	0.798	1.456
RET	21,247	0.050	0.407	-0.365	-0.147	0.032	0.216	0.462
EARN	21,247	-0.004	0.216	-0.149	-0.005	0.044	0.072	0.108
SIZE	21,247	7.452	1.837	5.107	6.148	7.422	8.645	9.890
ROA	21,247	0.039	0.158	-0.075	0.018	0.060	0.107	0.166
LOSS	21,247	0.262	0.440	0	0	0	1	1
BTM	21,247	0.543	0.497	0.103	0.249	0.460	0.756	1.103
MERGER	21,247	0.315	0.465	0	0	0	1	1
RESTRUCT	21,247	0.353	0.478	0	0	0	1	1
DEC	21,247	0.766	0.423	0	1	1	1	1
DIV	21,247	0.517	0.500	0	0	1	1	1
ACCR	21,247	-0.061	0.087	-0.156	-0.093	-0.050	-0.017	0.011
REC	21,247	0.166	0.184	0.017	0.045	0.111	0.200	0.391
INV	21,247	0.088	0.125	0	0	0.0281	0.1355	0.2518
RESTATE	21,247	0.078	0.269	0	0	0	0	0
CLIENT_NEWS	21,247	4.506	1.265	3.611	4.220	4.762	5.153	5.557
GC	21,247	0.015	0.121	0	0	0	0	0
LN_FEES	21,247	14.293	1.052	13.095	13.607	14.197	14.927	15.649
LN_TENURE	21,247	2.278	0.812	1.386	1.792	2.398	2.833	3.219
AUD_REST	21,247	3.238	6.368	0	0	1	3	10
RESTATE8K	21,247	0.013	0.112	0	0	0	0	0
ENGAGE	20,975	0.017	0.130	0	0	0	0	0
COUNTNEG_NEW	20,975	439.414	566.832	40	120	322	473	1061
LN_COUNTNEG_NEW	20,975	5.301	1.706	3.714	4.796	5.778	6.161	6.968
V_AGAINST	13,461	0.013	0.021	0.001	0.003	0.008	0.015	0.029
LN_AGAINST	13,461	-5.006	1.266	-6.725	-5.684	-4.841	-4.193	-3.554
CAR	177,907	0.193	4.916	-3.881	-1.614	0.035	1.758	4.265

Note: See Appendix B for variable definitions. All continuous variables except sentiment and auditor-related measures are winsorized at the top and bottom 1% of their respective distributions.

Table 4: Auditor Ratification
Panel A: Main Effect of Negative Business Press Sentiment (H1)

VARIABLES	(1) *LN_AGAINST*	(2) *LN_AGAINST*	(3) *LN_AGAINST*
LN_COUNTNEG	0.016**		
	(0.034)		
LN_COUNTLIT		0.022***	
		(0.007)	
PC_SENTIMENT			0.017**
			(0.016)
SIZE	0.098**	0.097**	0.098**
	(0.016)	(0.017)	(0.016)
RET	-0.128***	-0.128***	-0.128***
	(0.000)	(0.000)	(0.000)
ROA	-0.041	-0.042	-0.042
	(0.778)	(0.773)	(0.776)
LOSS	0.076**	0.076**	0.076**
	(0.025)	(0.025)	(0.025)
BTM	0.016	0.016	0.016
	(0.706)	(0.715)	(0.710)
MERGER	0.025	0.025	0.025
	(0.270)	(0.269)	(0.270)
RESTRUCT	0.002	0.002	0.002
	(0.934)	(0.938)	(0.935)
DIV	0.010	0.010	0.010
	(0.825)	(0.834)	(0.829)
ACCR	-0.008	-0.005	-0.007
	(0.958)	(0.973)	(0.965)
REC	0.308*	0.310*	0.309*
	(0.091)	(0.088)	(0.089)
INV	0.289	0.293	0.291
	(0.325)	(0.318)	(0.321)
RESTATE	0.023	0.023	0.023
	(0.509)	(0.499)	(0.504)
CLIENT_NEWS	-0.010	-0.010	-0.010
	(0.480)	(0.474)	(0.478)
GC	0.072	0.072	0.072
	(0.690)	(0.689)	(0.690)
LN_FEES	-0.068	-0.068	-0.068
	(0.140)	(0.143)	(0.142)
LN_TENURE	0.331***	0.331***	0.331***
	(0.000)	(0.000)	(0.000)
AUD_REST	0.003	0.002	0.003
	(0.170)	(0.180)	(0.174)
LAG_LN_AGAINST	0.099***	0.099***	0.099***
	(0.000)	(0.000)	(0.000)
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Observations	13,461	13,461	13,461
R-squared	0.682	0.682	0.682

Table 4 (Cont'd)
Panel B: Audit-related News versus Other News (H2)

VARIABLES	(1) *LN_AGAINST*	(2) *LN_AGAINST*	(3) *LN_AGAINST*
LN_COUNTNEG_AUD (β_1)	0.014**		
	(0.017)		
LN_COUNTNEG_OTHER (β_2)	0.003		
	(0.488)		
LN_COUNTLIT_AUD (β_1)		0.018***	
		(0.008)	
LN_COUNTLIT_OTHER (β_2)		0.005	
		(0.312)	
PC_SENTIMENT_AUD (β_1)			0.020**
			(0.012)
PC_SENTIMENT_OTHER (β_2)			0.007
			(0.393)
CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Test $\beta_1 = \beta_2$			
(One-tailed p-value)	0.056	0.053	0.108
Observations	13,461	13,461	13,461
R-squared	0.682	0.682	0.682

Note: The dependent variable (*LN_AGAINST*) in Table 4 is the natural logarithm of the proportion of votes that are against ratifying hiring the nominated Big 4 firm in the year after the end of fiscal year t. Panel A presents the relation between auditor business press sentiment and auditor ratification votes in the subsequent year. Panel B presents the relation between auditor business press sentiment type (i.e., audit-related and non-audit-related) and auditor ratification votes in the subsequent year. In Panel B, estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Table 5: Earnings Response Coefficients (ERCs)
Panel A: Main Effect of Negative Business Press Sentiment (H1)

VARIABLES	(1) *RET*	(2) *RET*	(3) *RET*
EARN	1.526***	1.493***	1.251**
	(0.007)	(0.009)	(0.026)
LN_COUNTNEG	-0.000		
	(0.990)		
*EARN*LN_COUNTNEG*	-0.055***		
	(0.006)		
LN_COUNTLIT		-0.000	
		(0.900)	
*EARN*LN_COUNTLIT*		-0.044**	
		(0.029)	
PC_SENTIMENT			-0.000
			(0.942)
*EARN*PC_SENTIMENT*			-0.048**
			(0.012)
SIZE	-0.035***	-0.035***	-0.035***
	(0.004)	(0.004)	(0.004)
*EARN*SIZE*	0.022	0.023	0.022
	(0.439)	(0.409)	(0.422)
BTM	-0.217***	-0.217***	-0.217***
	(0.000)	(0.000)	(0.000)
*EARN*BTM*	-0.055*	-0.056*	-0.055*
	(0.081)	(0.077)	(0.079)
LOSS	0.019	0.019	0.019
	(0.143)	(0.143)	(0.143)
*EARN*LOSS*	-1.947***	-1.950***	-1.949***
	(0.000)	(0.000)	(0.000)
RESTATE	-0.016	-0.016	-0.016
	(0.221)	(0.216)	(0.219)
*EARN*RESTATE*	0.084	0.085	0.084
	(0.478)	(0.475)	(0.475)
CLIENT_NEWS	-0.011**	-0.011**	-0.011**
	(0.020)	(0.020)	(0.020)
*EARN*CLIENT_NEWS*	-0.020	-0.020	-0.020
	(0.432)	(0.442)	(0.436)
LN_FEES	-0.013	-0.013	-0.013
	(0.209)	(0.212)	(0.210)
*EARN*LN_FEES*	0.025	0.020	0.022
	(0.616)	(0.687)	(0.653)
LN_TENURE	-0.003	-0.003	-0.003
	(0.660)	(0.645)	(0.653)
*EARN*LN_TENURE*	-0.025	-0.025	-0.025
	(0.551)	(0.564)	(0.556)
AUD_REST	-0.001	-0.001	-0.001
	(0.163)	(0.162)	(0.163)
*EARN*AUD_REST*	0.005	0.005	0.005
	(0.493)	(0.492)	(0.494)
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Observations	21,247	21,247	21,247
R-squared	0.340	0.340	0.340

Table 5 (Cont'd)
Panel B: Audit-related News versus Other News (H2)

VARIABLES	(1) *RET*	(2) *RET*	(3) *RET*
EARN	1.365**	1.319**	1.108**
	(0.010)	(0.013)	(0.034)
LN_COUNTNEG_AUD	0.002		
	(0.312)		
*EARN*LN_COUNTNEG_AUD* (β_1)	-0.065***		
	(0.000)		
LN_COUNTNEG_OTHER	-0.002		
	(0.123)		
*EARN*LN_COUNTNEG_OTHER* (β_2)	0.003		
	(0.809)		
LN_COUNTLIT_AUD		0.002	
		(0.278)	
*EARN*LN_COUNTLIT_AUD* (β_1)		-0.060***	
		(0.001)	
LN_COUNTLIT_OTHER		-0.002	
		(0.135)	
*EARN*LN_COUNTLIT_OTHER* (β_2)		0.007	
		(0.605)	
PC_SENTIMENT_AUD			0.002
			(0.287)
*EARN*PC_SENTIMENT_AUD* (β_1)			-0.073***
			(0.000)
PC_SENTIMENT_OTHER			-0.003
			(0.128)
*EARN*PC_SENTIMENT_OTHER* (β_2)			0.007
			(0.705)
CONTROLS	Yes	Yes	Yes
EARN*CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)	0.001	0.002	0.004
Observations	21,247	21,247	21,247
R-squared	0.342	0.341	0.341

Note: The dependent variable in Table 5 is the 12-month cumulative market adjusted abnormal return, ending three months after the fiscal year end of *t* (*RET*). Panel A presents the relation between an auditor's business press sentiment in year *t* and earnings response coefficients in year *t.* Panel B presents the relation between an auditor's business press sentiment, separated into audit-related news and non-audit related news, in year *t* and earnings response coefficients in year *t*. Estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Table 6: Client-level Market Reaction to Auditors' Negative News Sentiment
Panel A: Main Effect of Negative Business Press Sentiment (H1)

	(1)	(2)	(3)
VARIABLES	*CAR*	*CAR*	*CAR*
LN_COUNTNEG	-0.050***		
	(0.005)		
LN_COUNTLIT		-0.024*	
		(0.097)	
PC_SENTIMENT			-0.026**
			(0.020)
SIZE	-0.033**	-0.033**	-0.033**
	(0.032)	(0.029)	(0.030)
BTM	-0.040	-0.037	-0.038
	(0.474)	(0.506)	(0.492)
ROA	0.032	0.037	0.035
	(0.873)	(0.852)	(0.861)
LOSS	0.025	0.026	0.025
	(0.653)	(0.634)	(0.643)
LEV	0.193**	0.192**	0.192**
	(0.011)	(0.011)	(0.011)
CLIENT_NEWS	0.013	0.013	0.013
	(0.338)	(0.338)	(0.337)
RESTATE	-0.009	-0.006	-0.007
	(0.859)	(0.895)	(0.883)
GC	-1.145***	-1.144***	-1.145***
	(0.000)	(0.000)	(0.000)
LN_TENURE	-0.014	-0.014	-0.014
	(0.484)	(0.478)	(0.480)
LN_FEES	-0.015	-0.015	-0.015
	(0.490)	(0.491)	(0.485)
AUD_REST	-0.001	-0.001	-0.001
	(0.698)	(0.710)	(0.710)
CONSTANT	0.730***	0.614**	0.547**
	(0.004)	(0.013)	(0.025)
Observations	177,907	177,907	177,907
R-squared	0.001	0.001	0.001

Table 6 (Cont'd)
Panel B: Audit-related News versus Other News (H2)

VARIABLES	(1) *CAR*	(2) *CAR*	(3) *CAR*
LN_COUNTNEG_AUD (β_1)	-0.061***		
	(0.001)		
LN_COUNTNEG_OTHER (β_2)	-0.040**		
	(0.028)		
LN_COUNTLIT_AUD (β_1)		-0.034**	
		(0.021)	
LN_COUNTLIT_OTHER (β_2)		-0.010	
		(0.534)	
PC_SENTIMENT_AUD (β_1)			-0.056***
			(0.005)
PC_SENTIMENT_OTHER (β_2)			-0.028
			(0.152)
CONTROLS	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)	0.005	0.009	0.010
Observations	177,907	177,907	177,907
R-squared	0.001	0.001	0.001

Note: The dependent variable in Table 6 is a client's cumulative market-adjusted abnormal returns during a three-day window around the day when its auditor experiences negative business press news. This abnormal return is expressed as a percentage (*CAR*). Panel A examines the relation between an auditor's business press sentiment and its clients' abnormal returns for the associated three-day window. Panel B examines the relation between an auditor's business press sentiment, separated into audit-related news and non-audit-related news, and its clients' abnormal returns for the associated three-day window. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Table 7: Controlling for Negative Sentiment in Press Releases
Panel A: Auditor Ratification

VARIABLES	(1) *LN_AGAINST*	(2) *LN_AGAINST*	(3) *LN_AGAINST*
LN_COUNTNEG	0.015*		
	(0.094)		
LN_COUNTNEG_PR	0.002		
	(0.765)		
LN_COUNTLIT		0.020**	
		(0.030)	
LN_COUNTLIT_PR		0.003	
		(0.656)	
PC_SENTIMENT			0.016*
			(0.056)
PC_SENTIMENT_PR			0.003
			(0.703)
CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Observations	13,461	13,461	13,461
R-squared	0.682	0.682	0.682

Table 7 (Cont'd)
Panel B: ERCs

VARIABLES	(1) *RET*	(2) *RET*	(3) *RET*
EARN	1.495***	1.502***	1.251**
	(0.008)	(0.008)	(0.026)
LN_COUNTNEG	-0.000		
	(0.980)		
*EARN*LN_COUNTNEG*	-0.056***		
	(0.005)		
LN_COUNTNEG_PR	0.000		
	(0.840)		
*EARN*LN_COUNTNEG_PR*	0.015		
	(0.466)		
LN_COUNTLIT		-0.000	
		(0.901)	
*EARN*LN_COUNTLIT*		-0.044**	
		(0.031)	
LN_COUNTLIT_PR		0.000	
		(0.931)	
*EARN*LN_COUNTLIT_PR*		-0.009	
		(0.554)	
PC_SENTIMENT			-0.000
			(0.941)
*EARN*PC_SENTIMENT*			-0.048**
			(0.012)
PC_SENTIMENT_PR			0.000
			(0.881)
*EARN*PC_SENTIMENT_PR*			0.001
			(0.948)
CONTROLS	Yes	Yes	Yes
*EARN*CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Observations	21,247	21,247	21,247
R-squared	0.340	0.340	0.340

Table 7 (Cont'd)
Panel C: Client-level Market Reaction to Auditors' Negative News Sentiment

	(1)	(2)	(3)
VARIABLES	*CAR*	*CAR*	*CAR*
LN_COUNTNEG	-0.040**		
	(0.028)		
LN_COUNTNEG_PR	-0.073***		
	(0.000)		
LN_COUNTLIT		-0.022	
		(0.119)	
LN_COUNTLIT_PR		-0.111***	
		(0.000)	
PC_SENTIMENT			-0.023**
			(0.040)
PC_SENTIMENT_PR			-0.064***
			(0.000)
CONTROLS	Yes	Yes	Yes
Observations	177,907	177,907	177,907
R-squared	0.001	0.001	0.001

Note: This table repeats our main analyses after controlling for the negative sentiment in corresponding press releases (*LN_COUNTNEG_PR*, *LN_COUNTLIT_PR*, and *PC_SENTIMENT_PR*). Panel A reports the results for the auditor ratification tests; Panel B reports the results for the ERC tests; and Panel C reports the results for the client's three-day market reaction tests. Estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Table 8: New Engagement and Business Press Sentiment

VARIABLES	(1) *ENGAGE*	(2) *ENGAGE*	(3) *ENGAGE*	(4) *ENGAGE*	(5) *ENGAGE*	(6) *ENGAGE*
LN_COUNTNEG_NEW	-0.080**					
	(0.018)					
LN_COUNTLIT_NEW		-0.081**				
		(0.026)				
PC_SENTIMENT_NEW			-0.101**			
			(0.021)			
LN_COUNTNEG_AUD_NEW (β_1)				-0.107***		
				(0.000)		
LN_COUNTNEG_OTHER_NEW (β_2)				0.032		
				(0.230)		
LN_COUNTLIT_AUD_NEW (β_1)					-0.111***	
					(0.000)	
LN_COUNTLIT_OTHER_NEW (β_2)					0.036	
					(0.228)	
PC_SENTIMENT_AUD_NEW (β_1)						-0.149***
						(0.000)
PC_SENTIMENT_OTHER_NEW (β_2)						0.060
						(0.230)
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)				0.000	0.000	0.001
Observations	20,975	20,975	20,975	20,975	20,975	20,975
Pseudo R-squared	0.058	0.058	0.058	0.061	0.061	0.061

Note: This table examines the relation between business press sentiment in year *t* of the auditor from year *t+1* and the probability of gaining new clients. The dependent variable (*ENGAGE*) is an indicator variable for whether a client had a new auditor in year *t+1*. In columns (1)-(3), our variables of interest are the business press sentiment in year *t* for the auditor engaged in *t+1* (*LN_COUNTNEG*, *LN_COUNTLIT_NEW*, and *NEW*, *PC_NEW*). In columns (4)-(6), our variables of interest are incumbent auditors' business press sentiment, separated into audit-related news and non-audit-related news, in year *t* (*LN_COUNTNEG_AUD_NEW*, *LN_COUNTLIT_AUD_NEW*, *PC_SENTIMENT_AUD_NEW*, *LN_COUNTNEG_OTHER_NEW*, *LN_COUNTLIT_OTHER_NEW*, and *PC_SENTIMENT_OTHER_NEW*). We exclude client-year observations for switches to non-Big 4 auditors. Control variables include *SIZE*, *BTM*, *ROA*, *LOSS*, *MERGER*, *RESTRUCT*, *DEC*, *DIV*, *ACCR*, *REC*, *INV*, *CLIENT_NEWS*, *RESTATE*, *LN_FEE*, *LN_TENURE*, and *AUD_REST*. Estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Table 9: Restatements and Business Press Sentiment

VARIABLES	(1) *RESTATE8K*	(2) *RESTATE8K*	(3) *RESTATE8K*	(4) *RESTATE8K*	(5) *RESTATE8K*	(6) *RESTATE8K*
LN_COUNTNEG	0.188***					
	(0.001)					
LN_COUNTLIT		0.182***				
		(0.002)				
PC_SENTIMENT			0.180***			
			(0.001)			
LN_COUNTNEG_AUD (β_1)				0.174***		
				(0.000)		
LN_COUNTNEG_OTHER (β_2)				0.054		
				(0.160)		
LN_COUNTLIT_AUD (β_1)					0.181***	
					(0.000)	
LN_COUNTLIT_OTHER (β_2)					0.048	
					(0.241)	
PC_SENTIMENT_AUD (β_1)						0.208***
						(0.000)
PC_SENTIMENT_OTHER (β_2)						0.082
						(0.197)
CONTROLS	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)				0.044	0.036	0.138
Observations	21,247	21,247	21,247	21,247	21,247	21,247
Pseudo R-squared	0.0565	0.0565	0.0565	0.0592	0.0592	0.0592

Note: This table examines the relation between auditors' business press sentiment in year *t* and the probability of non-reliance misstatement in year *t*. The dependent variable (*RESTATE8K*) is an indicator variable for whether the client-year is materially misstated as revealed by a subsequently issued 4.02 non-reliance restatement, and zero otherwise. In columns (1)-(3), our variables of interest are auditors' business press sentiment in year *t* (*LN_COUNTNEG*, *LN_COUNTLIT*, and *PC_SENTIMENT*). In columns (4)-(6), our variables of interest are auditors' business press sentiment, separated into audit-related news and non-audit-related news, in year *t* (*LN_COUNTNEG_AUD*, *LN_COUNTLIT_AUD*, *PC_SENTIMENT_AUD*, *LN_COUNTNEG_OTHER*, *LN_COUNTLIT_OTHER*, and *PC_SENTIMENT_OTHER*). Control variables include *SIZE*, *BTM*, *ROA*, *LOSS*, *LEV*, *DEC*, *CLIENT_NEWS*, *LN_FEE*, *LN_TENURE*, and *AUD_REST*. Estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

Table 10: Initial News versus Later News
Panel A: Auditor Ratification

VARIABLES	(1) *LN_AGAINST*	(2) *LN_AGAINST*	(3) *LN_AGAINST*
LN_COUNTNEG_FY (β_1)	0.009**		
	(0.022)		
LN_COUNTNEG_NFY (β_2)	0.009*		
	(0.058)		
LN_COUNTLIT_FY (β_1)		0.011**	
		(0.017)	
LN_COUNTLIT_NFY (β_2)		0.013**	
		(0.021)	
PC_SENTIMENT_FY (β_1)			0.016**
			(0.019)
PC_SENTIMENT_NFY (β_2)			0.017**
			(0.035)
CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)	0.482	0.603	0.520
Observations	13,461	13,461	13,461
R-squared	0.682	0.683	0.682

Table 10 (Cont'd)
Panel B: ERCs

VARIABLES	(1) *RET*	(2) *RET*	(3) *RET*
EARN	1.267**	1.271**	0.970*
	(0.016)	(0.016)	(0.063)
LN_COUNTNEG_FY	0.001		
	(0.457)		
*EARN*LN_COUNTNEG_FY* (β_1)	-0.089***		
	(0.000)		
LN_COUNTNEG_NFY	-0.001		
	(0.566)		
*EARN*LN_COUNTNEG_NFY* (β_2)	0.005		
	(0.690)		
LN_COUNTLIT_FY		0.001	
		(0.351)	
*EARN*LN_COUNTLIT_FY* (β_1)		-0.082***	
		(0.000)	
LN_COUNTLIT_NFY		-0.001	
		(0.516)	
*EARN*LN_COUNTLIT_NFY* (β_2)		0.004	
		(0.750)	
PC_SENTIMENT_FY			0.002
			(0.400)
*EARN*PC_SENTIMENT_FY* (β_1)			-0.118***
			(0.000)
PC_SENTIMENT_NFY			-0.002
			(0.543)
*EARN*PC_SENTIMENT_NFY* (β_2)			0.007
			(0.736)
CONTROLS	Yes	Yes	Yes
*EARN**CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Client FE	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)	0.000	0.000	0.000
Observations	21,247	21,247	21,247
R-squared	0.344	0.344	0.344

Table 10 (Cont'd)
Panel C: Client-level Market Reaction to Auditors' Negative News Sentiment

VARIABLES	(1) *CAR*	(2) *CAR*	(3) *CAR*
LN_COUNTNEG_FD (β_1)	-0.052***		
	(0.002)		
LN_COUNTNEG_NFD (β_2)	-0.048**		
	(0.013)		
LN_COUNTLIT_FD (β_1)		-0.032**	
		(0.025)	
LN_COUNTLIT_NFD (β_2)		-0.020	
		(0.189)	
PC_SENTIMENT_FD (β_1)			-0.045***
			(0.008)
PC_SENTIMENT_NFD (β_2)			-0.038*
			(0.058)
CONTROLS	Yes	Yes	Yes
Test $\beta_1 = \beta_2$			
(one-tailed p-value)	0.274	0.116	0.244
Observations	177,907	177,907	177,907
R-squared	0.001	0.001	0.001

Note: This table repeats our main analyses using initial news versus later news. Panel A and Panel B present results for auditor ratification and ERC tests, respectively, using first-year news (news coverage of an event in its first year, which is identified by variables ending with *_FY*) versus non-first-year news (news coverage of an event subsequent to its first year, which is identified by variables ending with *_NFY*). Panel C repeats the client's three-day market reaction tests using first-day news (i.e., news about an event in its first two days) versus non-first-day news (i.e., news about an event after its first two days). Estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).

TABLE 11: Business Press Sentiment Linked to Audit Offices
Panel A: Auditor Ratification

VARIABLES	(1) *LN_AGAINST*	(2) *LN_AGAINST*	(3) *LN_AGAINST*
LN_COUNTNEG_SMSA (β_1)	0.016*		
	(0.057)		
LN_COUNTNEG_DMSA (β_2)	0.004		
	(0.337)		
LN_COUNTLIT_SMSA (β_1)		0.021**	
		(0.028)	
LN_COUNTLIT_DMSA (β_2)		0.006	
		(0.205)	
PC_SENTIMENT_SMSA (β_1)			0.015**
			(0.040)
PC_SENTIMENT_DMSA (β_2)			0.007
			(0.264)
CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
MSA FE	Yes	Yes	Yes
Test $\beta_1 = \beta_2$			
(one-tailed p-value)	0.093	0.069	0.212
Observations	13,461	13,461	13,461
R-squared	0.458	0.458	0.458

TABLE 11 (Cont'd)
Panel B: Earnings Response Coefficients (ERCs)

VARIABLES	(1) *RET*	(2) *RET*	(3) *RET*
EARN	1.323***	1.231***	1.335***
	(0.006)	(0.009)	(0.005)
LN_COUNTNEG_SMSA	-0.003		
	(0.269)		
*EARN*LN_COUNTNEG_SMSA* (β_1)	0.001		
	(0.975)		
LN_COUNTNEG_DMSA	-0.000		
	(0.884)		
*EARN*LN_COUNTNEG_DMSA* (β_2)	0.006		
	(0.601)		
LN_COUNTLIT_SMSA		-0.004	
		(0.171)	
*EARN*LN_COUNTLIT_SMSA* (β_1)		0.007	
		(0.785)	
LN_COUNTLIT_DMSA		-0.001	
		(0.658)	
*EARN*LN_COUNTLIT_DMSA* (β_2)		0.027**	
		(0.041)	
PC_SENTIMENT_SMSA			-0.003
			(0.217)
EARN PC_SENTIMENT_SMSA* (β_1)			0.003
			(0.889)
PC_SENTIMENT_DMSA			-0.001
			(0.774)
*EARN*PC_SENTIMENT_DMSA* (β_2)			0.026
			(0.207)
CONTROLS	Yes	Yes	Yes
*EARN*CONTROLS	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes
MSA FE	Yes	Yes	Yes
Test $\beta_1 = \beta_2$ (one-tailed p-value)	0.410	0.246	0.186
Observations	21,247	21,247	21,247
R-squared	0.145	0.146	0.146

TABLE 11 (Cont'd)
Panel C: Client-level Market Reaction to Auditors' Negative News Sentiment

VARIABLES	(1) *CAR*	(2) *CAR*	(3) *CAR*
LN_COUNTNEG_SMSA (β_1)	-0.024		
	(0.209)		
LN_COUNTNEG_DMSA (β_2)	-0.024		
	(0.102)		
LN_COUNTLIT_SMSA (β_1)		-0.027*	
		(0.093)	
LN_COUNTLIT_DMSA (β_2)		-0.037**	
		(0.023)	
PC_SENTIMENT_SMSA (β_1)			-0.044**
			(0.036)
PC_SENTIMENT_DMSA (β_2)			-0.050***
			(0.005)
CONTROLS	Yes	Yes	Yes
Test $\beta_1 = \beta_2$			
(one-tailed p-value)	0.633	0.404	0.779
Observations	177,907	177,907	177,907
R-squared	0.001	0.001	0.001

Note: This table repeats the ratification test, ERC test, and client's market reaction test using same MSA auditor's news and different MSA auditor's news. Panel A, Panel B, and Panel C report the ratification test, ERC test, and market reaction test, respectively. *LN_COUNTNEG_SMSA*, *LN_COUNTLIT_SMSA* and *PC_SENTIMENT_SMSA* are measured using auditors' business press sentiment if the auditor office of the client is in the same MSA as the auditor office associated with the news. *LN_COUNTNEG_DMSA*, *LN_COUNTLIT_DMSA* and *PC_SENTIMENT_DMSA* are measured using auditors' business press sentiment if the auditor office of the client is not in the same MSA as the auditor office associated with the news. Estimates on control variables are suppressed for brevity. See Appendix B for variable definitions. Standard errors are clustered by client. P-values are reported in parentheses (*** p<0.01, ** p<0.05, * p<0.1).