"Pump-and-Dump" through Media Tone? Institutional Trading Strategies during Corporate Litigation

Jie (Jack) He, Han Xia, and Yabo Zhao*

Abstract

Institutional investors often own equity blocks of media companies besides industrial firms. When these industrial firms become defendants of corporate litigation, institutions nudge media companies they simultaneously blockhold to provide more lenient coverage about the defendants. Doing so temporarily props up investor sentiment, mitigates negative price impact, and allows institutions extra time to exit positions in troubled defendants – a pseudo "pump-and-dump" strategy. Dumped shares by institutions are largely absorbed by retail investors. This strategy is especially prominent among activists, and likely involves institutions' deliberate participation. Ex ante, institutions appear to hold media companies to "save for a rainy day."

Key words: "pump-and-dump", media tone, investor sentiment, corporate litigation, institutional trading strategies

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1. Introduction

Corporate litigation is a salient event that reveals concerns over defendant firms' operations, and is associated with significantly negative stock market reactions. Based on 8,563 corporate lawsuits between 2007 and 2018 from the Audit Analytics Corporate and Legal database, the cumulative abnormal return (CAR) of a defendant firm's equity amounts to -4% in the 30 days symmetrically around the litigation announcement. Existing studies show that many investors holding the defendant's equity promptly exit their positions and capitalize losses during the litigation period – "cut-and-run" (Gande and Lewis, 2009). However, "cut-and-run" might be problematic for institutions that blockhold a large fraction of the company (e.g., at least 5% of the outstanding shares): they are constrained by the illiquidity of large sales amid market-wide selling pressure. In this case, what can these institutions do to strategically support the defendant's stock price until they successfully exit? Anecdotal evidence hints at the answer.

Facebook shares are widely held by institutional investors. On March 20, 2018, Facebook users filed lawsuits against the company, alleging that Facebook (the defendant) violated purported data privacy policies by allowing third parties to access the personal data of its users (the Facebook–Cambridge Analytica data scandal). Facebook's lawsuit quickly drew attention from the media, including New York Post and Washington Post. At that time, the parent company of New York Post – News Corp – was blockheled by the same institutional blockholder of Facebook, whereas Washington Post did not share any blockholders with Facebook.

On March 21, 2018, Washington Post issued four articles that punitively criticized Facebook's privacy protection practices and interrogated the company's social impact. These articles carried titles such as "*Facebook's terrible, horrible, no good 24 hours – and what comes next; The social media behemoth will not be able to dodge regulations forever*." On the same day, New York Post, sharing a blockholder with Facebook, also published four articles, yet with more benign narrative. These articles, titled "*Zuckerberg to end silence on user data scandal*" or "*Mark Zuckerberg finally says 'sorry' for Facebook privacy scandal*," portrayed the incident from the

company's point of view, and generously cited comments from Facebook employees such as "*We thought we were doing something that was really normal and we were assured by Cambridge Analytica that everything was perfectly legal and within the limits of the terms of service*," and "*The company made mistakes, there's more to do, and we need to step up and do it.*"[1] Notably, in the two quarters following the Facebook lawsuit, the institution that blockholds both Facebook and New York Post liquidated over 1.2 million Facebook shares.

Another case in point is the lawsuit against Chipotle on January 8, 2016 after its customers became ill with the E. coli bacterium. The plaintiffs alleged that Chipotle failed to disclose inadequate compliance with workplace safety regulations, exposing customers and employees to health risk. When describing this incident on January 15, 2016, New York Times, which were not blockheld by any of Chipotle's large investors, recollected at least six other health-related incidents that Chipotle had faced, citing a lawyer Bill Marler: "*I can't think of any chain restaurant or food manufacturer who's ever reported that many outbreaks in just six months. Underlying that has to be a lack of controls*." Supplementing this article was a list – in a bullet point manner – of the sequence of events, including "*Chipotle Is Subpoenaed in Criminal Inquiry Over Norovirus Outbreak*", and "*Chipotle Says Outbreak Source May Never Be Determined.*" In contrast, Wall Street Journal, which is blockheld by a large Chipotle investor, published an article on January 13, 2016, highlighting Chipotle's new marketing campaign: "*Chipotle Mexican Grill Inc. executives voiced confidence that the company can rebound from recent foodborne-disease outbreaks, and said they plan to start a marketing campaign next month aimed at winning back customers who*

[1] See https://www.washingtonpost.com/blogs/plum-line/wp/2018/03/20/facebooks-terrible-horrible-no-good-24-hours-and-what-comes-next/, https://www.washingtonpost.com/opinions/yes-we-should-be-outraged-about-facebook/2018/03/21/08c7fcaa-2d49-11e8-b0b0-f706877db618_story.html, https://www.washingtonpost.com/lifestyle/style/no-billionaires-wont-save-us-thats-a-myth-that-links-zuckerberg-and-trump/2018/03/20/88c2fec0-2c5c-11e8-8688-e053ba58f1e4_story.html, https://www.washingtonpost.com/blogs/post-partisan/wp/2018/03/20/maybe-we-should-be-thanking-facebook/ for the four articles from Washington Post. See https://nypost.com/2018/03/21/zuckerberg-to-end-silence-on-user-data-scandal/, https://nypost.com/2018/03/21/mark-zuckerberg-finally-says-sorry-for-facebook-privacy-scandal/, https://nypost.com/2018/03/21/mark-zuckerberg-finally-breaks-silence-after-privacy-scandal/, https://nypost.com/2018/03/21/facebook-user-sues-over-data-breach-scandal/ for the four articles from New York Post.

have steered clear of the chain."[2] In the two quarters following the lawsuit, the investor holding both Chipotle and Wall Street Journal liquidated 5.1% of Chipotle's outstanding shares.

These anecdotes share a common theme: Institutions often own equity blocks of media companies besides industrial firms.[3] When an industrial firm becomes the defendant of corporate litigation, the institutions can nudge media companies that they simultaneously hold to provide more lenient coverage of the litigation. By doing so, the institutions can temporarily prop up investor sentiment amid the troubling event, mitigate negative stock price impact, and buy themselves more time to exit large positions of defendants before further price deterioration – a pseudo "pump-and-dump" strategy. We call it pseudo because the institutions' behavior in this case is reactive to the litigation and aims to alleviate potential losses, different from a conventional proactive pump-and-dump scheme (e.g., Allen and Gale, 1992).[4] We examine whether such a strategy prevails in a large sample of corporate litigation, and if so, how this strategy is executed.

The "pump-and-dump" strategy builds on two cornerstones: the *incentive* and *ability* of institutions to affect equity prices through media tone. Existing literature shows that institutions are incentivized to influence asset valuation in order to improve return performance, attract fund inflows, and boost managerial award (e.g., Carhart, Kaniel, Musto and Reed, 2002; Bollen and Pool, 2009; Agarwal, Daniel, and Naik, 2011; Ben-David, Franzoni, Landier, and Moussawi, 2013; Kacperczyk and Schnabl, 2013). Indeed, Jim Cramer, the former fund manager and host of Mad Money, once said: "*If I were long and I would like to make things a little bit more rosy, I'd go in and take a bunch of stocks and make sure that they are higher…[A fund] needs to do a lot to*

[2] See https://www.nytimes.com/2016/01/15/business/chipotles-new-mantra-safe-food-not-just-fresh.html, and https://www.wsj.com/articles/chipotle-plans-marketing-campaign-to-win-back-customers-1452726402.

[3] The proportion of industrial firms owned by institutional blockholders that also blockhold media companies has doubled from around 20% in 2000 to over 40% in 2018.

[4] Emerging literature documents conventional pump-and-dump schemes, and more broadly, price manipulation in financial markets. See, e.g., Khwaja and Mian (2005); Merrick, Naik, and Yadav (2005); Ni, Pearson, and Poteshman (2005); Aggarwal and Wu (2006); Mollenkamp (2008); Snider and Youle (2010); Putnins (2012); Comerton-Forde and Putnins (2015); Chen, Gao, He, Jiang, and Xiong (2018); Gandal, Hamrick, Moore, and Oberman (2018); Griffin and Shams (2018); Hackethal, Leuz, Meyer, Muhn, and Soltes (2019); Henderson, Pearson, and Wang (2020), Griffin and Shams (2020); Li, Shin, and Wang (2021).

save itself." In our setting, the "rosy" route to "saving" institutions from litigation's negative price impact does not necessarily entail fabricating or falsifying information (costly for media's reputation capital). Instead, institutions can nudge the blockheld media to simply show more compassion and be less nitpicking when writing about the litigation – as is the case in the *Facebook* and *Chipotle* anecdotes. Such an act of omission instead of an act of commission, as we later show, suffices to temporarily stabilize defendant firms' stock prices and "save the day" for institutions, allowing them to exit at reasonable price levels.

On the other hand, large owners of media are also capable of nudging media and shaping news slant. According to a survey by the Pew Research Center and the Columbia Journalism Review, one-third of the national journalists and half of the local journalists surveyed report that "*corporate owners exert at least a fair amount of influence*" on decisions of news stories; about one-quarter of the local and national journalists acknowledge that "*they have softened the tone of a news story on behalf of the interests of their news organization*."[5] These results are consistent with Bagdikian (2004), who finds that editors and journalists are increasingly integrated into the management imperatives of the corporation. In turn, corporate management is frequently under the influence of large investors, making their voice heard and preferences carried over to the editorial process. Indeed, when News Corp acquired the Wall Street Journal in 2007, many market participants expressed concerns that the new proprietor – particularly Rupert Murdoch, who was known for phoning editors and even reporters about individual stories – could put a strong imprint on the newspaper, endorsing the owner's preferences.[6]

The grip of large investors on portfolio media companies, combined with their incentive to mitigate losses during litigation, makes "pump-and-dump" through media tone credible.[7]

[5] https://www.pewresearch.org/politics/2000/04/30/self-censorship-how-often-and-why/

[6] See Gilend and Hertzman (2000), Berman and Ellison (2007), Wagner and Collins (2014), Archer and Clinton (2018), Ru, Xie, and Xue (2020), Kedia and Kim (2021), and Xu (2021).

[7] This strategy is also likely sustainable in equilibrium, even when the market is efficient and market participants are rational. The intuition follows a "signal jamming" model, that is, deviating from the market-conjectured path of

To illustrate this strategy, we assemble a sample of 8,563 corporate litigation cases between 2007 and 2018 from the Audit Analytics Corporate and Legal database. These cases involve 3,469 publicly listed industrial firms as the lead defendants. Media coverage and content data are from RavenPack News Analytics, a leading database that collects and analyzes firm-level business news from a variety of publishers. RavenPack provides an expert-rated event sentiment score (*ESS*) for each news story, which gauges whether firm-specific news has a positive or negative effect on investor sentiment, and more importantly for our study, to what extent this sentiment affects firm stock prices (see Section 2.2 for more details). This score allows us to measure how specific news influences a firm's stock performance, and thus to examine how institutions exploit their media holding to maneuver this influence. RavenPack and the *ESS* have been widely used in the literature, including Kolasinski, Reed, and Ringgenberg (2013), Dang, Moshirian, and Zhang (2015), Gao, Parsons, and Shen (2018), You, Zhang, and Zhang (2018), and Dang et al. (2019).

We provide evidence for the pseudo "pump-and-dump" strategy in three steps. The first step pertains to "pump." We employ a daily event study in a difference-in-differences (DiD) setting. The first difference compares the news tone of media that share institutional blockholders with the defendant firm prior to a corporate lawsuit – which are likely under the influence of blockholders' pumping incentives, with the tone of control media covering the *same* defendant of the *same* lawsuit but do not share any blockholders with the defendant. The second difference tracks, on a daily basis, how the first difference evolves around the announcement of corporate lawsuits. While the first difference can capture different fundamentals between the two types of media (such as political ideology or corporate culture) – leading to diverging tones for the same litigation event, the second difference nets out such dissimilarity. The event study at a daily frequency further helps us identify any tone changes triggered by corporate litigation, filtering out

"pump-and-dump" is a suboptimal move for "pumping institutions" (analogous to a prisoner's dilemma). See, e.g., Stein (1989), who documents managers' myopic behavior to boost earnings (price) that sustains in a rational setting.

confounding factors (e.g., portfolio rebalancing unrelated to litigation) that could simultaneously affect institutions' decisions to blockhold media and any subsequent tone change.

We find that while the tone of control media covering the defendants declines sharply (i.e., becomes more negative) around litigation announcements, the tone of influenced media drops by only half as much, and it recovers more quickly after the announcements. Such lenient coverage – which we label as (pseudo) "tone pumping" – persists for about 60 days following the litigation announcement. In the cross-section, tone pumping is more pronounced when institutions hold larger stakes in either the defendants (capturing greater pumping incentives) or the media (capturing greater pumping abilities). It is also more prominent among activist institutions filing Schedule 13D and those more involved in portfolio management (as opposed to ETFs or index funds). Furthermore, the tone pumping inference is robust to considering potential heterogeneous treatment effects in DiD settings concerned by recent econometrics literature (e.g., Callaway and Sant'Anna, 2021; Sun and Abraham 2021; Goodman-Bacon, 2021).

In the second step, we document the price impact of tone pumping. Using a geography-based instrumental variable approach, we show that the lenient coverage from treated media generates positive impact on defendant firms' stocks: it creates a "freeze-out" period – lasting for about 60 days after the litigation announcement – in which the defendants' stock prices hold up stably, instead of sharply declining as would otherwise do. The freeze-out period runs out after day 60, and price depreciation eventually picks up. But this period *delays* such negative price movement, thereby affording pumping institutions extra time to exit their positions at reasonable price levels.

Indeed, in the last step, we find that pumping institutions capitalize on the freeze-out period to sell the defendant stocks. By the first quarter end after litigation announcement, pumping institutions have unloaded almost 18% of their pre-litigation holdings of the defendant. Perhaps unsurprisingly, the dumped shares are largely absorbed by retail investors.

Ex ante, we find that media companies in a pumping institution's portfolio often underperform and cannot match up with the returns generated by the rest of the portfolio. Such underperformance, however, is absent for non-pumping institutions. Although suggestive, this contrast implies that institutions perhaps hold media companies for reasons other than these stocks' standalone returns – one of them being the media's valuable role in influencing investor sentiment and asset prices. This role has been shown to be *causal* (Engelberg and Parsons, 2011; Dougal, Engelberg, Garcia, and Parsons, 2012). Hence, institutions might have incentives to hold media companies "for a rainy day".[8]

In the next part of our study, we provide more nuances to the baseline results and depict how the "pump-and-dump" strategy is executed. We start by asking to what extent pumping institutions are involved in this strategy. Institutions can play two types of roles. Under an active role, institutions deliberately direct media firms to execute lenient coverage – a "hands-on" approach in line with Murdoch's editorial involvement. Under a passive role, institutions are not materially involved; instead, the "pump-and-dump" is driven either by media voluntarily catering to the blockholders' preferences (media's currying favor), or by defendant firms pressing media through, e.g., targeted advertising (defendants' media capturing).

Our previous finding that "pump-and-dump" concentrates among activists (13D filers) hints at institutions' active participation. We now conduct further tests to examine this role. Although we do not observe the phone transcripts or emails between institutions and media firms, we can explore one necessary condition for institution's active role – attentivity, and adopt an approach similar to proof by contradiction. That is, if the extent of "pump-and-dump" becomes

[8] Media not only influence asset prices (Tetlock, 2007; Fang and Peress, 2009; Engelberg and Parsons, 2011; Dougal, Engelberg, Garcia, and Parsons, 2012), but also trading and investment (e.g., Barber and Odean, 2008; Hirshleifer, Lim, and Teoh, 2009; Griffin, Hirschey, and Kelly, 2011; Fang, Peress, and Zheng, 2014; Solomon, Soltes, and Sosyura, 2014; Ben-Rephael, Da, and Israelsen, 2017), IPOs (e.g., Pollock and Rindova, 2003; Cook, Kieschnick, and Van Ness 2006; Bhattacharya, Galpin, Ray, and Yu, 2009; Hanley and Hoberg, 2010; Liu, Sherman, and Zhang, 2014), executive compensation (e.g., Core, Guay, and Larcker, 2008; Kuhnen and Niessen, 2012), and corporate governance (e.g., Dyck, Volchkova, and Zingales, 2008; Joe, Louis, and Robinson, 2009; Liu and McConnell, 2013; Dai, Parwada, and Zhang, 2015).

significantly weakened when institutions are unable to allocate sufficient attention to a litigation event, then such variation would imply that, at the minimum, institutions take an active part in the execution of "pump-and-dump".

Based on this intuition, we capture institutions' (in)attentivity as follows. Part of an institution's portfolio may undergo attention-grabbing events, "distracting" the institution from the rest of the portfolio. Recent studies find that such distraction reduces investors' attentive monitoring, giving rise to firms' opportunistic behavior (e.g., Kempf, Manconi, and Spalt, 2017; Liu, Low, Masulis, and Zhang, 2020; Agarwal, Cao, Huang, and Kim, 2021).[9] In the same spirit, an institution distracted by shocks to other parts of its portfolio would be less attentive to engaging in the "pump-and-dump" of a given defendant firm.

Indeed, we find that "pump-and-dump" significantly attenuates as institutions become less attentive to litigation events, supporting their active role in influencing media coverage. This role is related to, yet distinct from, the one shown in the recent literature. Ahern and Sosyura (2014) document that firms actively manage the timing and content of press releases to elevate their stock prices, especially during major corporate events such as mergers and acquisitions. Similarly, Solomon (2012) and Gurun and Butler (2012) show that firms promote their media image through investor relations (IR) firms and local newspapers. To the best of our knowledge, we are the first to show how media coverage can be strategically maneuvered through institutions' holding structure. In our context, the motive for maneuvering media content is to mitigate institutions' losses from troubled investments – an act of "saving the day". It is different from firms' self-promotion incentives documented in the prior literature.

How does "pump-and-dump" affect the volume of media coverage (the extensive margin)? Do treated media release fewer articles in order to avoid playing the critics of the defendants (strategic silence), or do they instead act as cheerleaders to issue more propped up articles? We

[9] Relatedly, using Google search volume, which largely captures the attention of retail investors, Da, Engelberg, and Gao (2011, 2015) show that attention affects investor trading behavior and asset prices.

find evidence supporting strategic silence. This is again consistent with the survey by the Pew Research Center and the Columbia Journalism Review, which finds that many reporters avoid writing stories because they "*get signals or anticipate negative reactions from superiors.*" Furthermore, we show that influenced media use two complementary tactics to ease up investors' negative sentiment, by either "patching the wound" – playing down the legal ramification of a lawsuit in question (like the case of *Facebook*), or by "steering" – playing up other non-legal matters that can cheer up shareholders (like the case of *Chipotle*). Lastly, "pump-and-dump" surfaces more among news articles based on soft information than those based on hard information (e.g., earnings and credit ratings). Altogether, these results depict rich facets about the execution of the "pump-and-dump" strategy.

In the last part of the paper, we examine alternative explanations and perform robustness tests. In our analyses so far, we exploit the granular nature of the data and include multi-layers of fixed effects, such as media-by-time fixed effects (absorbing time-varying media characteristics) and media-by-event fixed effects (absorbing time-invariant characteristics for each media-defendant pair). However, one may argue that certain media may be less responsive (more conservative) in processing information during significant events like corporate litigation, resulting in a smaller drop in news tone. If they are connected with defendant firms via shared blockholders out of unobservable mechanisms (e.g., the managers of all three happen to have similar political views or social ties), then our results might reflect such omitted mechanisms.

We investigate this possibility by conducting a falsification test based on the *resolutions* of corporate litigation. The resolutions of litigation often reveal more positive perspectives about defendants than expected during initial announcements (which happens when, e.g., a lawsuit settlement is not as detrimental). These positive resolutions offer us an opportunity to observe how media respond to positive litigation news in the absence of institutions' "pump-and-dump" incentives. If treated media are simply less responsive, then they should adjust up their tone to a lesser degree than control media around positive resolutions. However, this is not what we find.

Furthermore, our findings are also robust to alternative measures of media tone, alternative definitions of institutional blockholders, and are not driven by any specific media providers.

2. Data, Sample Construction, and Summary Statistics

2.1. Data and sample construction

Our empirical analyses are based on four data sources: (1) the Audit Analytics Corporate and Legal Litigation database, (2) the RavenPack News Analytics (Full Edition) database, (3) the Thomson Reuters 13F database, and (4) the Compustat and the Center for Research in Security Prices (CRSP). We construct our sample in the following steps. First, we collect corporate lawsuits from the Audit Analytics Litigation database, which provides detailed information on all federal security class action claims, SEC actions, and material federal civil litigations since 2000. Our sample includes lawsuits between 2007 and 2018 because RavenPack – which we use to extract media tone – starts to cover multiple major media sources from 2007 (details below). The Audit Analytics Litigation database records the announcement date of each corporate lawsuit and the identity of associated parties, including the lead plaintiff(s) and the lead defendant firm(s). We use CIKs to link defendant firms to other data sources and obtain their institutional ownership, media coverage, and financial and stock price information. The litigation announcement date enables us to employ a daily event study and examine how the media tone changes around lawsuit announcements. We exclude lawsuits in which the identity of lead defendants or lead plaintiffs is missing, and focus on lead defendants that are public U.S. firms. This process generates a sample of 8,563 lawsuits covering 3,469 U.S public firms as the lead defendants.

Figure 1 plots the cumulative average abnormal returns (CAARs) of defendants' stocks from 90 days before the litigation announcement to 180 days after. Stock return information is obtained from CRSP. The y-axis denotes average CAAR (in percentage points), and the x-axis denotes event days, where day 0 is the announcement date. Daily abnormal returns are calculated

based on the market-adjusted model and the Carhart (1997) four-factor model, respectively. The CAAR equals the summation of prior daily average abnormal returns up to the current day.

Figure 1 demonstrates a sharp decline in the defendants' stock returns, starting from approximately seven days before the announcement. The CAAR in the 30-day period surrounding the announcement (i.e., [-15, +15]) amounts to -4%, and continues to decline afterwards. This pattern highlights the significant market reaction to corporate litigation. It naturally incentivizes institutions that hold large positions of the defendants to mitigate losses to "save the day", potentially by managing investor sentiment.

In addition, we observe a smaller, yet steady, decline in CAAR during the pre-litigation period (i.e., [-60, -20]). This trend reflects that our sample consists of many security lawsuits that are often led by shareholder losses due to stock devaluation.[10] In Section 3.4, we provide evidence that institutional blockholders begin to trade defendant stocks from as early as this pre-litigation period, albeit to a much lesser extent than during the litigation announcement.

We obtain data on media coverage from RavenPack News Analytics, a leading database that collects and analyzes real-time, firm-level business news. RavenPack includes major U.S. news and business sources listed in Factiva, such as The Wall Street Journal, Barron's, The New York Times, CNN, Fox News, and The Washington Post, among others. RavenPack identifies media sources at the division level and differentiates, e.g., The Wall Street Journal from Wall Street Journal Online. Because media contents from a provider's divisions are highly correlated, we consolidate media sources to the provider level. Furthermore, a defendant firm may appear as a side subject in an article, making the news less relevant in influencing market sentiment. To ensure that defendant firms are the main subjects, we follow the existing literature and keep only articles with a RavenPack relevance score of 100 (see, e.g., Dai, Parwada, and Zhang, 2014). Table 1 provides the list of 22 media providers in RavenPack that cover at least one defendant firm in

[10] Security lawsuits account for 37% of the sample, followed by lawsuits on intellectual property (24%) and corporate governance (15%).

our sample between 2007 and 2018, the total number of articles published by each provider, and the number of public firms it covers.

For each lawsuit in our sample, we identify the set of media sources that cover the defendant firm at least once from 30 days before to 30 days after the litigation announcement date (i.e., relevant media sources). Next, we link both the defendant firm and the parent company of a relevant media source to Thomson Reuters' 13F database for institutional holdings information. Throughout our analyses, we focus on public media parent companies for which institutional ownership data are available. We define an institutional investor as a blockholder if the institution holds at least 5% of a firm's common equity shares at the nearest quarter end before the litigation announcement date (i.e., the pre-litigation quarter). Our results are robust to alternative cutoffs for defining blockholders (see Section 4.3).

We classify a media company as "treated media" if it shares at least one institutional blockholder with the defendant firm at the pre-litigation quarter end. Such media provider is likely under the influence of the blockholders' pumping incentives. The shared blockholder is a "pumping institution", which is likely the "influencer" of the treated media to render lenient news coverage during litigation. As discussed in the *Intro*, the pumping institution's behavior ("tone pumping") here is to mitigate potential losses (uncertainty) during the negative event. It is thus different from the one in a conventional proactive pump-and-dump scheme. A media company is classified as the control media if it does not share any blockholders with the defendant firm at the pre-litigation quarter end.[11] The tones of treated versus control media are the subject of comparison in our main DiD analyses.

Note that the treatment status of a media provider depends on whether it shares blockholders with the defendant, which in turn depends on an institution's portfolio composition

[11] The parent company of a media source/provider can change over time. For example, CNN was owned by Time Warner Inc. until 2017, when AT&T merged with Time Warner Inc. We carefully track mergers and acquisitions in the media industry, and ensure that institutional ownership is measured at a media source's concurrent parent company. See Online Appendix Table A1 for a list of media providers and their ownership structure changes.

at the time of litigation. Therefore, the media may be classified as treated for one defendant (in one litigation) but control for another. In our sample, almost all media have been classified as treated media at least once. As such, our results are unlikely driven by idiosyncratic characteristics of a few large providers. Indeed, as shown in Online Appendix Figure A1, our findings remain unchanged when we sequentially exclude each of the sample media providers from our analyses.

Lastly, we obtain the defendant firms' accounting information from Compustat. Our final sample includes 4,857 lawsuits covering 1,928 defendant firms with available information on media coverage and institutional ownership.

2.2. Variable construction

The goal of our study is to examine whether pumping institutions strategically maneuver media tone to influence the prices of portfolio stocks. To suit this purpose, we need a measure that captures not only the general positivity or negativity of media tone, but also the extent to which media tone affects a firm's stock price. We thus follow the literature and use the *Event Sentiment Score* (*ESS*) from RavenPack.

ESS is a granular score that ranges between 0 and 100. In addition to identifying the qualitative sentiment of a news article (i.e., positive, negative, or natural) rated by experts in linguistics, finance, and economics, the *ESS* algorithm embeds "emotional factors" that quantify the magnitude of such sentiment. By analyzing word usages such as "critical", "moderate", and "inconsequential," the emotional factors span the basic types of tone (positive, negative, and natural) to a full spectrum of sentiment, incorporating the magnitude of each type. Consequently, it offers a *continuous* measure capturing the level of influence that a news article has on firm stocks. The higher (lower) the value is, the more positively (negatively) the media tone influences stocks.

In addition, the *ESS* algorithm factors in a media provider's general impact. It considers *Rank 1* media (such as The Wall Street Journal, The Washington Post, CNBC, and CNN) to have

a greater impact on stock prices than *Rank 2* media (such as New York Post and NBC News) or *Rank 3* media (such as Orlando Sentinel), even if articles from these sources have a qualitatively similar tone. Put differently, *ESS* measures the influence of media tone on stock prices weighted by a provider's impact factors.

ESS has been widely used in the existing literature (see, e.g., Kolasinski, Reed, Ringgenberg, 2013; Shroff, Verdi, and Yu, 2014; Dang, Moshirian, and Zhang, 2015; Gao, Parsons, and Shen, 2018; You, Zhang, and Zhang, 2018). Following this literature, we normalize the original *ESS* to be within the range of -1 to +1 using the formula: (*ESS* – 50)/50. For each media provider, we construct its daily tone for a given firm by taking the average of normalized *ESS* across all news stories covering the firm on a given day. If a firm does not have news stories on this day, then the tone is set to missing. The last column of Table 1 summarizes the average daily *ESS* of our sample media providers between 2007 and 2018.

In our main analyses, we employ *ESS* as the dependent variable of interest. In later tests, we confirm the results using two alternative news tone measures. First, we define a variable, *PosNegESS*, as the number of news articles positively affecting a firm's stock price minus the number of articles negatively affecting the stock price, scaled by one plus the total number of positive and negative articles covering the firm on a day. Following the literature, we classify news as positively (negatively) affecting stock prices if its *ESS* is above the 67th (below the 33rd) percentile among all articles published in our sample period. Second, we employ an alternative measure of news tone provided by RavenPack: *Aggregate Event Sentiment (AES)*. Similar to *PosNegESS, AES* is calculated as the ratio of positive news articles on a firm to the total number of articles (excluding neutral ones); but different from *PosNegESS*, this ratio is calculated over a rolling 91-day window. We normalize *AES* to be within the range of -1 to +1, and calculate a firm's daily *AES* as the average of the normalized *AES* across all articles covering a firm from a media provider.

Table 2 Panel A reports the daily news tone as well as the number of published articles for treated and control media providers, separately. The sample period includes [day -30, day 30], corresponding to our difference-in-differences analyses (more details in Section 3.2). Day 0 denotes the litigation announcement day. On average, the tone of treated media appears more positive than that of control media. In the later analyses, we formally compare the tones from the two types of media covering the *same* firm, with and without the presence of corporate litigation. We show that the significant tone difference here arises mostly from the post-litigation period. The daily number of articles show similar distributions between the two groups.

Lastly, we calculate a battery of quarterly firm characteristics that might be correlated with the media coverage. These variables include firm size, leverage, market-to-book ratio, return on assets, asset tangibility, firm age, and total institutional ownership. Table 2 Panel B reports summary statistics of these characteristics at the pre-litigation quarter end. All continuous variables are winsorized at the 1st and 99th percentiles to minimize the effects of outliers. On average, a firm has book value assets of $44.9 billion, ROA of 3.9%, tangibility of 18.4%, leverage of 21.5%, market-to-book ratio of 2.18, institutional ownership of 67.2%, and is 25 years old since IPO.

[Insert Table 2 about here]

3. The "pump-and-dump" Strategy

In this section, we document the "pump-and-dump" strategy in three steps by showing that 1) treated media render more lenient news coverage to defendant firms than control media covering the same litigations and defendants; 2) the lenient coverage creates positive price impact on defendant stocks; and 3) pumping institutions capitalize on the price impact to exit defendants' equity positions at favorable prices.

3.1. The "pumping"

3.1.1 Graphical analyses

We start by graphically examining the tone of treated and control media around litigation announcement. As defined in Section 2, a treated media provider shares at least one institutional blockholder with the defendant at the quarter end before the litigation announcement (the pre-litigation quarter), while a control provider does not share any blockholders with the defendant. By design, we contrast the tones of different media covering the *same* defendant in the *same* lawsuit. Therefore, the media tone (*ESS*) measure is based on the same set of firms.

Figure 2 presents the results. In Panel A, the y-axis denotes the average daily *ESS*, and the x-axis denotes event days from 90 days before the litigation announcement to 90 days after, i.e., [-90, 90]. Day 0 is the announcement day. In Panel B, we present a weekly analysis, and define the announcement week (week 0) to span from 3 days before the announcement to 3 days after, i.e., [-3, 3]. We start week 0 from 3 days before the announcement to account for emerging significant market reactions (see Figure 1). Week -1 spans the event days of [-10, -4], week 1 spans the event days of [4, 10], and so forth. The y-axis of Panel B denotes the average weekly *ESS*, which is calculated as the average daily *ESS* of the corresponding week. The x-axis denotes event weeks from 13 weeks (approximately 90 days) before the announcement week to 13 weeks after.

Several observations are worth noting. First, the tone of treated and control media moves closely with each other before the corporate litigation, as shown by *ESS* prior to day -7 (in Panel A) or week -1 (in Panel B). This pattern supports the parallel trends assumption. Indeed, in Section 5.2 when we consider potential heterogeneous treatment effects of the difference-in-differences (DiD) analyses, we perform a dynamic DiD estimation and find that the differences between the tones of treated and control media before the litigation announcement are trivial and insignificant (e.g., Callaway and Sant'Anna, 2020; Sun and Abraham 2021; Goodman-Bacon 2021; Baker et al. 2021; Barrios 2021).

The close tone movement suggests that in the absence of litigation, treated media do not systematically favor defendant firms. This pattern is not surprising because, as discussed in the *Introduction*, institutions mostly use "pump-and-dump" to ease up investor sentiment and mitigate

portfolio losses during the negative event – a "saving the day" motive. In the absence of the negative event, we therefore do not observe media tone management.

Second, in the post-litigation period, the tone of both treated and control media drops, yet with different magnitudes. The tone of control media declines sharply, bottoming out at -0.15 around day 5, whereas the tone of treated media drops only half as much, with the bottom touching -0.06. Afterward, the tone of treated media recovers more quickly and stays at a more lenient level for at least 60 days (or 10 weeks) after the litigation announcement.

Third, as we discussed in Figure 1 (Section 2.1), the defendants' stock prices start to decline in the pre-litigation period, likely reflecting the security lawsuits in our sample. However, the more lenient tone of treated media only becomes evident from the litigation announcement. This pattern suggests that the catalyst of institutions' "pump-and-dump" seems to be in line with the official declaration of a lawsuit, instead of pre-event market reaction.

3.1.2 Regression analyses

To formalize the graphical patterns, we run the following OLS model (and its variant forms):

$$ESS_{f,l,m,t} = \alpha + \beta_1 \times Treat_{f,l,m} \times Post_{f,l,t} + \beta_2 \times Treat_{f,j,m} + \beta_3 \times Post_{f,l,t} + \gamma \times Control_{f,l} + Fixed\ Effects + \varepsilon, \quad (1)$$

where *f*, *l*, *m*, and *t* indicate the defendant firm, litigation event, media, and time (day or week), respectively. *ESS* is media *m*'s *ESS* score at time *t* for defendant firm *f* in the litigation event *l*. *Treat* is a dummy variable that equals one if media *m* is a treated media provider covering firm *f*, that is, if media *m* and firm *f* share at least one institutional blockholder at the quarter end before the announcement date of litigation *l* (the pre-litigation quarter); it equals zero otherwise. *Post* is an indicator that equals one if the news tone is measured on or after the litigation announcement day (week), and zero otherwise.

In Equation (1), control variables include time-varying firm characteristics described in Section 2.2, measured at the pre-litigation quarter end. In addition, the granularity of our data allows us to include multiple layers of fixed effects to isolate different variations in media tone. Specifically, media fixed effects (δ_m) control for time-invariant characteristics of media. Calendar week fixed effects (T_t) control for unobservable time trends of media tone. Event fixed effects, which fix a litigation event – defendant firm pair ($\delta_{f,l}$), control for the variation in media tone associated with different types of litigation.[12] In some specifications, we further include media × calendar-week fixed effects, which absorb time-varying media characteristics (such as market impact or political views) and isolate variation in tone across defendant firms that share blockholders with the media versus those that do not. We also include event × calendar-week fixed effects, which absorb time-varying firm characteristics and isolate variation in tone between treated versus control media for the same firm at the same time. These fixed effects allow us to omit quarterly firm characteristics in the regressions. Finally, the inclusion of event × media fixed effects isolates the time-series variation in the tone of a given media-event (media-firm) pair, alleviating concerns that certain media might favor defendant firms due to business or social ties. These fixed effects absorb the indicator *Treat*. We employ two-way clustered standard errors at both the media level and the litigation-firm level because the residual news tone may be correlated within the same media company or across different media covering the same firm.

Table 3 presents the regression results. In Panel A, we report results using daily media tone in the [day -30, day 30] event window, although results are similar using either the [day -15, day 15] or [day -60, day 60] window (see Section 4.3). We start with a parsimonious DiD model in column (1) that only includes *Treat*, *Post*, and their interaction *Treat* × *Post* as the independent variables. The coefficient of *Treat* is small in magnitude, suggesting that before the litigation

[12] Our main findings hold across all three major types of lawsuits (security, intellectual property, and corporate governance). In untabulated analyses, we also use alternative ways proposed in the literature to classify lawsuits, and they do not alter our findings (e.g., Field, Lowry, and Shu, 2005; Chava, Cheng, Huang, and Lobo, 2010; Arena and Julio, 2015).

(when *Post*=0), the tone of treated media is not significantly different from that of control media, consistent with Figure 2.[13] The coefficient of *Post* is -0.029 and significant at the 1% level, suggesting that the tone of control media declines by 0.029 after the litigation. The DiD estimator, i.e., the coefficient of *Treat* × *Post*, is 0.023 and significant at the 1% level, suggesting that in the post-litigation period, the tone of treated media declines by only 0.006 (= -0.029+0.023), nearly 1/5 as negative as that of control media. To put this magnitude in perspective, we calculate media's *ESS* in the Facebook–Cambridge scandal from the *Introduction.* We find that the tone of New York Post (the treated media in the Facebook case) is about 1/6 as negative as that of Washington Post (the control media). In Section 3.2, we further quantify the economic magnitude of media's lenient coverage using its price impact.

We next include various fixed effects in columns (2) to (6). The coefficients of *Treat* × *Post* remain positive and statistically significant. Panel B reports analyses as in Panel A using weekly media tone in the [week -4, week 4] event window. Our results are again robust to either the [week -2, week 2] or [week -8, week 8] window (see Section 4.3). Event weeks are defined in the same way as in Figure 2. All model specifications are identical to those in Panel A. The coefficients of *Treat* × *Post* are positive and statistically significant in all columns, with comparable magnitudes to those in Panel A.

These results lend further support to institutions' strategy to nudge media and sway market sentiment.[14] This interpretation somewhat differs from the common ownership literature, which assumes that common owners maximize the collective value of portfolio firms. Here we highlight

[13] Even though the coefficient of *Treat* is significant in column (3), the majority of the specifications, including those in Panel B, suggest that this observation cannot be generalized and there does not seem to be a significant difference in the tones of media prior to the litigation.

[14] The implication of our results is also in line with Li, Shin, and Wang (2020), who show that pump-and-dump in the cryptocurrency markets leads to wealth transfers between insiders and outsiders.

that when portfolio firms undergo negative corporate events, cross-owners implement strategies to avoid their own trading losses, instead of improving portfolio firms' intrinsic value.[15]

[Insert Table 3 about here]

3.1.3 Cross-sectional variation based on institutions' stakes in media or defendants

Figure 3 plots the cross-sectional variation in "pumping" based on the size of institutions' stakes in the media (capturing the capability of pumping) or in the defendant firm (capturing the incentive of pumping). The size of an institution's stake in the media is measured as the percentage of the media's outstanding shares held by the institution. A larger stake is associated with the institution's stronger influence on the media, either directly (by voting) or indirectly (via the threat of exiting/trading).[16] Panel A of Figure 3 presents the coefficient of *Treat* × *Post* in Equation (1), estimated in subsamples based on the size of institutions' media stakes. It shows that when the institution holds fewer than 5% of media shares (i.e., when the institution is not a blockholder of the media), the coefficient of *Treat* × *Post* is statistically insignificant. In this case, the tone of treated and control media exhibits no differences following litigation. The coefficients become larger and more significant as institutions' stakes increase.

Panel B of Figure 3 performs a similar analysis pertaining to the size of institutions' stake in the defendant firms. This stake captures the importance of the defendant relative to an institution's other holdings, that is, the dollar amount of the defendant equity held by the institution divided by the total dollar amount of the institution's all other holdings at the pre-litigation quarter

[15] This literature examines settings of mergers and acquisitions (e.g., Matvos and Ostrovsky, 2008; Harford, Jenter, and Li, 2011), product markets (e.g., He and Huang, 2017; Azar, Schmalz, and Tecu, 2018; Freeman 2019; Dennis, Gerardi, and Schenone, 2020; Koch, Panayides, and Thomas, 2020), corporate governance and compensation (e.g., Kwon, 2016; Liang, 2016; Kang, Luo, and Na, 2017; He, Huang, and Zhao, 2019; Edmans, Levit, and Reilly, 2019; Antón et al., 2020), managerial incentives (e.g., Gilje, Gormley, and Levit, 2020), financial reporting (e.g., Jung, 2013; Park, Sani, Shroff, and White, 2019; He, Li, and Yeung, 2020), cost of capital (He, Liang, Wang, and Xia, 2020), and innovation efficiency (Li, Liu, and Taylor, 2021).

[16] For direct influence, see, e.g., Bushee (1998), Borochin and Yang (2017), Gillan and Starks (2000), Morgan and Poulsen (2001), Hartzell and Starks (2003), Chen, Harford, and Li (2007), Matvos and Ostrovsky (2010), Faccio, Marchica, and Mura (2011), Aghion, Reenen, and Zingales (2013), and Appel, Gormley, and Keim (2016). For indirect influence, see Edmans (2009), Edmans and Manso (2011), and Edmans, Levit, and Reilly (2019).

end. A larger stake indicates that the institution has a stronger incentive to mitigate losses from the defendant in litigation. As shown in Panel B, the coefficient of *Treat* × *Post* becomes economically larger as the defendant's importance rank increases.

3.1.4 Cross-sectional variation based on institutional type

We next examine the cross-sectional variation in "pumping" based on institutional type. Specifically, we differentiate defendant and media pairs that are held by active institutions versus passive ones. We classify the type of institutions in two ways, based on 1) whether an institution is an activist that files Schedule 13D with the SEC, and 2) whether an institution is among the "Big 3" – the largest three index fund families (BlackRock, State Street, and Vanguard). [17]

In Figure 4 Panel A, we retrieve each institution's Schedule 13D filings with the SEC. We classify an institution as a 13D filer in a given quarter if it has filed Schedule 13D in the past eight quarters. Here we do not require an institution to have targeted either the defendant or the media firm, because we try to identify a parsimonious attribute of an institution's portfolio management style – analogues to our classification based on trading styles below (i.e., index funds or ETFs). Pumping is stronger among 13D filers; the coefficients of *Treat* × *Post* for non-13D filers remain statistically significant, but with much smaller economic magnitudes overall.

The fact that pumping concentrates among activists is consistent with our later analyses in Section 4.1, which documents that institutions' active involvement in "pump-and-dump" is an integral part of the execution of the strategy. Consistently, Figure 4 Panel B further shows that pumping is stronger among institutions that are none of the Big 3, whereas they are statistically insignificant among Big 3 institutions – in line with the notion that large index fund families are more passive in portfolio management and thus less likely to intervene with corporate behavior such as media tone.

3.2. The price impact

[17] Using "Big 5" (i.e., adding Fidelity, and T. Rowe Price) generates similar results.

We next examine whether the presence of "pumped" media coverage generates positive price impact on defendant stocks. An ideal setting, analogous to that in Section 3.1, would be to compare, for a given litigation event, how the defendant firm's stock price reacts to the (more lenient) coverage of the treated media versus the (less lenient) coverage of control media. This setting, however, is not feasible because in reality, we only observe one stock price for each firm, mixing up the influence of both types of media.

We therefore exploit an alternative setting. We compare the defendant firms that are covered by at least one treated media provider – namely, "covered" defendants, with those not covered by *any* treated media – namely, "non-covered" defendants. By design, non-covered defendants are not subject to the tone management of pumping institutions. Therefore, their stock prices serve as the benchmark.

For covered defendants, their stock prices would reflect the influence of tone management, albeit this influence is countered by (the less lenient) control media that cover the same defendants in the same litigation. As such, the comparison of stock prices between covered and non-covered defendants is a conservative approach: it would work against us finding any positive price impact of pumped media tone.[18] In our following analyses, we also account for potential differences between covered and non-covered firms that might confound the comparison.

As a first step, we plot the CAAR of covered and non-covered firms. For each litigation event, we first calculate the covered defendant's daily abnormal return using the Carhart (1997) four-factor model in the [0, 180] window, where day 0 is the litigation announcement day. We then weigh each litigation event by how intensively the defendant's stock price is influenced by the tone of treated media (i.e., the treatment intensity). A defendant is more intensively treated if a larger proportion of the news covering the firm comes from treated media. In this case, the

[18] The presence of pumped media tone also likely increases dispersion in market opinions. Diether, Malloy, and Scherbina (2002) find that dispersed opinions (in the form of analyst forecasts) are associated with lower stock returns. As such, whether the lenient media tone can generate positive price impact is an empirical question.

defendant's stock return carries a higher weight. This weighting method allows us to differentiate the stock prices of two firms that are treated differently but are otherwise observationally indistinguishable.[19] We then calculate the weighted average of daily abnormal returns across all defendants on each day. In the last step, we add up the daily weighted average abnormal returns since the litigation announcement date to obtain the CAAR of the current day. We follow the same algorithm to calculate the abnormal returns of non-covered defendant firms. The only difference is that here, the CAAR is an equal-weighted average because by design, non-covered firms are not influenced by media tone manipulation and the treatment intensity is absent.[20]

Figure 5 presents the results. For ease of exposition, we also plot fitted lines to better illustrate the patterns of CAAR for each group. A few observations are worth noting. First, the CAAR of covered defendant firms holds up steadily throughout the first 60 days after the announcement. This [0, +60] period overlaps with the one when treated media provide more positive tone than control media, as shown in Figure 2. Second, after the [0, +60] period, the CAAR of covered defendants begins to decline: it drops from -0.5% around the 61st day to almost -4.3% around the 180th day. Third and in sharp contrast, the CAAR of non-covered defendant firms shows a different pattern: it starts out by declining straight into the 60th day without a "freeze out" period like for covered firms; after the 60th day, the decline slightly slows down and the CAAR of both groups converges.

Before we formally test this graphical pattern, we would like to note that when calculating the CAAR for covered and non-covered firms, we have excluded lawsuits that are quickly resolved within 30 days of the announcement (about 3.3% of our sample lawsuits). Among the remaining lawsuits, the average (median) resolution time is 740 (582) days. Therefore, the decline during

[19] This weighting method, however, is not essential to our results. We obtain similar observations using an equal-weighted CAAR.

[20] In addition, we exclude non-covered defendants whose cumulative abnormal returns during [-30, -1] are outliers relative to those of covered firms – that is, when their abnormal returns are below the minimum or above the maximum of those of covered firms in the same period. We obtain qualitatively similar results if dropping this filter.

[+61, +180], following the [0, +60] "freeze out" period for covered defendants, does not reflect investors' renewed adverse reaction to lawsuit resolutions. Instead, it suggests that by pumping positive sentiment into the market, pumping institutions *delay* the drop in defendants' stock returns, which would have happened more quickly as seen for the non-covered defendants.[21] This delay, in turn, allows institutions more time to exit their positions before further value depreciation, "saving their day".

We next employ both an OLS and an instrumental variable approach to formally test the price impact in Figure 5. Our goal is to show that covered defendants are associated with higher stock returns and enjoy a "freeze-out" period compared to non-covered defendants. Accordingly, our primary focus is on the [0, +60] window. In untabulated tests, we repeat the analyses using observations in the [+61, +180] period; there we find that the positive price impact eventually diminishes after the "freeze-out" period, consistent with Figure 5.

We start by estimating the following OLS model:

$$CAAR_{f,l,t} = \alpha + \beta \times Covered_{f,l,t} + \gamma \times Control_{f,l,t} + T_t + \varepsilon, \qquad (2)$$

where *f*, *l* and *t* indicate the defendant firm, litigation event, and the year-quarter when the litigation takes place, respectively. *Covered* is an indicator for whether the defendant firm is a covered defendant or non-covered. We expect that covered defendants should observe a larger [0, +60] CAAR, reflecting the "freeze out" period in Figure 5. This is indeed what we find in columns (1) and (2) of Table 4. The coefficient β is significantly positive.

To document the causal price impact of favorable cross-held media coverage, we next perform an instrumental variable analysis. This analysis is useful for several reasons. For example, one may argue that the market is able to differentiate future litigation outcomes, and react less negatively for defendants that are deemed to be little affected; if these defendants happen to share

[21] This observation is in the same spirit of Solomon (2012), who finds that companies hiring investor relations firms (to spin corporate news) eventually experience lower stock returns, representing investor disappointment due to the effect of past spin.

an institutional investor with the media, then the variable *Covered* is likely endogenous. One may also argue that covered and non-covered defendants could exhibit different characteristics. Larger firms are often covered by more media outlets, increasing their chance of sharing an institutional investor. Larger firms may also experience different market reactions from smaller firms during corporate events, again making *Covered* endogenous.

Our instrument for the variable *Covered* is based on the geographical distance between media and the defendants' institutional blockholders. Geographical proximity reduces communication costs and information asymmetry among market participants. Existing studies show that shorter geographical distance leads to greater interactions between borrowers and banks, suppliers and customers, and acquirers and targets.[22] In a similar spirit, Coval and Moskowitz (1999), Ayers, Ramalingegowda, and Yeung (2011), Becker, Cronqvist, and Fahlenbrach (2011), and Bernile, Kumar, Sulaeman, and Wang (2019) show that institutions tend to own companies located close by because of information transparency and/or effective monitoring.

Based on this intuition, for each institution (*I*) that blockholds a defendant firm (*F*), we calculate the average distance between the institution (*I*) and our sample media companies (*M*). We expect that if the institution (*I*) is located in the proximity of media companies (*M*), it is more likely to blockhold them. In this case, the media companies (*M*) become treated media – sharing the institution (*I*) with the defendant firm (*F*), which in turn makes the firm (*F*) a covered defendant. In other words, the geographic distance between institutions and media can predict the independent variable *Covered*. We empirically verify this relevance criterion in the first stage of our instrumental variable analysis. Meanwhile, it is reasonable to believe that the geographical location of neither the institution nor media companies is directly related to how the market reacts to a particular defendant's corporate litigation (the dependent variable CAAR). Therefore, the

[22] See, e.g., Degryse and Ongena (2005), Petersen and Rajan (2002), Kedia, Panchapagesan, and Uysal (2008), Ross (2010), Wang and Xia (2014), Cai, Tian and Xia (2015), Catalini, Fons-Rosen, and Gaule (2016), Chu, Tian, and Wang (2019).

institution-media geographical distance also likely satisfies the exclusion restriction of an instrument.

We follow the existing literature and collect institutional investors' headquarters locations from their SEC filings (e.g., Baik, Kang, and Kim, 2010, and Bernile et al., 2015, 2019). We manually collect the locations of the 22 sample media providers' headquarters from their websites and news articles for any headquarters changes. Both locations are at the zip code level. Figure 6 shows that our sample media and institutions are spread out across the nation, albeit unsurprisingly, a concentration of them is seen along the New York – Massachusetts – Connecticut coastline. As we show below, our instrumental variables analysis is robust to excluding institutions or media companies located in these states. The spread-out locations are important because they generate sufficient variation in the distance between media and institutions, and provide enough power for us to use the distance to predict defendant firms' cross-holding status (*Covered*).

We perform a 2SLS instrumental variable analysis and report the results in columns (3) and (4) of Table 4. Geographical distances are measured one year prior to the pre-litigation quarter to ensure that they are pre-determined. Column (3) reports the first-stage regression results. The dependent variable is *Covered*. The key independent variable is our instrument, the natural logarithm of one plus the average distance between the defendant's institutional blockholders and media companies (in thousand miles). The first-stage regression includes all control variables and fixed effects of the second-stage regression. As expected, shorter distance significantly increases the likelihood that a defendant firm becomes a covered defendant (and exposed to the favorable coverage from cross-held media). The *t*-statistic of the coefficient for the instrument and the *F*-statistic for the first-stage regression are -4.76 and 22.67, respectively, suggesting that our instrument is unlikely weak.

Column (4) reports the second stage regression results. The instrumented *Covered* remains positive and significant at the 5% level. The magnitude of its coefficient is larger than that of the OLS. It suggests that certain omitted factors that make a defendant firm largely exposed to cross-

held media are negatively correlated with the firm's CAAR during the [0, +60] window. Therefore, we obtain a larger estimate after accounting for such factors in the instrumental variable analysis. According to column (4), the CAAR of a covered defendant firm during [0, +60] is 17.2% higher than that of a non-covered defendant. In other words, the "freeze-out" period could potentially save institutions a return loss of 17.2% in the defendant stocks. Assuming this magnitude is uniformly distributed, the lenient coverage of treated media has about 0.3% consecutive daily positive price impact on the defendant firm.

[Insert Table 4 about here]

3.3. The "dumping"

The [0, +60] "freeze-out" period affords institutions extra time to run away from their positions before further value depreciation. Indeed, Figure 7 Panel A shows that pumping institutions capitalize on the "freeze-out" period to unwind their positions in defendant stocks. Because we do not have institutional trading data, we follow the literature and use changes in institutions' quarter-end positions to infer their aggregate trading during the quarter. The solid line represents the percentage change of quarter-end equity positions of covered defendants that are held by pumping institutions, relative to the pre-litigation quarter (normalized to 100%). The dashed line represents the percentage change of quarter-end positions of institutions that only blockhold the covered defendants but not any media (i.e., non-pumping institutions that are unable to carry out the "pump-and-dump" strategy).

As can be seen, pumping institutions start to unload their positions of defendants from the litigation event quarter, and the unwinding continues throughout the "freeze-out" period. This pattern reflects the notion that amid market-wide selling pressure, blockholders need additional time to *progressively* exit their holdings (as opposed to the "cut-and-run" strategy in a tight window surrounding litigation announcement). By the second quarter after litigation, their positions have decreased by almost 25%.

As for non-pumping institutions, their holdings of defendant firms also decrease steadily following the litigation, suggesting that they might, to some extent, "free ride" on pumping institutions' trading strategy. This is perhaps not surprising, given that stock price patterns (and the "freeze out" period) are commonly observed by both types of institutions. However, the magnitude of dumping is considerably larger for pumping institutions. It suggests that these institutions have planned the "dumping" and then firmly execute this plan after seeing the anticipated "pumping" effect.

To formalize the pattern in Figure 7 Panel A, we estimate the following model by event quarter:

$$RelativeHolding_{i,f} = \alpha + \beta \times Pumping_{i,f} + \theta_f + \gamma_i + \varepsilon, \quad (3)$$

where *i* and *f* indicate the institution and the defendant firm (in a litigation event), respectively. *RelativeHolding* is an institution's holding of a defendant in a given quarter normalized by its holding of the defendant at the pre-litigation quarter end. It is calculated for each quarter from two quarters before the litigation to four quarters after. The independent variable of interest is *Pumping*, which indicates whether an institution is a pumping institution. Equation (3) examines whether pumping institutions are more aggressive in unloading the defendant than non-pumping institutions in each of the quarters surrounding litigation events.

As under the conventional notion of "pump-and-dump", the unloading of defendants (the "dumping") in our setting is the motive, rather than a consequence, of "tone pumping". Therefore, Equation (3) does not intend to establish a causal effect of "dumping" on "pumping", which would follow the reverse logic of "pump-and-dump". Instead, it simply analyzes the association between the two, and reveals whether institutions capitalize on their planned strategy to exit. [23]

Table 5 reports the results. The pre-litigation quarter (Quarter -1) is omitted because it is the benchmark quarter. In all specifications, we include institution fixed effects, which absorb

[23] For this reason, we do not perform an instrumental variable analysis in Equation (3) (as we did in Section 3.2).

time-invariant institutional characteristics, as well as event fixed effects, which absorb defendant firm characteristics in a particular event. The insignificant coefficient β in Quarter -2, along with the negative and significant coefficients after litigation, confirms the pattern in Figure 7 Panel A.

Which investors pick up the dumped shares by pumping institutions? Figure 7 Panel A already shows that non-pumping institutions are similarly reducing their positions of defendant firms. Hence, we are only left with two types of market participants: 1) institutional investors that do not blockhold the defendants (i.e., those holding fewer than 5% of the defendant shares), and 2) retail investors. Panels B and C of Figure 7 examine these two groups separately.

In Panel B we plot changes in the quarter-end holdings of the defendants by institutions that do not blockhold the defendants. The solid line shows their holdings of *covered* defendant firms, relative to the pre-litigation quarter (again normalized to 100%). Covered defendants are defined in the same way as in Panel A (and Section 3.2). They are the ones that are covered by at least one influenced media, and thus are subject to the "pump-and-dump" strategy. We see that similar to Panel A, these institutions' holdings also significantly drop following litigation. By the second quarter, the drop amounts to almost 15%. This magnitude is larger than that for non-covered defendants – ones that are not subject to "pump-and-dump", as shown by the dashed line.

Panels A and B so far imply that institutional investors altogether do not appear to be the ones that pick up the "dumped" defendant shares. In the last panel of Figure 7, we verify this implication by plotting changes in the quarter-end *total* institutional holdings of the covered defendants (ones subject to the "pump-and-dump" strategy). If we again observe a decrease in these holdings, then we can infer that it is the retail investors – i.e., the disjoint of institutional investors altogether, that largely absorb the dumped shares.

This is indeed what we see from the solid line of Panel C. By the second quarter following litigation, total institutional holdings of covered defendants have decreased by over 15% of the original holding. In contrast, the dashed line shows that total institutional holdings for non-covered defendants only decrease by about 7%.

4. How is the "pump-and-dump" strategy executed?

4.1. Institutions' active role in executing the strategy

The case of Murdoch, as discussed in the *Introduction*, implies that media owners may influence news slant actively by, e.g., "*phoning editors and even reporters about individual stories.*" (Berman and Ellison, 2007). In this section, we shed light on whether pumping institutions in our context play such a deliberate role in executing the "pump-and-dump" strategy.

Ideally, we would like to obtain communication records between institutions and media, such as call transcripts or email exchanges. However, these data, to the best of our knowledge, are not available. We therefore adopt an approach similar to proof by contradiction based on one necessary condition for institutions' active engagement: attentivity. Specifically, should we find that the extent of "pump-and-dump" becomes significantly weakened when cross-holding institutions are unable to allocate sufficient attention to a litigation event, then such variation would imply that, at the minimum, institutions take an active part in the execution of the strategy.

We capture institutions' (in)attentivity following Kempf, Manconi, and Spalt (2017). The idea is to exploit exogenous shocks to parts of an institution's portfolio that are unrelated to the defendant firm. When the timing of these shocks coincides with the litigation period, they create a "distraction" to shift institutional attention away from the defendant firm. "Pump-and-dump" strategies should therefore attenuate if they entail institutions' active involvement.

We first follow Kempf, Manconi, and Spalt (2017) to measure how much an institution is distracted away from a given firm *f* based on institutions' portfolio stock returns. Using the notations of this study, the extent of distraction *D* for each firm *f* in calendar quarter *q* is given by:

$$D_{fq} = \sum_{i \in F_{q-1}} \sum_{IND \neq IND_f} w_{ifq-1} \times w_{iq-1}^{IND} \times IS_q^{IND}, \qquad (4)$$

where F_{q-1} denotes the set of institutional blockholders for firm *f* at the end of quarter *q*-1, and *IND* denotes a given Fama-French 12 industry. The distraction measure follows a straightforward intuition: an institutional blockholder *i* of firm *f* is more likely to be distracted in quarter *q* if there

is an attention-grabbing event (captured by IS_q^{IND}) in another industry (i.e., an industry other than IND_f), and if that other industry is important in institution *i*'s portfolio (captured by the weight w_{iq-1}^{IND}). We first obtain the institution-firm level distraction, and then aggregate across all blockholders of the firm (i.e., the set of F_{q-1}), based on how important each institution *i* is for firm *f* (captured by the weight w_{ifq-1}).

The variable *IS* captures industry-level stock return shocks. It is an indicator that equals one if an industry has the highest or lowest stock return across all 12 Fama-French industries in a given quarter, and zero otherwise. Kempf, Manconi, and Spalt (2017) provide more details for the motivation of this variable based on both rational and behavioral grounds.

A higher value of D_{fq} indicates that institutional blockholders are more distracted from firm *f* during quarter *q*. If a defendant firm *f*'s litigation announcement happens during this quarter, then the institutions are expected to be less attentive to the litigation and thus take fewer actions to prop up firm *f*'s media tone. An attenuated "pump-and-dump" behavior in this case would indicate institutions' active role. Because this continuous distraction measure is institution-specific, and is constructed based on shocks to the institutions' exact portfolio holdings, it is unlikely correlated with either media firms' initiatives to provide favorable coverage (i.e., media currying favor and catering to large shareholders' preferences), or defendant firms' characteristics (i.e., defendants' media capture through advertising, see Besley and Prat, 2006; Reuter and Zitzewitz, 2006; Cohen and Gurun, 2018; Szeidl and Szucs, 2021), both of which require no material involvement of institutions.

For the ease of exposition, we generate institutional attentivity as *1-D*. We investigate whether the tone of treated media – the ones subject to institutions' "pump-and-dump" – varies with institutional attentivity during litigation. As such, our analysis here only concerns this group of media and excludes the control media. Table 6 presents the results. The variable of interest is the interaction term *Attentivity* × *Post*, which captures whether the tone changes of treated media

after litigation depends on institutional attentivity. The coefficients across all specifications are positive and significant, suggesting that when institutions are less attentive to the litigation, the more favorable coverage of treated media subsides.

[Insert Table 6 about here]

In Appendix Table A2, we further examine institutions' distraction induced by earnings surprises of their portfolio stocks. The idea is the same but instead of using large stock price movement to identify attention-grabbing events, we now use earnings surprises – one of the most salient corporate events. We find consistent results.

4.2. The volume of media coverage

How does institutions' "pump-and-dump" strategy affect the volume of media coverage (extensive margin)? Do media issue fewer articles to avoid playing the critics of the defendants (strategic silence), or do they instead issue more favorable articles and create a larger outlet to cheer up market sentiment?

To answer this question, we re-estimate Equation (1), now replacing the dependent variable with *LnNumArticles*. It is defined as the natural logarithm of one plus the total weekly number of articles issued by a media provider for a defendant. Our results are similar when we use daily number of articles. Table 7 reports the results of this analysis.

[Insert Table 7 about here]

The sample period, control variables, and model specifications are the same as in Table 3 Panel B. The number of observations in this table is larger than that in Table 3 because unlike *ESS*, which is calculated conditional on an article being issued, *LnNumArticles* is an unconditional measure. The coefficient of *Treat* × *Post* is negative and significant, suggesting that treated media end up releasing fewer articles following litigation announcements than control media. The magnitude of such strategic silence is economically sizable: it ranges from 0.011 to 0.013, representing up to 10% of the sample mean of the dependent variable.

4.3. More facets about "pump-and-dump"

We perform several cross-sectional analyses to depict more facets about the execution of "pump-and-dump". First, in order to ease up investor sentiment during litigation, media can either play down the legal ramification of a lawsuit in question (like the case of *Facebook*), or play up non-legal matters unrelated to the lawsuit that can cheer up shareholders (like the case of *Chipotle*). Therefore, we separately consider whether a news article focuses on legal or non-legal subjects, as classified by RavenPack. Panel A of Table 8 shows that our DiD results hold for both types of articles, with the magnitude being stronger for legal matters. Therefore, "patching up the wound" seems to be a more prominent, yet not exclusive, tactic for institutions to ease up investor sentiment.

[Insert Table 8 about here]

Second, we expect the "pump-and-dump" strategy to be more pronounced among news articles that are based on soft information than those based on hard information (e.g., analyst recommendations, credit ratings, and earnings) because the former allow more room for manipulation. In addition, to the extent that local media sources (e.g., The Arizona Republic in our sample) can be more easily maneuvered than national media, we expect our results to manifest mostly with local media. We indeed find support for these two predictions in Panels B and C of Table 8, where we use RavenPack classifications to categorize information contained in news articles, and follow Gurun and Butler (2012) to classify the geographical scope of media.

5. Alternative explanations and additional analyses

5.1. Are treated media more conservative or less responsive to news in general?

In our "pumping" analyses, the DiD specification helps mute confounding fundamental differences between treated and control media; the event study at a daily frequency also isolates changes in media tone specifically triggered by litigation events. However, one may still argue that certain media may by nature be less responsive, that is, they are more conservative in processing

information and respond less promptly to events like corporate litigation, resulting in a smaller drop in the news tone. If these media happen to be connected with defendant firms through block-owners out of unobservable mechanisms (e.g., the management of all three parties share similar political views or have close social ties), then our results might simply reflect such omitted underlying mechanisms (e.g., Luo, Manconi, and Massa, 2020; Knill, Liu, and McConnell, 2020).

We first note that this argument cannot explain our results in Section 4.1. That is, it cannot explain why the tone divergence between treated and control media varies with institutional attentivity. Nevertheless, we perform a falsification test to explicitly examine this alternative explanation.

The falsification test is based on the *resolutions* of corporate litigation. In practice, litigation resolutions often reveal a different, and more positive, perspective about the defendants than what the market expects during initial announcements. This happens when, e.g., the settlement proves to be less detrimental to the firm than expected. Among the 4,857 lawsuits in our main analyses, 2,706 are resolved before the sample ends with media coverage. Among these, 1,318 (49%) are associated with a positive CAR from three days before the resolution date to three days after (the average CAR is 4.0%). These cases offer us an opportunity to observe how treated media would respond to positive litigation news in the absence of institutions' "pump-and-dump" incentives. If treated media is simply irresponsive as concerned, then we should see their tone adjusted up to a lesser extent than that of control media around the positive resolutions.

Table 9 presents a similar event-study DiD analysis as in Table 3 Panel B, using the positive resolutions as events instead of the litigation announcements (i.e., the event dates are now the lawsuit resolution dates). The positive coefficient of *Post* in Table 9 suggests that following positive resolutions, the tone of control media (when *Treat*=0) becomes more positive, as expected. The coefficient of *Treat* × *Post* suggests that there is no significant difference, either statistically or economically, between the tone of treated and control media. This result shows that the tone

divergence around the initial litigation announcement is unlikely an artifact of media's overall irresponsiveness or conservatism.

[Insert Table 9 about here]

5.2. Heterogeneous treatment effects

Difference-in-differences models are under scrutiny recently. The issue emerges when there exists variation in treatment timing (i.e., staggered treatment) and when treatment effects are heterogeneous. In such a setting, recently treated units are often compared to "unclean" controls – units not being currently treated but were treated earlier. To the extent that earlier treatment effects linger (and evolve) over time, the use of the unclean controls may bias DiD estimators (see, e.g., Sun and Abraham, 2021; Borusyak and Jaravel, 2018; Goodman-Bacon, 2021; Imai and Kim, 2020; Athey and Imbens, 2018; de Chaisemartin and D'Haultfœuille, 2020; Baker et al., 2021; Barrios, 2021).

In our DiD analysis of Section 3.1, a treated media (e.g., *M*) is one sharing a blockholder (*X*) with the defendant firm in litigation, and the control media provider (*N*) is one that does not share any blockholders with the same defendant firm at the time of litigation. For the concern of heterogeneous treatment effects to apply, one must assume that *N* was previously held by *X* (i.e., was treated earlier), and despite the termination of *X*'s ownership in *N*, the influence of *X* on media *N*'s tone remains until present (i.e., lingering treatment effects). This assumption, although unlikely, is possible.

To address this concern, we implement 1) the Sun and Abraham (2021) estimator, and 2) the "stacked regression" estimator following Cengiz, Dube, Lindner, and Zipperer (2019), two recent remedies suggested by the literature. Both approaches use "clean" controls – media that have never shared blockholders with any defendant firms during our sample period.

Figure 8 plots the "interaction-weighted" (IW) estimators of a dynamic DiD model based on Sun and Abraham (2020). Each point represents the weighted-average coefficient of *Treat* ×

Event Week, where *Event Week* spans from 4 weeks before the litigation announcement to 4 weeks after. These coefficients capture the difference between the tone of treated and control media at each event time point. Event weeks are defined in the same way as in Figure 2. Event week prior to the litigation (week -1) is omitted as the baseline. The dynamic DiD model is first estimated within each of the 12 annual cohorts (corresponding to our sample period from 2007 to 2018). The weighted-average coefficient of *Treat* × *Event Week* is then obtained by assigning the coefficient from each cohort a weight that equals the fraction of observations from this cohort out of total observations.

Figure 8 show that 1) during the pre-litigation period, there is no apparent difference between the tones of treated and control media (i.e., the satisfaction of the parallel trends assumption), and 2) treated media becomes significantly and persistently more lenient after the litigation. Both are consistent with our previous conclusions.

Table 10 presents the results of a stacked regression following Cengiz et al. (2019). For each of the 12 annual cohorts, we generate a dataset consisting of the treated media (that cover the defendants during this cohort), paired with media that have never shared blockholders with any defendants during our sample period (the "clean" controls). We then stack these 12 datasets and re-estimate Equation (1). To conserve space, we only perform the estimation using weekly media tone. Table 10 shows that our results are robust.

5.3. "Save for a rainy day"?

In this section, we examine the stock performance of media companies blockheld by pumping institutions, relative to the performance generated by the rest of their portfolio companies. This analysis can provide suggestive evidence on whether pumping institutions hold media companies for reasons beyond the nominal returns – one of them perhaps being the media's valuable role in strategies like "pump-and-dump".

For each pumping institution blockholding both the defendant and media (i.e., the treated media) at the end of a pre-litigation quarter, we first calculate the past 6-month, 1-, 3-, and 5-year abnormal returns of the media stocks in its portfolio (based on the Carhart (1997) four-factor model), as well as the abnormal returns for all other stocks in the institution's portfolio over the same four horizons. We then calculate the return gap between media stocks and the rest of stocks in its portfolio, weighted by each stock's dollar amount in the institution's portfolio at the pre-litigation quarter end. The return gap measures how media holdings of an institution perform relative to other portfolio stocks – which are used as a benchmark to capture institutions' different investment styles and dissimilar performances in general.

Next, we repeat the above three steps for non-pumping institutions – ones that blockhold the same defendant but do not blockhold the media (i.e., with holdings lower than 5% of the media's outstanding shares). We then compare the return gaps of a pumping institution to that of a non-pumping institution. By doing so, we essentially compare the media stock performance of a pumping institution (relative to other portfolio stocks) with the relative media performance of a non-pumping institution.

The results are reported in Table 11. The dependent variables of the regressions are return gaps over different horizons, and the independent variable of interest is *Pumping*, which is an indicator for pumping versus non-pumping institutions.

The coefficients of *Pumping* are significantly negative.[24] They suggest that relative to those held by non-pumping institutions, media companies blockheld by pumping institutions often underperform and their returns cannot match up with those from the rest of the portfolio. In fact, in untabulated results, we find that media companies invested by non-pumping institutions do not underperform other stocks at all. Although suggestive, this evidence implies that pumping

[24] The increasingly negative returns over longer horizons also suggest persistent underperformance.

institutions hold large equity stakes in media companies for reasons beyond their nominal returns, possible to "save for the rainy day".

5.4. Other robustness tests

We next conduct additional robustness tests for our analyses and report the results in the Online Appendix. First, we use two alternative measures of media tone, *PosNegESS* and *AES* (defined in Section 2.2), as the dependent variables. Table A3 repeats the last four columns of Table 3 Panel B using *PosNegESS* (columns (1) to (4)) and *AES* (columns (5) to (8)), respectively. The coefficients of *Treat* × *Post* remain significantly positive. Second, we examine alternative definitions of blockholding institutions as well as alternative lengths of event windows around litigation announcements. Specifically, we now define a blockholding institution based on its equity holdings adjacent to the cutoff of 5%, which we have been using so far. That is, an institution is considered a blockholder if it holds at least 4% or 6% of company shares, respectively. The results are shown in Table A4 Panel A and Panel B. We also repeat the main analyses from 15 days before the litigation announcement to 15 days after (i.e., [-15 days, 15 days]), or from two event weeks before the litigation announcement to two event weeks after (i.e., [-2 weeks, 2 weeks]). The consistent results are shown in Table A4 Panels C and D.

6. Conclusion

Institutional investors often hold large equity blocks of media companies besides industrial firms. We show that when industrial firms become defendants of corporate lawsuits, these institutions maneuver the media in their portfolios to provide more lenient coverage about the litigation events. By doing so, blockholders temporarily prop up market sentiment, alleviate the negative price impact on defendant stocks, and allow themselves more time to exit at more favorable prices. The dumped shares appear to be absorbed by retail investors. We further investigate how institutions execute the pseudo "pump-and-dump" strategy, and find that institutions' deliberate and active involvement plays an important role in this process. Institutions

prop up investor sentiment by both playing down the litigation in question and playing up other news that can cheer up shareholders.

Overall, our paper shows that media coverage can be strategically maneuvered through institutions' ownership structure. Their motive is to mitigate institutions' losses from troubled investments, and this "saving the day" motive is different from firms' self-promotion incentive documented in the prior literature.

Although our study focuses on corporate litigation, a similar "pump-and-dump" motive may exist among other events such as analyst recommendation downgrades. Differently, however, corporate litigation faces greater uncertainty because the verdicts involve complex legal deliberation and depend on judges' individualities. This process can lead investors to conform to external opinions including those from media. "Pump-and-dump" may also exist when institutions own stakes in other information intermediaries. For instance, one could argue that institutions may manipulate analyst recommendations from brokerages they own. Compared to analyst recommendations or credit ratings (which aim to reveal firm fundamentals), media focus on storylines, giving them more room for manipulation.

Limited by data availability, we are unable to pin down exactly how institutions push for the desired media slant, and whether this practice is characterized by controversial conduct. Nevertheless, our analysis provides the first step to document that institutions show incentives to actively influence media coverage, potentially at the expense of less informed market participants, including retail investors.

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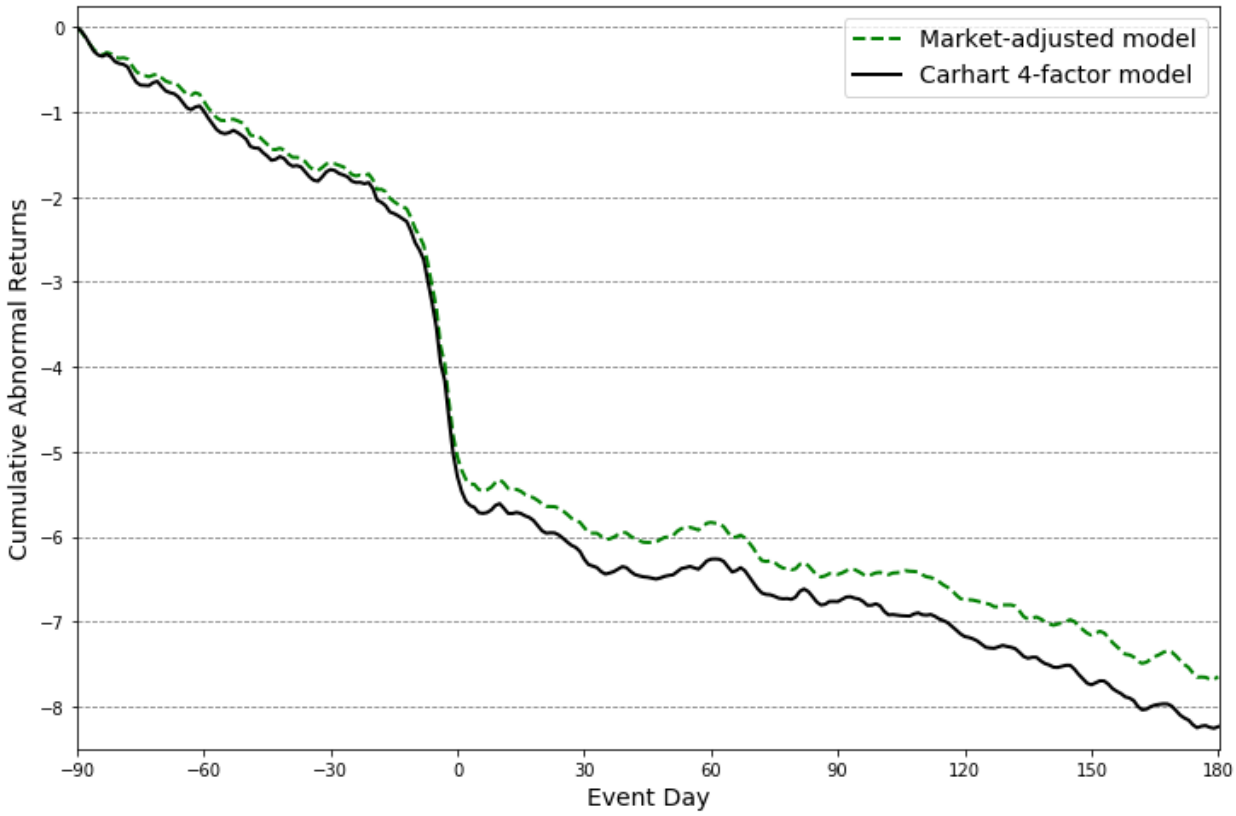
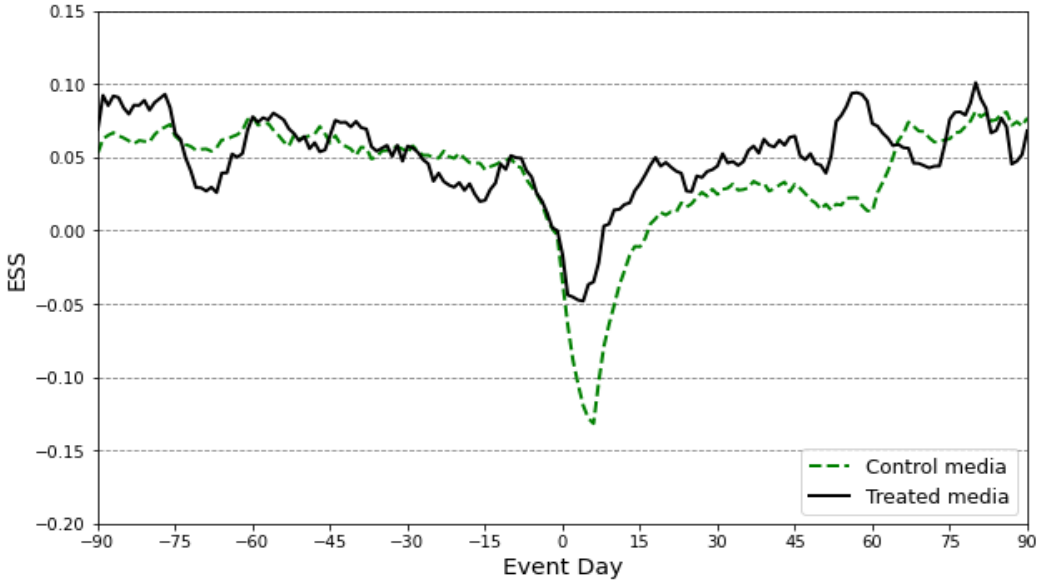
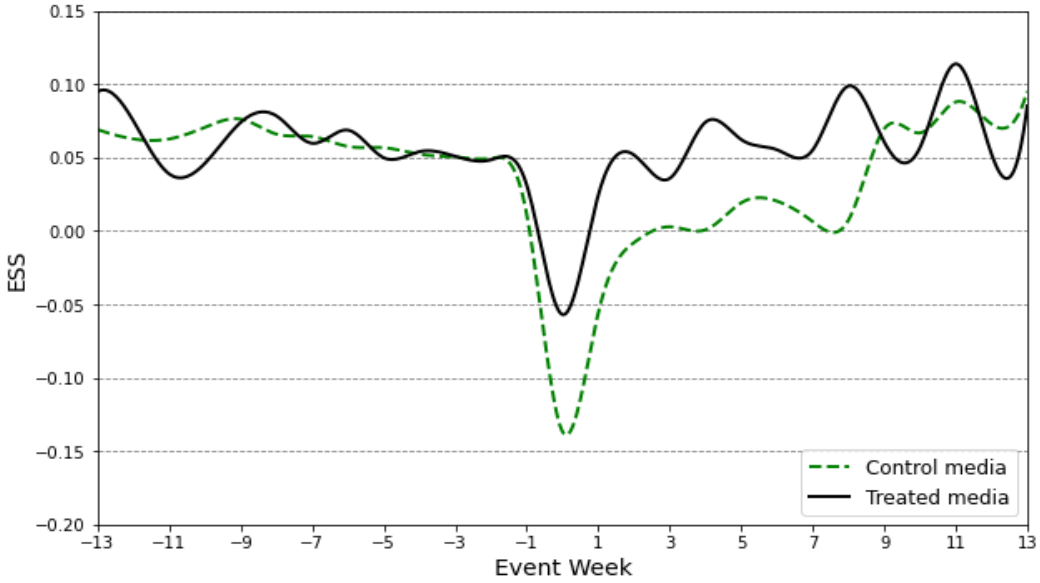


Figure 1: Cumulative average abnormal returns of defendant firms around corporate litigation.

This figure plots the cumulative average abnormal return (CAAR) of defendant firms (in percentage points) from 90 days before the announcement date of corporate litigation to 180 days after. Day 0 is the litigation announcement day. Corporate litigation information is obtained from the Audit Analytics Corporate and Legal Litigation database; the sample includes all corporate litigations filed between 2007 and 2018. The daily abnormal returns are calculated based on the market-adjusted model and the Carhart (1997) four-factor model, respectively. The CAAR up to a given day equals the summation of past daily average abnormal returns from 90 days before the litigation announcements up to the current day.

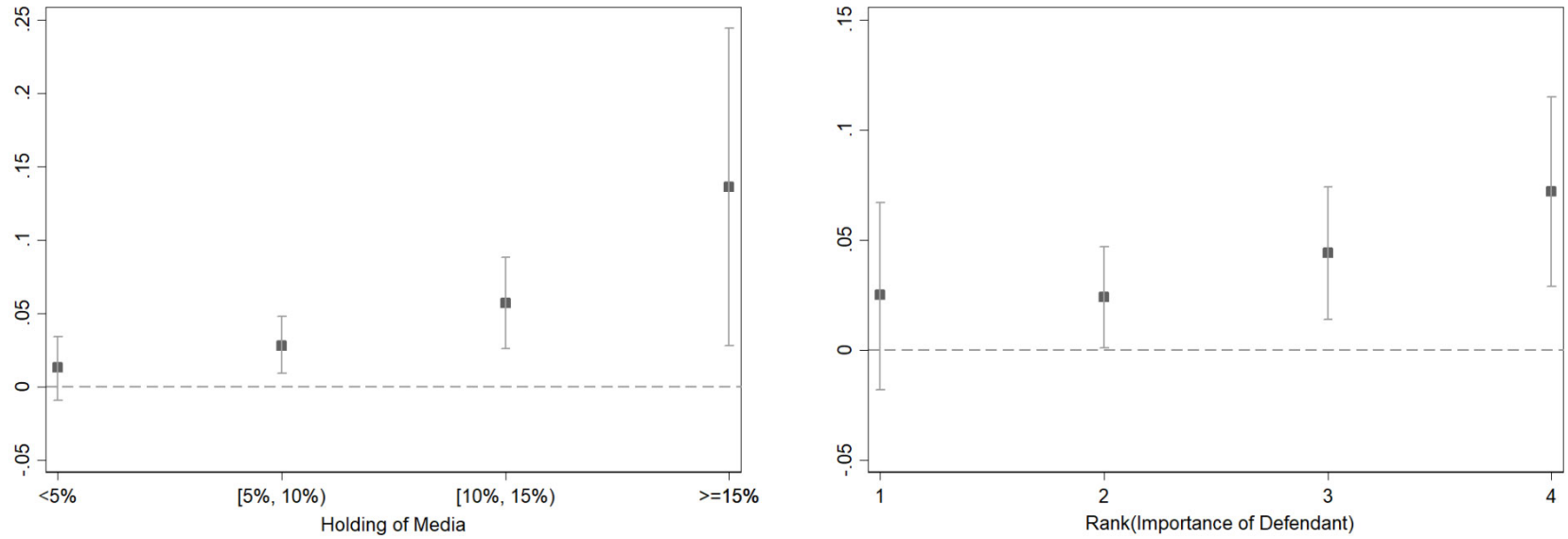


Panel A: Treated and control media daily tone around litigation



Panel B: Treated and control media weekly tone around litigation

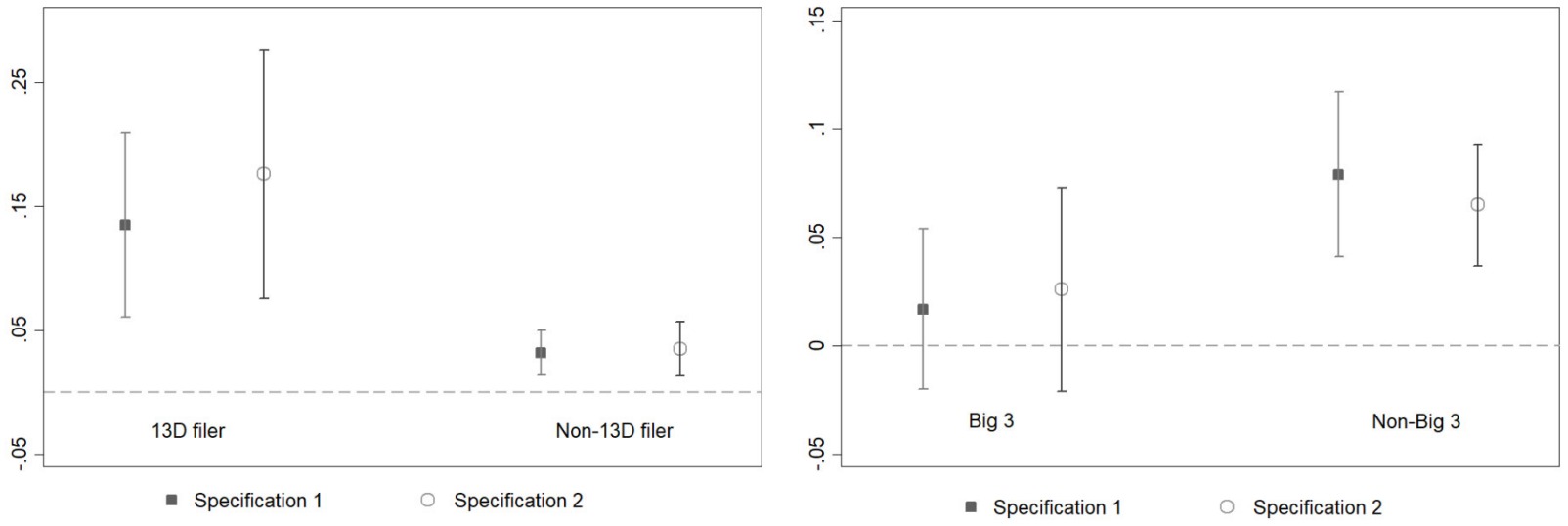
Figure 2: Treated and control media tone around corporate litigation.
This figure plots the average *Event Sentiment Score* (*ESS*), which measures the tone of media's news stories. Treated media are those sharing one or more institutional blockholders with the defendant firms at the nearest quarter end before the litigation announcement date (i.e., the pre-litigation quarter end). Control media are those not sharing any institutional blockholders with the defendant firms at the pre-litigation quarter end. Panel A presents the daily average *ESS* from day -90 to day +90 around the litigation announcement date (i.e., day 0). Panel B presents the average weekly *ESS* from week -13 to week +13. Week 0 spans from 3 days before the announcement to 3 days after, i.e., [-3, 3]. Week -1 spans the event days of [-10, -4], and week 1 spans the event days of [4, 10], and so forth. The average weekly *ESS* is calculated as the average of the daily *ESS* of the corresponding week.



(A) (B)

Figure 3: Cross-sectional variation based on the size of institutions' stakes in media or defendants

This figure presents the coefficients of the difference-in-differences (DiD) analysis by varying institutions' stake in media (capability of pumping) and in the defendant firm (incentive of pumping). Panel A explores the variation in capability of institution to pump media based on the percentage of its holding of media companies. From left to right, treated media are those held by blockholding institutions of less than 5%, 5-10%, 10-15%, or more than 15%. Panel B explores the variation in institution's incentive to pump media based on the importance of the defendant firm for the institution. The importance is measured as the position in dollar amount of defendant firm held by the pumping institution divided by total position in dollar amount of other firms that the pumping institution also blockholds at the pre-litigation quarter end. Rank 1 indicates that the importance of defendant firms for pumping institution is among the bottom quartile (i.e., least important), and Rank 4 indicates that the importance of defendant firms is among the top quartile (i.e., most important). The dependent variable is *ESS* using weekly observations. The solid squares represent the estimated coefficients of the interaction terms *Treated* × *Post*. *Treated* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. The solid vertical line segments present two-sided 90% confidence intervals based on standard errors double clustered by the defendant firm and media company. Percentage of defendant firm's blockholding institutions' holding of treated media is shown below on the x-axis.



(A) (B)

Figure 4: Cross-sectional variation based on institutions' type

This figure presents the coefficients of the difference-in-differences (DiD) analysis by varying institutions' type. Panel A differentiates whether pumping institutions are 13D filers. The pumping institutions in left two are 13D filers where an institution is classified as a 13D filer in a quarter if it has filed Schedule 13D with the SEC in the past eight quarters. And pumping institutions in right two are the rest of institutions. Panel B differentiates whether pumping institutions are among the largest three index fund owners (Big 3) – Black Rock, State Street, and Vanguard. The pumping institutions are Big-3 in left two and are the rest of institutions in the right two. The dependent variable is *ESS* using weekly observations. The solid squares and hollow circles represent the estimated coefficients of the interaction terms *Treated* × *Post*, which corresponds to the column (5) and (6) in Table 3 respectively. *Treated* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. The solid vertical line segments present two-sided 90% confidence intervals based on standard errors double clustered by the defendant firm and media company.

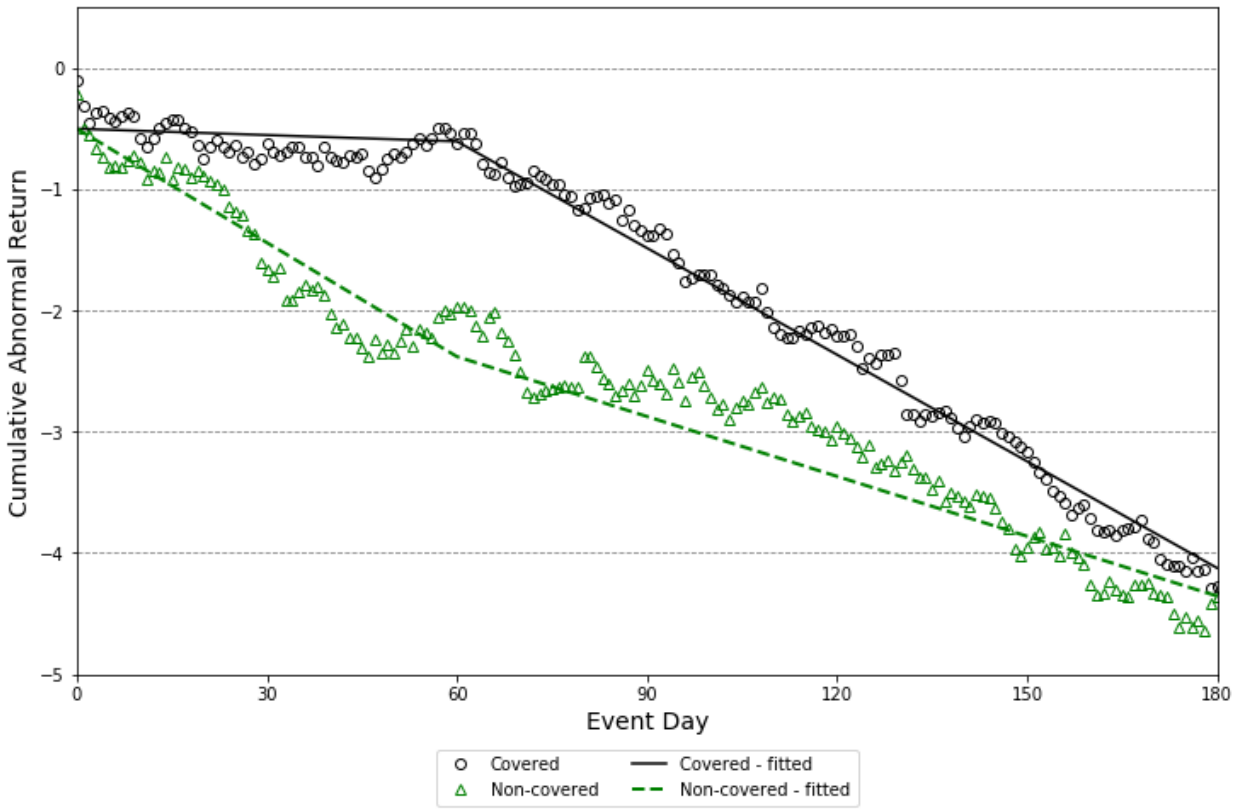


Figure 5: Cumulative average abnormal returns of covered and non-covered defendant firms.

This figure plots the cumulative average abnormal return (CAAR), in percentage points, of defendant firms that are covered by at least one cross-held media provider at the pre-litigation quarter end (i.e., covered firms) and defendant firms that are not covered by any cross-held media providers (i.e., non-covered firms). Litigation cases resolved within 30 days of the announcements are excluded. For each litigation event, we calculate the covered defendant firm's daily abnormal return using the Carhart (1997) four-factor model from the litigation announcement day to 180 days after, i.e., [0, +180]. We then weight each litigation event by how intensively the defendant's stock price is influenced by the cross-held media. The weight is measured by the number of news articles from cross-held media scaled by the total number of articles covering the defendant firm during the [-30, 30] period. We next calculate the weighted average of daily abnormal returns across all defendants, and sum up the weighted average daily abnormal returns from the announcement day to obtain the CAAR of the current day. The CAAR of non-covered defendant firms is calculated following the same algorithm except that the CAAR here is an equal-weighted average. Fitted lines are obtained from ordinary least squares regressions for the [0, +60] and [+61, +180] windows, separately. The solid line fits the CAAR of covered defendants with cross-held media providers. The dashed line fits the CAAR of non-covered defendants.

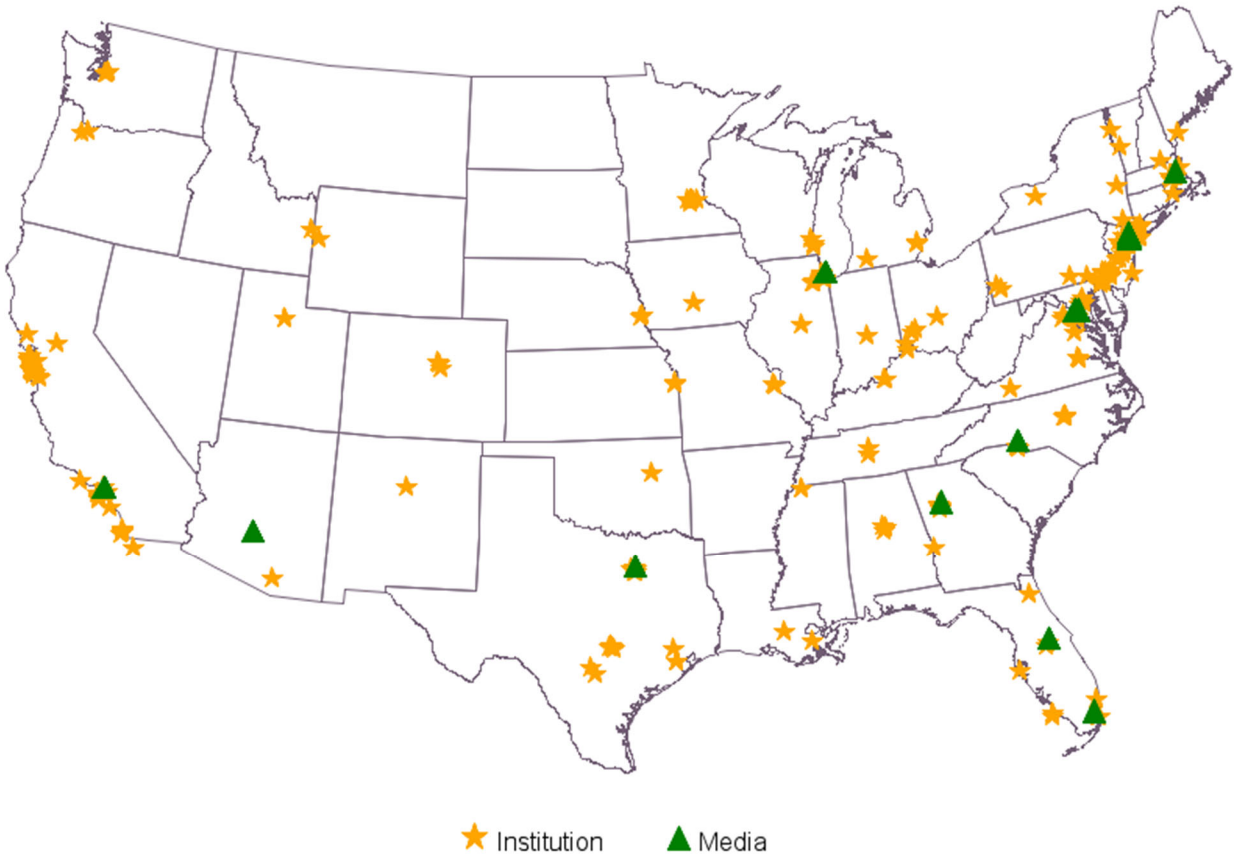
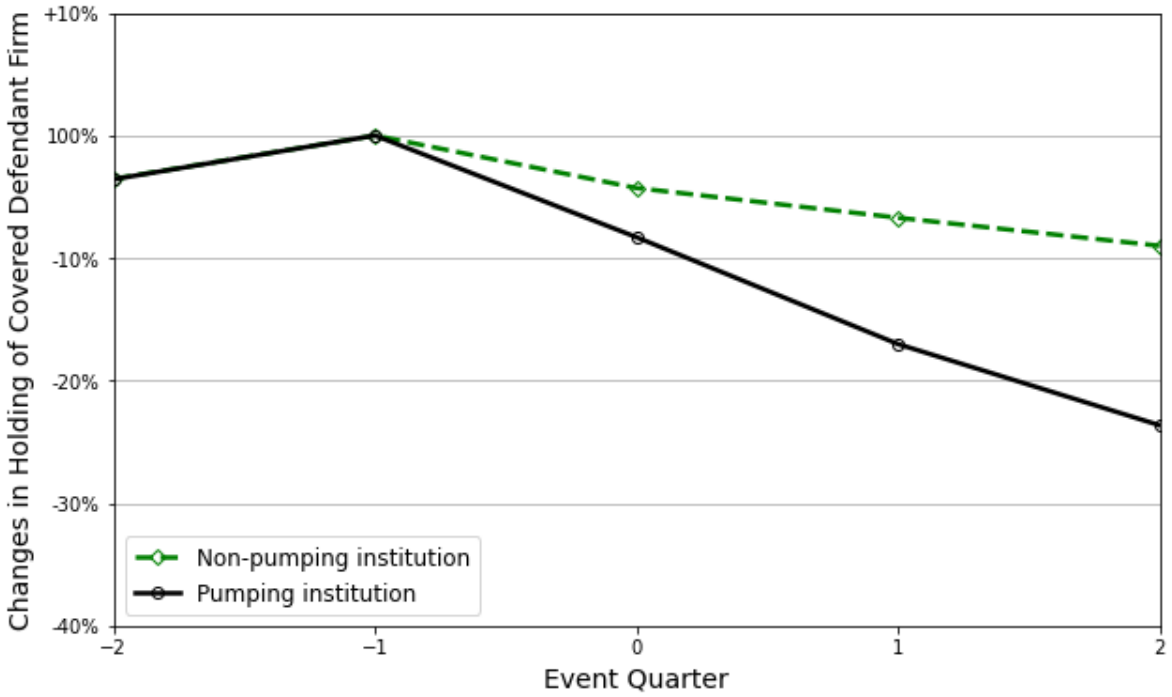
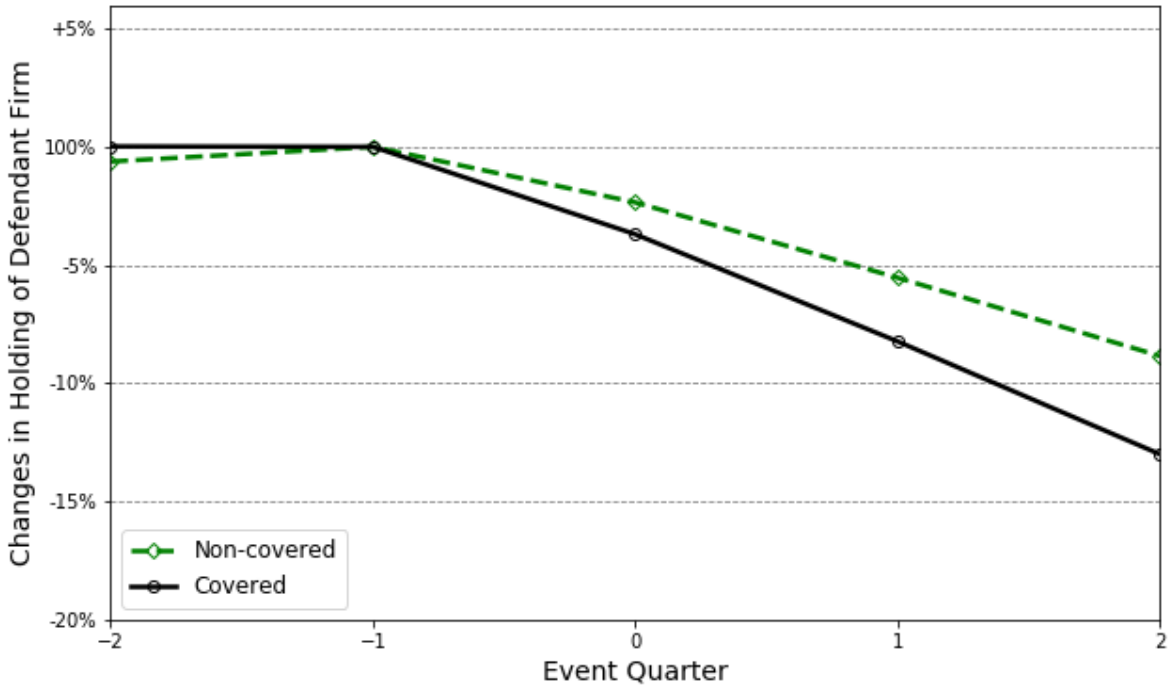


Figure 6: Locations of institutions and media.

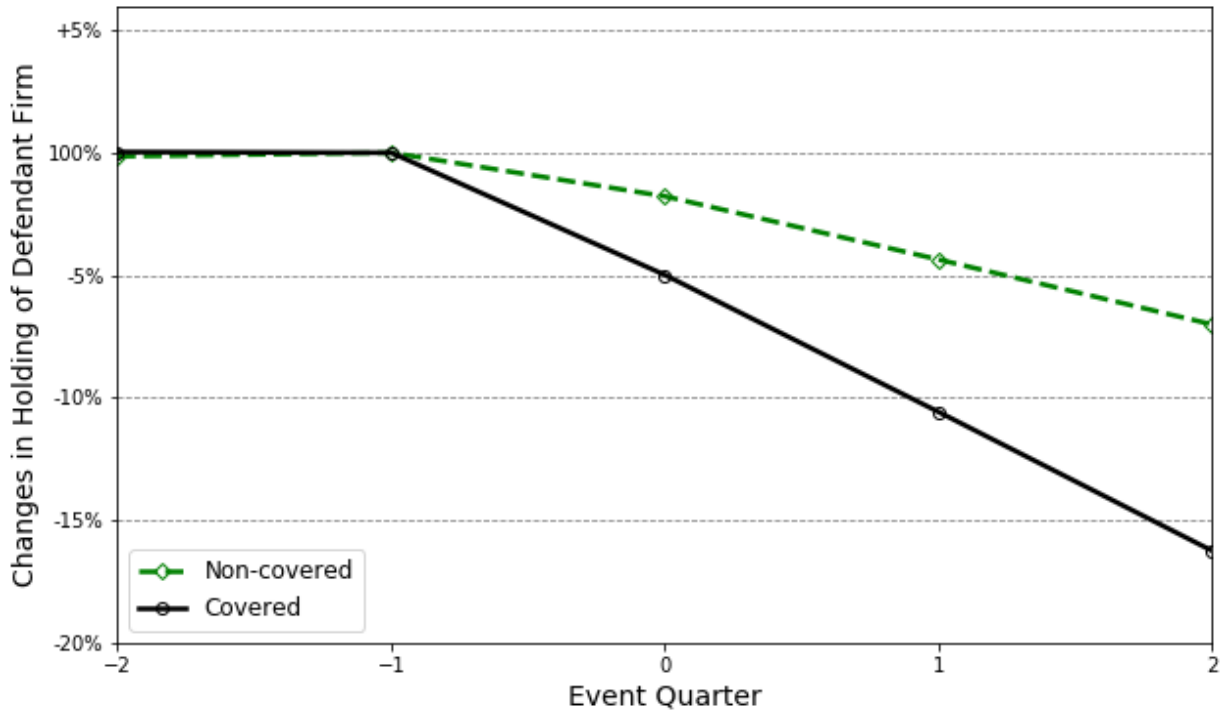
This figure plots the headquarters locations of our sample institutions and 22 media providers as of 2018. Institutions are those that blockhold one or more defendant firms in our sample from 2007 to 2018. Locations are identified at the zip code level. Institutions' headquarters are obtained from their 13F filings on the SEC EDGAR. Media company headquarters are obtained from their websites and news articles reporting their headquarters changes.



Panel A: Change in holdings of covered defendant firms by pumping vs. non-pumping institutions



Panel B: Change in holdings of covered vs. non-covered defendant firms by institutions that do not blockhold the defendants



Panel C: Change in total institutional holdings of covered vs. non-covered defendant firms

Figure 7: Quarter-end holding changes of defendant firms.

This figure plots the average percentage changes of institutions' quarter-end equity positions in defendant firms. Panel A plots the change in quarter-end equity positions of covered defendants by pumping institutions (represented by the solid line), and by non-pumping institutions: institutions that blockhold the covered defendants but do not blockhold any media (represented by the dashed line). Positions in the pre-litigation quarter end (i.e., quarter -1) are normalized to 100%. Position changes in other quarters are expressed as the percentage relative to the pre-litigation quarter end. Covered defendants are defined as in Figure 3. To calculate the equity holding change of cross-blockholders, we first calculate the average equity position changes of all cross-blockholders for each defendant firm at each quarter end. We then take the weighted average of the firm-level equity holding changes across all defendants, where the weight captures how intensively a litigation event is influenced by the treated media, measured using the number of news articles from the treated media covering each defendant, scaled by the total number of articles covering the defendant during the [Day -30, Day 30] period. The equity position change of non-cross-blockholders is calculated similarly but based on an equal-weighted average. Panel B plots the changes in quarter-end equity positions of covered and non-covered defendant firms by institutions that do not blockhold the defendants. Holding changes of covered defendant firms are represented by the solid line, and holding changes of non-covered defendant firms are represented by the dashed line. Positions in the pre-litigation quarter end (i.e., quarter -1) are normalized to 100%. Panel C plots the changes in quarter-end equity positions of covered and non-covered defendant firms by all institutions. To calculate the total institutional equity holdings, we first aggregate equity positions held by all institutions for each defendant firm at each quarter end. We then take the average of the firm-level institutional equity holding across covered defendants and non-covered defendants, respectively.

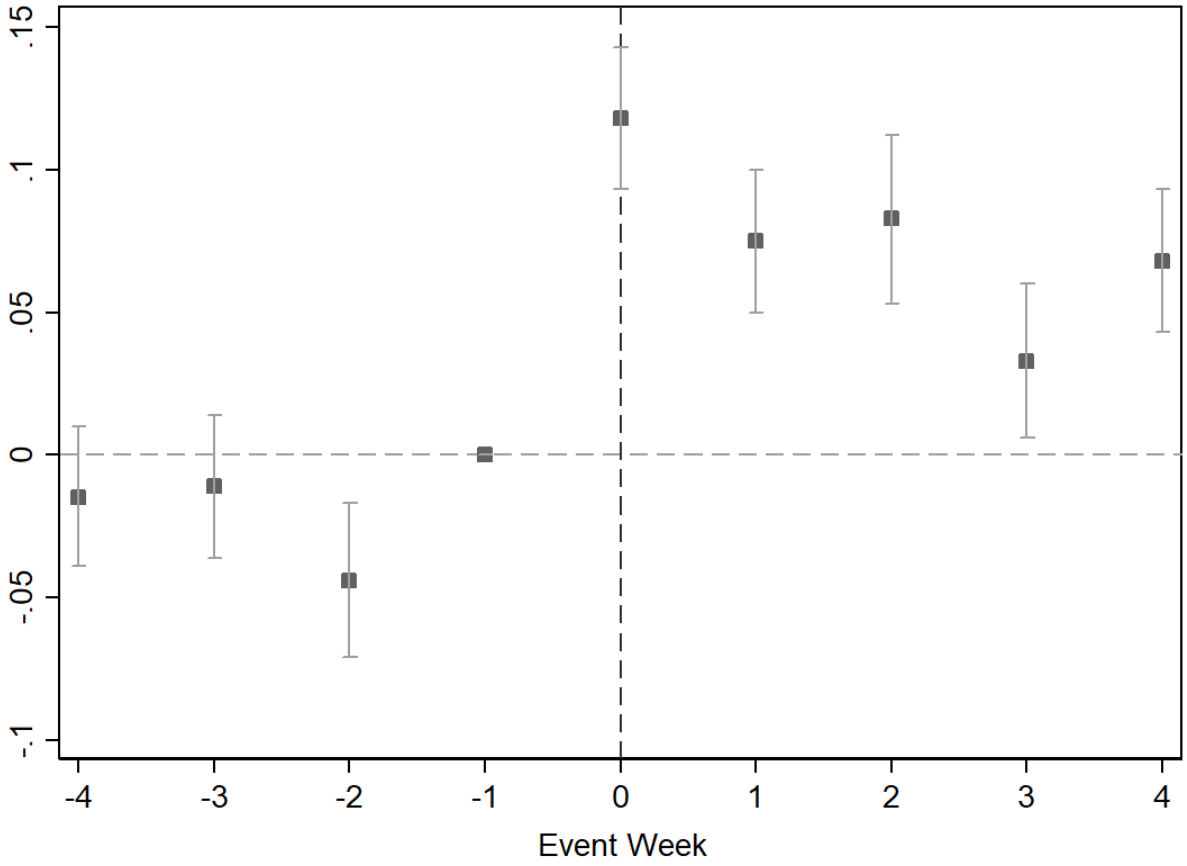


Figure 8: Heterogeneous treatment effects in DiD analysis

This figure presents the coefficients of a robustness dynamic difference-in-differences (DiD) analysis of the regression to account for concerns of staggered DiD analysis following Sun and Abraham (2020). The dependent variable is *ESS* using weekly observations. Cohorts are defined by year. The solid squares represent the weighted average of estimated coefficients of the interaction terms of the corresponding event week over cohorts, with the weights equal to the fraction of observations of each cohort in the relevant event weeks. The solid vertical line segments present two-sided 90% confidence intervals based on standard errors double clustered by the defendant firm and media company

Table 1: List of U.S. major news and business media providers in our sample

This table lists the U.S. news and business media providers that cover at least one defendant firm of corporate litigations in our sample between 2007 and 2018. Corporate litigation information is obtained from the Audit Analytics Corporate and Legal Litigation database. Columns (1) and (2) report the total number of news articles each provider publishes and the number of public firms these articles cover between 2007 and 2018, respectively. We include only articles that have a RavenPack relevance score of 100, indicating that the covered firms are the main subjects of the articles. Column (3) reports the average daily *Event Sentiment Score* (*ESS*), which measures the tone of a media's news stories. *ESS* is obtained from the RavenPack database, and is normalized to be within the range of -1 and +1.

Provider Name	#Articles	#Firms	ESS
	(1)	(2)	(3)
ABC NEWS	29,281	2,545	0.042
BARRONS	18,024	1,849	0.062
BOSTON GLOBE	51,750	4,878	0.076
CHARLOTTE OBSERVER	1,397	407	0.026
CHICAGO TRIBUNE	16,019	1,184	0.042
CNBC	317,992	6,546	0.076
CNN	66,280	4,482	0.066
DALLAS MORNING NEWS - LEXISNEXIS	3,178	297	0.047
FOX NEWS	52,101	2,958	0.072
LOS ANGELES TIMES	16,776	1,078	0.038
MARKETWATCH	130,151	4,243	0.103
MIAMI HERALD	39,287	2,933	0.055
NBC NEWS	17,853	2,985	0.196
NEW YORK POST	3,225	379	-0.005
NEWSWEEK	804	100	-0.070
ORLANDO SENTINEL	34	5	0.179
THE ARIZONA REPUBLIC	3,964	613	0.050
THE NEW YORK TIMES	22,347	1,637	0.059
THE WASHINGTON POST	53,069	2,914	0.065
TIME MAGAZINE	4,069	317	0.016
USA TODAY	18,844	1,054	0.058
WALL STREET JOURNAL	106,655	4,577	0.085

Table 2: Summary statistics

This table reports the summary statistics. The sample includes 4,857 corporate litigation events involving 1,928 defendant firms, covered by 22 media providers from 30 days before the litigation announcement date to 30 days after, i.e., [-30, 30]. The unit of observation is a defendant firm-media company pair on each day. In Panel A, we report the media company characteristics for treated and control media separately. *ESS* is the average *Event Sentiment Score* (*ESS*), which is constructed based on the raw *ESS*, a granular score between 0 and 100, provided by RavenPack. We normalize the *ESS* to be within the range of -1 to 1, and average the normalized *ESS* across news stories with a 100 relevance score from a media company covering a firm on a day. *PosNegESS* is an alternative tone measure of *ESS*, which is the number of positive news stories minus the number of negative news stories of a given media company, scaled by one plus the total number of positive and negative news stories covering a firm on a day. Following the literature, we classify a news story as positive (negative) if its raw *ESS* is above the 67th (below the 33rd) percentile of all stories published in our sample period. *AES* is the average *Aggregate Event Sentiment*, which is constructed based on the raw *AES*, a granular score between 0 and 100, provided by RavenPack and calculated as the ratio of positive news articles reported on a firm to the total number of articles (excluding neutral ones) over a rolling 91-day window. We normalize the *AES* to be within the range of -1 to 1, and average the normalized score across news stories with a 100 relevance score from a media company covering a firm on a day. *NumArticles* is the number of articles from a given media covering a firm on a day. In Panel B, we report the defendant firm characteristics. *TotalAssets* is the total amount of assets in billion dollars. *Leverage* is the sum of the firm's long-term debt and current liabilities divided by its total assets. *MtB* is the firm's market value of assets divided by its book value of assets. *ROA* is the firm's operating income before depreciation divided by its total assets. *FirmAge* is the number of years since the firm's initial listing in the Compustat and CRSP merged database. *Tangibility* is the firm's property, plant, and equipment (PP&E) divided by its total assets. *InstOwn* is the total percentage ownership by all institutional investors of the firm. For event days in [-30, -1], firm characteristics are calculated at the nearest quarter end before day -30; for event days in [0, 30], firm characteristics are calculated at the nearest quarter end before day 0.

Panel A: Media company characteristics

	Treated media			Control media			Diff in mean	Diff in median
	N	Mean	Median	N	Mean	Median		
		(1)	(2)		(3)	(4)	(1)-(3)	(2)-(4)
ESS	8,480	0.035	0.080	30,044	0.015	0.055	0.020***	0.025***
PosNegESS	8,480	-0.020	0.000	30,044	-0.039	0.000	0.019***	0.000**
AES	8,480	0.112	0.130	30,044	0.107	0.150	0.005**	-0.020
NumArticles	8,480	1.851	1.000	30,044	1.840	1.000	0.011	-0.000**

Panel B: Defendant firms' characteristics

Variable	N	Mean	Std Dev	Median	P25	P75
TotalAssets	38,524	44.880	37.057	41.753	45.594	87.642
Leverage	38,524	0.215	0.214	0.174	0.000	0.329
MtB	38,524	2.182	1.587	1.948	0.941	3.071
ROA	38,524	0.039	0.047	0.039	0.018	0.068
FirmAge	38,524	25.348	15.023	26.000	12.500	34.250
Tangibility	38,524	0.184	0.193	0.090	0.062	0.255
InstOwn	38,524	0.672	0.223	0.685	0.592	0.819

Table 3: The "pumping"

This table presents the baseline difference-in-differences (DiD) analysis of the relative change in the tone of treated and control media surrounding corporate litigation. For each litigation event, treated media are those that share at least one institutional blockholder with the defendant firm at the nearest quarter end before the litigation announcement date (i.e., the pre-litigation quarter end). Control media are those that do not share any institutional blockholders with the defendant firm at the pre-litigation quarter end. The dependent variable is *ESS*. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. Panel A reports results using daily observations, from 30 days before the litigation announcement date to 30 days after. Panel B reports results using weekly observations, from 4 event weeks before the litigation announcement date to 4 event weeks after. Event week 0 spans from 3 days before the announcement to 3 days after, i.e., [-3, 3]. Event week -1 spans the event days of [-10, -4], and event week 1 spans the event days of [4, 10], and so forth. *Event FE* are indicators for each corporate lawsuit. *Media FE* are indicators for each media parent company. *CalenderWeek FE* are indicators for each calendar week when the media tone is measured. All other variables are defined as in Table 2. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Daily media tone						
	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	0.023**	0.037***	0.036***	0.042***	0.032***	0.036***
	(2.30)	(3.59)	(3.65)	(3.40)	(2.68)	(3.07)
Post	-0.029***	-0.027***	-0.033***	-0.034***	-0.031***	-0.030***
	(-5.69)	(-5.10)	(-5.51)	(-4.83)	(-4.39)	(-4.42)
Treat	-0.008	-0.009	-0.018**	-0.018	-0.017	
	(-1.00)	(-1.20)	(-2.22)	(-1.36)	(-1.30)	
LnAsset			0.103	0.105		0.098
			(0.59)	(0.59)		(0.58)
Leverage			0.394	0.436		0.569
			(1.17)	(1.34)		(1.61)
MtB			0.043***	0.033**		0.039***
			(3.43)	(2.49)		(3.04)
ROA			0.049	-0.008		0.120
			(0.18)	(-0.03)		(0.41)
Tangibility			-0.370	0.049		0.312
			(-0.55)	(0.07)		(0.42)
FirmAge			0.122**	0.121**		0.134**
			(2.46)	(2.21)		(2.55)
InstOwn			-0.237***	-0.161**		-0.242***
			(-3.30)	(-2.06)		(-3.42)
Observations	38,524	37,884	37,832	35,669	35,461	32,636
Adjusted R-squared	0.006	0.260	0.280	0.273	0.288	0.230
Event FE	No	Yes	Yes	Yes	No	No
Media FE	No	No	Yes	No	No	No
CalendarWeek FE	No	No	Yes	No	No	Yes
Media × CalendarWeek FE	No	No	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	No	No	Yes	No
Event × Media FE	No	No	No	No	No	Yes

Panel B: Weekly media tone						
	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	0.019*	0.037***	0.036***	0.045***	0.032**	0.039***
	(1.91)	(3.39)	(3.28)	(3.17)	(2.24)	(2.91)
Post	-0.034***	-0.032***	-0.044***	-0.045***	-0.042***	-0.040***
	(-6.46)	(-5.74)	(-6.72)	(-5.86)	(-5.53)	(-5.52)
Treat	0.013	-0.007	-0.015	-0.021	-0.017	
	(1.53)	(-0.81)	(-1.64)	(-1.50)	(-1.22)	
LnAsset			-0.044	-0.073		-0.066
			(-0.28)	(-0.44)		(-0.41)
Leverage			0.893***	0.917***		1.008***
			(2.64)	(2.86)		(3.12)
MtB			0.054***	0.043***		0.051***
			(4.19)	(3.28)		(3.65)
ROA			0.130	0.229		0.142
			(0.42)	(0.73)		(0.45)
Tangibility			-0.062	0.374		0.414
			(-0.09)	(0.47)		(0.52)
FirmAge			0.225***	0.223***		0.228***
			(3.54)	(3.10)		(3.40)
InstOwn			-0.227***	-0.173*		-0.218**
			(-2.62)	(-1.78)		(-2.52)
Observations	28,188	27,495	27,444	24,908	24,673	21,542
Adjusted R-squared	0.007	0.289	0.313	0.292	0.310	0.212
Event FE	No	Yes	Yes	Yes	No	No
Media FE	No	No	Yes	No	No	No
CalendarWeek FE	No	No	Yes	No	No	Yes
Media × CalendarWeek FE	No	No	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	No	No	Yes	No
Event × Media FE	No	No	No	No	No	Yes

Table 4: Price impact of lenient media coverage

This table presents the OLS and instrumental variable analyses of the price impact of lenient media coverage. Columns (1) and (2) report the OLS analyses. The dependent variable is *CAR[0,60]*, the cumulative abnormal return of a defendant firm from the litigation announcement date to 60 days after. The key independent variable, *Covered,* is an indicator variable that equals one if a defendant firm is covered by at least one treated media provider at the pre-litigation quarter end, and zero if it is not covered by any treated media providers. Columns (3) to (6) report the instrumental variable analyses. Columns (3) and (4) include the full sample, and columns (5) and (6) exclude institutions or media located in the states of New York, Massachusetts, or Connecticut. Columns (3) and (5) report the first stage regressions, and columns (4) and (6) report the second stage regressions. The instrumental variable, *LnDistance*, is the natural logarithm of one plus the average geographical distance between defendant firms' blockholding institutions and media sources in our sample (in thousand miles). The detailed construction of the instrument is described in Section 3.2. The key independent variable in columns (4) and (6) is the instrumented *Covered*, obtained from the first stage regression. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by defendant firm and year-quarter. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Full sample		Full sample		Sample excluding NY, MA, and CT	
Dep. Var.	*CAR[0,60]*		*Covered*	*CAR[0,60]*	*Covered*	*CAR[0,60]*
	OLS		IV 1st stage	IV 2nd stage	IV 1st stage	IV 2nd stage
	(1)	(2)	(3)	(4)	(5)	(6)
Covered	0.017*	0.022*				
	(1.75)	(1.80)				
Instrumented Covered				0.172**		0.203**
				(2.05)		(2.00)
LnDistance			-0.169***		-0.146***	
			(-4.76)		(-5.15)	
LnAsset		-0.000	0.043***	-0.004	0.030***	-0.001
		(-0.01)	(6.77)	(-0.96)	(5.19)	(-0.35)
Leverage		0.028	-0.080*	0.021	-0.026	0.001
		(0.62)	(-1.68)	(0.73)	(-0.56)	(0.05)
MtB		-0.018***	0.007	-0.014***	0.005	-0.016***
		(-2.89)	(1.36)	(-3.60)	(1.06)	(-4.75)
ROA		-0.141	-0.164	-0.200	-0.228*	-0.191
		(-0.79)	(-1.05)	(-1.63)	(-1.75)	(-1.60)
Tangibility		0.034	-0.118***	0.043	-0.081**	0.036
		(1.02)	(-3.31)	(1.39)	(-2.37)	(1.49)
FirmAge		0.000	0.002***	-0.000	0.002***	-0.000
		(0.06)	(2.41)	(-0.80)	(2.66)	(-1.02)
InstOwn		-0.021	0.483***	-0.091*	0.544***	-0.101
		(-0.75)	(8.33)	(-1.91)	(19.32)	(-1.56)
Observations	4,131	3,692	3,692	3,692	2,963	2,963
YearQuarter FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.024	0.035	0.340	0.034	0.370	0.056
Weak instrument F-statistics			22.67		26.55	

Table 5: The "dumping"

This table presents the analyses of institutions' quarter-end equity positions in defendant firms. For each event and the corresponding defendant firm, the sample includes institutions that hold 5% or more shares of the defendant firm at the nearest quarter end before the litigation announcement date (i.e., the pre-litigation quarter end). The dependent variable is *RelativeHolding*, defined as the institution's holding of the defendant firms normalized by its holding in the pre-litigation quarter end. *Pumping* is a dummy variable that equals one if the institution is a pumping institution, that is, if it also blockholds a media provider, and zero otherwise. *Event FE* are indicators for each corporate lawsuit. *Institution FE* are indicators for each institution. All other variables are defined as in Table 2. We perform the regressions for each quarter from 2 quarters before the litigation to 4 quarters after. Standard errors are clustered by the defendant firm. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dep. Var.: RelativeHolding					
Event quarters	Qtr -2	Qtr 0	Qtr 1	Qtr 2	Qtr 3	Qtr 4
	(1)	(2)	(3)	(4)	(5)	(6)
Pumping	-0.004	-0.037***	-0.084***	-0.102***	-0.097***	-0.089***
	(-0.36)	(-2.88)	(-5.02)	(-5.12)	(-4.69)	(-3.76)
Observations	9,909	10,188	10,188	9,462	8,777	8,174
Event FE	Yes	Yes	Yes	Yes	Yes	Yes
Institution FE	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-squared	0.107	0.114	0.178	0.232	0.255	0.284

Table 6: Institutions' active roles in executing the "pump-and-dump" strategy

This table presents analyses of institutions' active participation based on institutional attentivity. The sample consists of treated media only, which are defined as in Table 3. An institution's distraction, *D*, is measured following Kempf, Manconi, and Spalt (2017) based on the institution's portfolio stock returns. *Attentivity = 1-D*. Detailed descriptions of these variables are in Section 4.1. The dependent variable is *ESS* using weekly observations. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Attentivity × Post	0.209**	0.235**	0.207*	0.264***
	(2.44)	(2.27)	(1.66)	(2.76)
Post	-0.178**	-0.200**	-0.177*	-0.227***
	(-2.48)	(-2.29)	(-1.71)	(-2.82)
Attentivity	-0.130	0.040	-0.010	
	(-1.23)	(0.20)	(-0.05)	
Observations	5,832	4,859	4,774	4,468
Adjusted R-squared	0.289	0.246	0.257	0.099
Controls	Yes	Yes	No	Yes
Event FE	Yes	Yes	No	No
Media FE	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No
Event × Media FE	No	No	No	Yes

Table 7: Volume of media coverage

This table presents the difference-in-differences (DiD) analysis of the volume of media coverage by treated and control media surrounding corporate litigation. The dependent variable is *LnNumArticles,* defined as the natural logarithm of one plus the total weekly number of articles covering a defendant. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. Treated and control media are defined as in Table 2. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dep. Var.: LnNumArticles			
	(1)	(2)	(3)	(4)
Treat × Post	-0.013***	-0.013***	-0.011**	-0.013***
	(-2.80)	(-2.78)	(-2.31)	(-2.78)
Post	-0.007***	-0.007**	-0.007***	-0.007***
	(-2.58)	(-2.51)	(-2.69)	(-2.60)
Treat	0.021***	0.002	0.001	
	(2.62)	(0.28)	(0.12)	
LnAsset	0.041	0.041		0.041
	(1.34)	(1.32)		(1.36)
Leverage	0.141*	0.141*		0.141*
	(1.81)	(1.78)		(1.83)
MtB	-0.005	-0.005		-0.005
	(-0.85)	(-0.83)		(-0.85)
ROA	-0.147	-0.147		-0.147
	(-1.11)	(-1.09)		(-1.12)
Tangibility	0.327**	0.327**		0.327**
	(2.39)	(2.34)		(2.41)
FirmAge	0.230***	0.230***		0.230***
	(11.39)	(11.17)		(11.50)
InstOwn	0.312***	0.312***		0.312***
	(6.79)	(6.66)		(6.85)
Observations	177,557	177,557	177,556	177,557
Adjusted R-squared	0.185	0.233	0.243	0.258
Event FE	Yes	Yes	No	No
Media FE	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No
Event × Media FE	No	No	No	Yes

Table 8: Cross-sectional tests

This table presents cross-sectional difference-in-differences (DiD) analysis. In Panel A, columns (1) and (2) include legal-related news articles, and columns (3) and (4) include non-legal-related news articles, where the type of news articles are classified in RavenPack. In Panel B, columns (1) and (2) include news articles about analyst rating, credit rating, earnings, and revenues (i.e., articles based on hard information), and columns (3) and (4) include the rest of news articles. In Panel C, columns (1) and (2) include the subsample of national media sources, and columns (3) and (4) include the subsample of local media sources, following the classifications in Gurun and Butler (2012). The dependent variable is *ESS* using weekly observations in all panels. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Legal vs. non-legal coverage				
Subsamples	*Legal*		*Non-legal*	
	(1)	(2)	(3)	(4)
Treat × Post	0.066**	0.143**	0.016	0.026**
	(2.37)	(2.05)	(1.63)	(2.08)
Post	-0.018	-0.027	0.010	0.010
	(-0.80)	(-1.19)	(1.53)	(1.34)
Treat	-0.035*		-0.006	
	(-1.81)		(-0.74)	
Observations	4,384	2,533	24,234	18,465
Adjusted R-squared	0.478	0.146	0.290	0.132
Controls	Yes	Yes	Yes	Yes
Event FE	Yes	No	Yes	No
Media FE	Yes	No	Yes	No
CalendarWeek FE	Yes	Yes	Yes	Yes
Event × Media FE	No	Yes	No	Yes
Panel B: Hard vs. soft news				
Subsamples	*Hard*		*Soft*	
	(1)	(2)	(3)	(4)
Treat × Post	-0.030	0.037	0.040***	0.041***
	(-1.10)	(0.64)	(3.81)	(3.12)
Post	0.025	0.010	-0.054***	-0.049***
	(1.19)	(0.38)	(-8.03)	(-6.70)
Treat	0.012		-0.014	
	(0.56)		(-1.61)	
Observations	6,952	2,746	22,775	17,782
Adjusted R-squared	0.479	0.065	0.360	0.266
Controls	Yes	Yes	Yes	Yes
Event FE	Yes	No	Yes	No
Media FE	Yes	No	Yes	No
CalendarWeek FE	Yes	Yes	Yes	Yes
Event × Media FE	No	Yes	No	Yes

Panel C: National vs. local media providers				
Subsamples	*National*		*Local*	
	(1)	(2)	(3)	(4)
Treat × Post	0.036***	0.038**	0.038*	0.061**
	(2.68)	(2.43)	(1.83)	(2.39)
Post	-0.056***	-0.050***	-0.030***	-0.025***
	(-6.03)	(-5.26)	(-3.91)	(-2.92)
Treat	-0.009		-0.025*	
	(-0.77)		(-1.60)	
Observations	16,603	13,577	17,211	13,301
Adjusted R-squared	0.321	0.235	0.343	0.202
Controls	Yes	Yes	Yes	Yes
Event FE	Yes	No	Yes	No
Media FE	Yes	No	Yes	No
CalendarWeek FE	Yes	Yes	Yes	Yes
Event × Media FE	No	Yes	No	Yes

Table 9: Falsification test based on positive litigation resolutions

This table presents the results of a falsification difference-in-differences (DiD) test, which compares the tone of treated media with that of control media around "positive resolutions" of a subsample of litigation events. "Positive resolutions" of lawsuits are captured by positive seven-day (i.e., [-3, 3]) CARs surrounding the resolution dates. The dependent variable is *ESS* using weekly observations. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the resolution date, and zero otherwise. Treated and control media are defined as in Table 3. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Treat × Post	-0.012	-0.001	0.005	-0.003
	(-0.56)	(-0.04)	(0.15)	(-0.13)
Post	0.029**	0.023	0.021	0.024*
	(2.29)	(1.58)	(1.44)	(1.87)
Treat	0.021	0.026	0.023	
	(1.44)	(0.96)	(0.77)	
LnAsset	0.294	0.332		0.399**
	(1.44)	(1.55)		(2.02)
Leverage	1.130**	0.966		0.714
	(2.31)	(1.42)		(0.94)
MtB	-0.043**	-0.057**		-0.056**
	(-2.51)	(-2.14)		(-2.31)
ROA	0.693	0.565		0.778
	(0.63)	(0.42)		(0.65)
Tangibility	4.611*	4.764*		5.857**
	(1.84)	(1.65)		(2.18)
FirmAge	-0.093	-0.069		-0.098
	(-0.97)	(-0.63)		(-0.97)
InstOwn	0.289	0.271		0.403
	(1.01)	(0.80)		(1.45)
Observations	8,201	6,879	6,785	6,792
Adjusted R-squared	0.251	0.207	0.220	0.116
Controls	Yes	Yes	No	Yes
Event FE	Yes	Yes	No	No
Media FE	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No
Event × Media FE	No	No	No	Yes

Table 10: Robustness test – stacked regression approach

This table presents the robustness tests to account for concerns of staggered DiD analysis using stacked regression approach following Cengiz, Dube, Lindner, and Zipperer (2019). Cohorts are defined by year. Event-specific datasets are created year by year with control pairs of defendant firms and media providers as those that have never shared the pumping relation in our sample period. The average effect is estimated using stacked event-specific datasets. The dependent variable is *ESS* using weekly observations. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Treat × Post	0.030**	0.045***	0.039***	0.043***	0.027**	0.038***
	(2.56)	(3.83)	(3.46)	(3.03)	(1.96)	(2.78)
Post	-0.072***	-0.042***	-0.041***	-0.038***	-0.037***	-0.035***
	(-10.49)	(-6.20)	(-5.87)	(-4.87)	(-4.61)	(-4.64)
Treat	0.015	-0.011	-0.024**	-0.019	-0.012	
	(1.52)	(-1.29)	(-2.37)	(-1.35)	(-0.84)	
LnAsset			-0.117	-0.110		0.008
			(-0.83)	(-0.69)		(0.04)
Leverage			1.052***	1.061***		1.410***
			(3.33)	(3.35)		(3.07)
MtB			0.024*	0.022		0.061***
			(1.87)	(1.50)		(2.97)
ROA			0.279	0.233		0.388
			(0.75)	(0.59)		(1.10)
Tangibility			0.028	0.183		0.140
			(0.04)	(0.24)		(0.16)
FirmAge			-0.001	-0.006		-0.007
			(-0.02)	(-0.10)		(-0.11)
InstOwn			-0.115	-0.069		-0.478
			(-1.22)	(-0.66)		(-1.49)
Observations	58,007	56,037	55,985	50,305	51,103	43,398
Adjusted R-squared	0.031	0.312	0.329	0.306	0.320	0.219
Event × Cohort FE	No	Yes	Yes	Yes	No	No
Media × Cohort FE	No	No	Yes	No	No	No
CalendarWeek × Cohort FE	No	No	Yes	No	No	Yes
Media×CalendarWeek×Cohort FE	No	No	No	Yes	Yes	No
Event×CalendarWeek×Cohort FE	No	No	No	No	Yes	No
Event × Media × Cohort FE	No	No	No	No	No	Yes

Table 11: Performance of media vs. other blockheld firms

This table compares abnormal stock returns of media companies vs. other firms. The unit of observations is a litigation event – institution. For each defendant firm, we first identify all institutions that hold 5% or more shares of the defendant firm at the nearest quarter end before the litigation announcement date (i.e., the pre-litigation quarter end), as well as all other stocks each of these institution holds over the past 5 years. We then classify these institutions into two groups. Pumping institutions are the ones that hold 5% or more shares of a media company, and non-pumping institutions are the ones that hold fewer than 5% shares of the media. Next, for each institution during each litigation event, we calculate the past 6-month, 1-, 3-, and 5-year abnormal returns of each stock in the institution's portfolio. Abnormal returns (α) are based on the Carhart (1997) four-factor model. The dependent variables are $\alpha_{Media} - \alpha_{Other}$ over different horizons. α_{Media} is the abnormal return of the media company. α_{Other} is the weighted average abnormal return of other stocks in an institution's portfolio. The weight is the dollar amount of the institution's holding of the stock at the pre-litigation quarter end. *Pumping* is a dummy variable that equals one if the institution is a pumping institution, and zero otherwise. *Event FE* are indicators for each corporate lawsuit. *Institution FE* are indicators for each institution. All other variables are defined as in Table 2. Standard errors are clustered by the defendant firm. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dep. Var.: $\alpha_{Media} - \alpha_{Other}$			
	6 Month	1 Year	3 Year	5 Year
	(1)	(2)	(3)	(4)
Pumping	-0.016*	-0.047***	-0.140***	-0.227***
	(-1.85)	(-3.30)	(-6.10)	(-8.44)
Observations	6,418	6,406	6,350	5,825
Event FE	Yes	Yes	Yes	Yes
Institution FE	Yes	Yes	Yes	Yes
Adjusted R-squared	0.324	0.299	0.264	0.343

Online Appendix

Table A1: This table lists the parent companies of U.S. news and business media providers in Table 1 over time between 2007 and 2018. Notation "-" indicates the ownership of a parent company is present.

Source Name	Parent Company	StartYear	StartMonth	EndYear	EndMonth
ABC News	DISNEY (WALT) CO.	2007	1	-	-
The Arizona Republic	GANNETT CO.	2007	1	-	-
Barron's	DOW JONES & CO. INC.	2007	1	2007	7
Barron's	NEWS CORP.	2007	8	-	-
Boston Globe	NEW YORK TIMES	2007	1	2013	7
Boston Globe	JOHN W. HENRY & COMPANY	2013	8	-	-
Charlotte Observer	MCCLATCHY CO.	2007	1	-	-
Chicago Tribune	TRIBUNE CO.	2007	1	-	-
CNBC	GENERAL ELECTRIC	2007	1	2009	9
CNBC	COMCAST CORP.	2009	10	-	-
CNN	TIME WARNER INC.	2007	1	2017	6
CNN	AT&T INC.	2017	7	-	-
Dallas Morning News	BELO CORP.	2007	1	2013	12
Dallas Morning News	GANNETT CO.	2014	1	-	-
FOX NEWS	NEWS CORP.	2007	1	2013	6
FOX NEWS	21ST CENTURY FOX	2013	7	2018	12
FOX NEWS	FOX CORP.	2019	1	-	-
Los Angeles Times	TRIBUNE CO.	2007	1	2018	1
Los Angeles Times	NANT CAPITAL	2018	2	-	-
Marketwacth	DOW JONES & CO. INC.	2007	1	2007	7
Marketwacth	NEWS CORP.	2007	8	-	-
Miami Herald	MCCLATCHY CO.	2007	1	-	-
NBC News	GENERAL ELECTRIC	2007	1	2009	9
NBC News	COMCAST CORP.	2009	10	-	-
New York Post	NEWS CORP.	2007	1	-	-
The New York Times	NEW YORK TIMES	2007	1	-	-
Newsweek	WASHINGTON POST	2007	1	2010	7
Newsweek	IAC/INTERACTIVECORP	2010	8	2013	7
Newsweek	IBT MEDIA	2013	8	2018	9
Newsweek	NEWSWEEK	2018	10	-	-
Orlando Sentinel	TRIBUNE CO.	2007	1	-	-
Time	TIME WARNER INC.	2007	1	2014	6
Time	TIME INC.	2014	7	2017	12
Time	MEREDITH CORP.	2018	1	2018	9
Time	USA LLC.	2018	10	-	-
USA Today	GANNETT CO.	2007	1	-	-
The Wall Street	DOW JONES & CO. INC.	2007	1	2007	7
The Wall Street	NEWS CORP.	2007	8	-	-
Washington Post	WASHINGTON POST	2007	1	2013	7
Washington Post	NASH HOLDINGS	2013	8	-	-

Table A2: Institutions' attentivity based on earnings surprises

This table presents the robustness analyses of institutions' active participation based on institutional attentivity and earnings surprise as attention-grabbing events. The sample consists of treated media only, which are defined as in Table 3. An institution's distraction, *D*, is measured following Kempf, Manconi, and Spalt (2017) based on the earnings surprises of the institution's portfolio stocks. *Attentivity = 1-D*. We first calculate quarterly earnings surprise for each firm in an institution's portfolio. Earnings surprise is measured as the actual earnings per share minus the average of analyst forecasts issued within 30 days of the earnings announcement date, scaled by the firm's stock price as of the end of the forecasted quarter. Earnings and analyst forecast information is obtained from I/B/E/S. As in Kempf, Manconi, and Spalt (2017) and Table 7, we aggregate earnings surprise to the industry level based on 12 Fama-French industries. We exclude firms with stock prices lower than $5 for this analysis. The indicator variable *IS* in Equation (3) now equals one if an industry has the highest or lowest earnings surprise across all 12 industries in a given quarter, and zero otherwise. All other procedures are the same as in Equation (3). The dependent variable is *ESS* using weekly observations. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)
Attentivity × Post	0.198**	0.262**	0.267**	0.238**
	(2.04)	(2.15)	(1.99)	(2.22)
Post	-0.176**	-0.231**	-0.236**	-0.214**
	(-2.12)	(-2.22)	(-2.07)	(-2.33)
Attentivity	-0.018	-0.149	-0.033	
	(-0.13)	(-0.45)	(-0.11)	
Observations	5,832	4,859	4,774	4,468
Adjusted R-squared	0.288	0.246	0.257	0.098
Controls	Yes	Yes	No	Yes
Event FE	Yes	Yes	No	No
Media FE	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No
Event × Media FE	No	No	No	Yes

Table A3: Robustness test – alternative measures of media tone

This table presents the robustness tests of the main difference-in-differences (DiD) analysis, using two alternative measures of media tone as the dependent variable, *PosNegESS*, and *AES*, defined as in Section 2.2. Columns (1) to (4) present results using *PosNegESS*, and columns (5) to (8) present results using *AES*. The dependent variable is using weekly observations. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. Control variables are included and defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

Dep. Var.	PosNegESS				AES			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat × Post	0.035**	0.047**	0.032	0.051**	0.013***	0.011**	0.011**	0.014***
	(2.18)	(2.18)	(1.43)	(2.40)	(3.42)	(2.21)	(2.09)	(2.84)
Post	-0.038***	-0.037***	-0.034***	-0.032***	-0.036***	-0.035***	-0.036***	-0.034***
	(-3.79)	(-3.07)	(-2.83)	(-3.03)	(-12.24)	(-10.41)	(-10.48)	(-10.58)
Treat	-0.021	-0.030	-0.031		-0.003	-0.000	-0.001	
	(-1.62)	(-1.43)	(-1.46)		(-0.78)	(-0.07)	(-0.17)	
Observations	27,726	25,216	24,986	21,889	27,719	25,216	24,986	21,824
Adjusted R-squared	0.274	0.237	0.255	0.123	0.845	0.849	0.862	0.850
Controls	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Event FE	Yes	Yes	No	No	Yes	Yes	No	No
Media FE	Yes	No	No	No	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No	No	No	Yes	No
Event × Media FE	No	No	No	Yes	No	No	No	Yes

Table A4: Robustness test – alternative cutoffs to define cross-holdings and alternative event windows

This table presents the robustness tests of the main difference-in-differences (DiD) analysis, using alternative cutoffs (4% or 6%) to define pumping institutions, and using alternative event windows to those in Table 3. In Panels A, B, and D, the dependent variable is *ESS* using weekly observations. In Panel C, the dependent variable is *ESS* using daily observations. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. All other variables are defined as in Table 2 and Table 3. Standard errors are double clustered by the defendant firm and media company. T-statistics are reported in parentheses. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Panel A: Cutoff of 4%				Panel B: Cutoff of 6%			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat × Post	0.035***	0.032**	0.022**	0.029***	0.043***	0.049***	0.038**	0.050***
	(3.76)	(2.32)	(2.05)	(2.58)	(3.20)	(2.71)	(2.16)	(2.85)
Post	-0.049***	-0.047***	-0.036***	-0.042***	-0.041***	-0.040***	-0.040***	-0.036***
	(-7.01)	(-5.39)	(-4.96)	(-5.44)	(-6.37)	(-5.50)	(-5.44)	(-5.32)
Treat	-0.007	-0.019	-0.011		-0.013	0.009	0.017	
	(-0.90)	(-1.40)	(-0.98)		(-1.16)	(0.47)	(0.93)	
Observations	27,437	24,908	24,673	21,542	27,488	24,946	24,711	21,542
Adjusted R-squared	0.313	0.292	0.310	0.212	0.313	0.292	0.311	0.212
Controls	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Event FE	Yes	Yes	No	No	Yes	Yes	No	No
Media FE	Yes	No	No	No	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No	No	No	Yes	No
Event × Media FE	No	No	No	Yes	No	No	No	Yes

	Panel C: Event window of [-15, 15] days				Panel D: Event window of [-2, 2] weeks			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Treat × Post	0.030***	0.030*	0.023*	0.032**	0.038***	0.036**	0.031*	0.034**
	(2.60)	(1.89)	(1.74)	(2.06)	(2.95)	(2.01)	(1.83)	(2.06)
Post	-0.037***	-0.032***	-0.032***	-0.025***	-0.057***	-0.055***	-0.053***	-0.048***
	(-5.47)	(-3.91)	(-3.87)	(-3.22)	(-7.28)	(-6.02)	(-5.72)	(-5.78)
Treat	-0.013	-0.014	-0.011		-0.016	-0.024	-0.025	
	(-1.26)	(-0.85)	(-0.66)		(-1.46)	(-1.30)	(-1.40)	
Observations	25,645	23,409	23,217	20,108	16,060	13,949	13,750	10,899
Adjusted R-squared	0.366	0.367	0.392	0.301	0.369	0.349	0.372	0.212
Controls	Yes	Yes	No	Yes	Yes	Yes	No	Yes
Event FE	Yes	Yes	No	No	Yes	Yes	No	No
Media FE	Yes	No	No	No	Yes	No	No	No
CalendarWeek FE	Yes	No	No	Yes	Yes	No	No	Yes
Media × CalendarWeek FE	No	Yes	Yes	No	No	Yes	Yes	No
Event × CalendarWeek FE	No	No	Yes	No	No	No	Yes	No
Event × Media FE	No	No	No	Yes	No	No	No	Yes

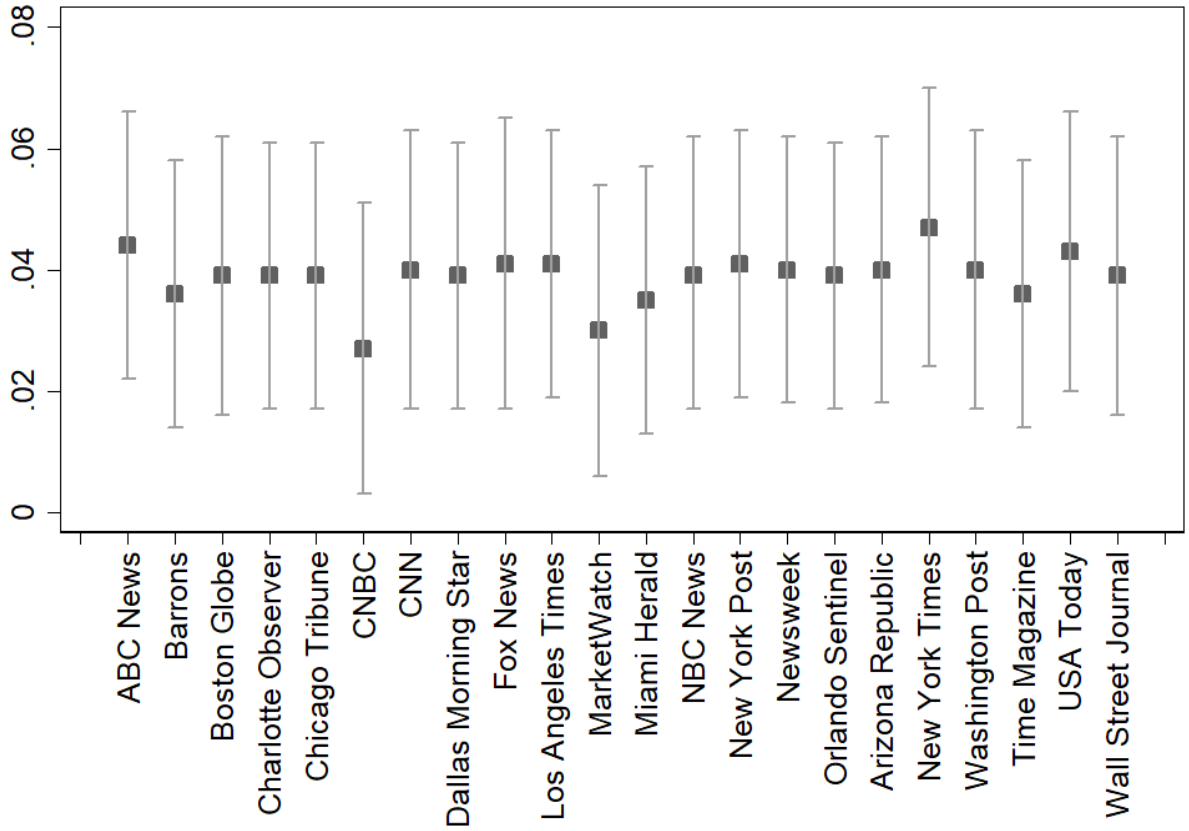


Figure A1: Robustness test – exclude each of media providers

This figure presents the coefficients of the robustness tests of the main difference-in-differences (DiD) analysis by excluding each of the media providers in our sample. The dependent variable is ESS using weekly observations. The solid squares represent the estimated coefficients of the interaction terms *Treat* × *Post*. *Treat* is a dummy variable that equals one for treated media, and zero for control media. *Post* is a dummy variable that equals one if the observation is on or after the litigation announcement date, and zero otherwise. The solid vertical line segments present two-sided 90% confidence intervals based on standard errors double clustered by the defendant firm and media company. The media displayed on the x-axis represents the media excluded in the corresponding analysis.