

# Institutional Investors and Financial Media Coverage

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## Abstract

We study whether institutional investors affect their portfolio firms' financial media coverage through their media firms' ownership. We find that a financial news outlet issues more positive articles covering the firms in its blockholders' portfolios. The articles' positivity is measured by the stock market reaction to the articles and the articles' overall tone. Moreover, we argue that this effect is causal by 1) fully controlling for a firm's time-variant fundamentals via exploiting within firm-quarter variation in media ownership and coverage and 2) exploiting exogenous variation in media ownership based on the merger of institutional investors. This effect is stronger when the covered firms have higher weights in the blockholders' portfolios and when the blockholders are active investors. We also find that higher ownership of financial media outlets leads to larger fund inflows and that larger outflows could predict higher future ownership of financial media outlets. Overall, we document robust causal evidence that institutional investors influence media coverage through their media ownership.

*Keywords:* Institutional investors, financial media, financial market

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# 1 Introduction

Financial media outlets are critical in disseminating information in financial markets. A large literature in accounting and finance has documented the significant impact of financial media on investor behavior, stock market sentiment, fund flow, and cost of capital (e.g., Cook et al. 2006; Tetlock 2007; Bushee et al. 2010; Tetlock 2010; Gao et al. 2020). Such broad impacts of financial media suggest that financial market participants should have a strong incentive to influence media coverage in their own interest. However, there is little evidence regarding such a direct influence on financial media coverage. In this study, we examine whether institutional investors directly affect media coverage. Specifically, we hypothesize that institutional investors, especially blockholders, of a financial media outlet could influence the outlet to have greater coverage of positive news for their portfolio firms while limiting negative news coverage.

Our hypothesis is motivated by several factors. First, media ownership has been a concern for regulators because ultimate owners have strong influence on media coverage in their preference. However, regulators' concern is primarily about concentrated ownership (Commission on Freedom of the Press 1947), which may result in undiversified viewpoints and thus biased media reports (e.g., Djankov et al. 2003; Germano and Meier 2013; Gilens and Hertzman 2000).<sup>1</sup> Although publicly traded media firms, compared to privately owned ones, have a diffuse ownership structure, their blockholders may also have the ability and the incentive to influence the media outlets, leading to a tilted coverage for firms owned by their shareholders (see Edmans 2014 for a review). Second, prior studies focus on the role of advertising fees on the relationship between mutual funds and media, where mutual funds are the clients of media (e.g., Reuter and Zitzewitz, 2006). However, little evidence about the impact of mutual funds' direct ownership on media coverage has been documented. Finally, common ownership between US public firms has become pervasive (see Schmalz 2018 for a review). Recent studies examine how common ownership affects firms' strategic behaviors, especially the interactions within product market peers. The hypothesis we

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<sup>1</sup>For example, Federal Communications Commission (FCC) has sought to spread the ownership of news media in order to "diversify the viewpoints available to the public" (FCC 2003).

examine in this paper is essentially based on the firm-media common ownership. In contrast, relatively little is known whether this special type of common ownership affect firms' other strategic behaviors (e.g., media firms' coverage decisions). Our paper seeks to provide evidence in these directions.

Our empirical analyses center around media outlets owned by the Dow Jones & Company (DJC). We focus on DJC for several reasons. First, DJC owns Dow Jones Newswires (DJN), the Wall Street Journal (WSJ), Barron's, and MarketWatch, which are national prestigious brands reaching a broad population of retail as well as institutional investors. In particular, recent studies have documented that the WSJ has a substantial impact on financial markets, such as investor sentiment (Tetlock 2007), stock return (Fang and Peress 2009), and mutual fund flows (Kaniel and Parham 2017). Second, DJC is publicly traded, which enables us to identify the common owners between DJC and the other US public firms.<sup>2</sup> Third, our primary data source for media articles, RavenPack, provides a comprehensive sample of articles released by DJC from 2000 to 2019. In contrast, other news media outlets are incorporated into RavenPack in a staggered fashion.<sup>3</sup>

To conduct our empirical analyses, we define a firm-quarter observation as having a common owner with DJC if one of the firm's institutional investors is a blockholder of DJC before 2007 or a blockholder of News Corp after 2007. Specifically, we compare the DJC's coverage of firms that are held by DJC's blockholders with the DJC's coverage of firms that are not in the portfolio of DJC's blockholders. Using a comprehensive sample of 267,939 US public firm-quarter observations from 2000 to 2019 and 720,756 corresponding news articles, we find that for a US public firm, firm-DJC common ownership is positively associated with the fraction of positive-sentiment articles, defined by RavenPack. Specifically, when a non-media firms has one more investor that is the blockholder of DJC, the non-media firm's positive news articles relative to all of its news coverage increases by 1.3% on a quarterly basis and 5.2% on an annual basis, as shown by the specification (2) in Table 3. This result indicates that press articles issued by the media outlets owned

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<sup>2</sup>DJC was a public firm before 2007 and acquired by another public firm, News Corp, at the end of 2007

<sup>3</sup>For example, although Yahoo Finance has been an important source for investors for decades, we find that there is little coverage of Yahoo Finance articles before 2007 in RavenPack. Also, there is a significant drop in the number of Yahoo Finance articles after 2017.

by DJC regarding the holding companies of DJC's blockholders exhibit a positive tilt as compared to DJC's news articles about the other US public firms.

One endogeneity concern is that firm-media common ownership and the lopsided coverage towards positive news about a firm are correlated with unobservable firm fundamentals. The endogeneity concern arises because common owners may have superior skills in selecting good stocks while these good stocks have more good news. To mitigate this concern, we employ two empirical settings. First, we exploit the variation in the firm's common ownership relation with different media outlets, while holding the underlying firms' fundamental constant. Specifically, in addition to the financial presses of DJC, we include two financial media outlets, Yahoo Finance and CNBC, which are owned by two other US public firms, Yahoo and Comcast, respectively. We conduct our analyses at the firm-media-quarter level over the period from 2011 to 2017.<sup>4</sup> This design allows us to compare the coverage of a firm by different media in each quarter by varying only the firm's common ownership relation with each media outlet, while holding the underlying firm's fundamental constant within the quarter. The results of this firm-media-quarter analysis are consistent with our main findings that a higher firm-media common ownership leads to a positive tilt in the media coverage for the firm.

Next, we conduct a cross-sectional test that exploits the importance of the public firms in the portfolio of DJC's blockholders to reinforce our inference. Because each institutional investor may hold hundreds of stocks, it is unlikely that fund managers will utilize their resources to influence the media coverage for all their portfolio firms. Instead, they are more likely to influence the media coverage for the firms that are more important in their portfolio. Therefore, we predict that the effect on the media coverage is more pronounced for firms that have higher weight in firm-DJC common owners' portfolios. We find results consistent with the prediction. Our results indicated that media outlets are more likely to issue positive articles to firms that are held by the media outlets' blockholders. In addition, we examine whether the content of articles contains more positive sentiment. To do so, we use RavenPack's sentiment score for each news article and

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<sup>4</sup>This analysis is limited to the period over 2010 to 2016. Yahoo Finance is owned by Yahoo before 2017. CNBC is acquired by Comcast in January 2011.

calculate the average of the sentiment for each firm-quarter. Our results indicate that in addition to providing more articles with positive sentiment, the articles also have a higher sentiment on average for firms that are held by the media outlets' blockholders.

As an additional test to mitigate the endogeneity concern, we exploit the sensitivity of issuing earnings-related news articles to firms' earnings news and how this sensitivity varies with firm-media common ownership. First, we show that the probability of DJC media outlets issuing a positive article is positively associated with the magnitude of a firm's positive earnings news. Based on this finding, we examine whether this association is more pronounced when the firm is held by a DJC's blockholder. In other words, we examine whether the sensitivity of positive news articles written by DJC's media outlets to a firm's positive earnings news varies with respect to the firm-DJC common ownership. Our findings show that the sensitivity of issuing positive articles to a firm's positive earnings news is indeed higher under firm-DJC common ownership. In contrast, we do not find such a heterogeneous sensitivity of issuing negative articles to firms' negative earnings under firm-DJC common ownership. This evidence is consistent with Solomon et al. (2014) that the effect of media coverage on fund flows is driven more by media-covered good performing stocks in a fund's portfolio.

Our empirical analysis concludes with several robustness tests. First, instead of counting the number of positive news articles, we use the sentiment score (CSS) from RavenPack to directly see whether our main results are robust to different measures of media tone. Moreover, the CSS is estimated based on stock market reactions, incorporating stock price change is particularly important in our setting because this is the main incentive for the investors to influence the media firms they own. We find that all of our four measures of common ownership still hold. These results not only demonstrate the robustness of our main findings, but also are consistent with the incentive of blockholders of media firms to influence the coverage of the firms they own. Our second robustness test looks into full-news article and flash-news article separately. We find that the main results hold for both types of articles, which indicate that the effect on media tilted coverage is not driven by a particular type of news article.

Our paper contributes to three strands of literature: a growing literature that studies firms' strategic choices due to common ownership, a literature that studies the casual impact of news media on financial markets, and a literature studying the impact of media ownership on news slant. Previous studies have shown that common owners have an incentive to internalize the impact of each firm's strategic actions on the value of other firms in their portfolios. Such strategic actions include R&D investment and innovation (López and Vives 2019), executive compensation (Antón et al. 2018), competition (e.g., He and Huang 2017; Azar et al. 2018), M&A (Gilje et al. 2019) and governance (He et al. 2019; Edmans et al. 2019). We contribute to this literature by showing that influencing the news coverage is also employed by common owners to internalize the externalities of media outlets.

We also add to a large literature that studies the role of media in financial markets. Prior studies have documented the impact of news media on many aspects of financial markets, including trading volume and volatility (Engelberg and Parsons 2011; Peress 2014), stock prices (Solomon 2012; Engelberg and Parsons 2011), M&As (Liu and McConnell 2013; Ahern and Sosyura 2014), cost of capital (Cook et al. 2006; Gurun and Butler 2012; Liu et al. 2014), public finance (Gao et al. 2020), and executives' equity vesting (Kuhnen and Niessen 2012; Edmans et al. 2018). Relative to all of this evidence, it is surprising that there is little evidence about the direct influence of financial market participants on financial media coverage. Our paper fills this gap by showing that the blockholders of media firms affect the news coverage of the other public firms in their portfolios.

More broadly, our paper contributes to the literature studying how media ownership affects the news slant. Germano and Meier (2013) show that media firms' concentrated ownership exacerbates the article bias regarding their advertisers. Gilens and Hertzman (2000) document that news coverage is biased towards the financial interests of media outlets' corporate owners. In addition, many studies have shown that government ownership in media has resulted in many welfare-reducing outcomes (e.g. Djankov et al. 2003; Besley and Prat 2006; Houston et al. 2011). This paper highlights the impact of media ownership on media slant in financial markets. And it contributes to

this strand of literature by showing that firm-media common ownership leads to positively tilted coverage for the public firms owned by the common owners. Moreover, our results cast doubt on the effectiveness of eliminating media slant through diffused ownership structure in financial markets.

## **2 Data Description and Summary Statistics**

### **2.1 Sample Selection**

We collect data from a variety of sources to construct the sample. We start from the CRSP-Compustat merged dataset which consists of all public firms whose shares are listed in NYSE, AMEX, and NASDAQ. We then collect earnings announcement dates of these public firms from the Institutional Brokers' Estimate System (I/B/E/S).

For ownership data, we use the institutional ownership reported in 13F reports at a calendar quarter-end frequency. The institutional ownership data is from both Thomson Reuters S34 Ownership datasets and the holding data parsed and tabulated by Wharton Research Data Services (WRDS) SEC Analytics. WRDS has documented serious data issues in the last few updates of Thomson-Reuters Ownership data. Ben-David, Franzoni, Moussawi and Sedunov (2016) conduct an assessment of the potential biases caused by these data issues. They also provide the methodology to clean and correct the 13F data errors after June 2013 using parsed information directly from SEC 13F filings. Following their suggestions, our institutional ownership data is based on Thomson-Reuters Ownership from March 1980 through June 2013 and on SEC 13F filings parsed by WRDS SEC Analytics from September 2013 through December 2019. In addition, BlackRock reports its holdings under seven different entities, and the Thomson data aggregates these to six different manager numbers. Following Ben-David, Franzoni, Moussawi, and Sedunov (2018), we aggregate the holdings of BlackRock's various subsidiaries to the parent level.

The data for real-time news information are obtained from RavenPack News Analytics, a lead-

ing global news database used in quantitative and algorithmic trading.<sup>5</sup> RavenPack provides three versions of news data: (1) the Dow Jones Edition, which collects news from Dow Jones Newswires, the Wall Street Journal (all editions), and Barron's; (2) the PR Edition, which collects news from the leading global media organizations, based on press releases and regulatory disclosures from a variety of newswires and press release distribution networks, including PRNewswire, Canadian News Wire, LSE Regulatory News Service, and others; and (3) the Web Edition, which collects news from major publishers and Web aggregators, including industry and business publications, regional and local newspapers, government and regulatory updates, and trustworthy financial websites. The Dow Jones Edition, PR Edition, and Web Edition are available from 2000, 2004, and 2007, respectively. We use the information from the Dow Jones Edition and the PR Edition, which is appropriate for our research on the effect of institutional ownership on the media coverage.

## **2.2 News Sentiment and Coverage: RavenPack**

Based on its measures of news flows and the informational content of news articles, RavenPack provides several news-sentiment scores. For the purpose of our research, we choose the composite sentiment score (CSS) as our news variable because this score indicates how the market responds to news articles. Specifically, to construct this sentiment score, RavenPack analyzes information content based on the combination of traditional language analysis and market response methodologies. The CSS variable is estimated based on stock price reactions, which are empirically modeled using intraday data from a portfolio of approximately one hundred large-cap stocks. The sentiment score has a value ranging between 0 and 100, with a value above (or below) 50 indicating the positive (or negative) sentiment of a given news event, whereas a value of 50 represents a neutral sentiment.<sup>6</sup>

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<sup>5</sup>RavenPack News Analytics has recently been used in finance research (e.g., Kolasinski, Reed, and Ringgenberg, 2013; Dai, Parwada, and Zhang, 2014; Lam Tung Dang and Fariborz Moshirian 2014, Shroff, Verdi, and Yu, 2014).

<sup>6</sup>Another sentiment score provided by RavenPack is the event sentiment score (ESS), which is based on analysis at the news-event level. This sentiment score indicates how firm-specific news events are categorized and rated as having a positive or negative effect on stock prices by experts with extensive experience and backgrounds in linguistics, finance, and economics. The ESS variable is determined based on training sets in which experts classify company-specific events and agree that these events generally convey a positive or negative sentiment to a certain degree.



RavenPack also provides the news relevance score (Relevance), which indicates how relevant a news article is to a given firm. This score allows user to remove potentially noisy news and focus only on firm-relevant news. It has a range of values between zero and one hundred, with a high value indicating the greater relevance of a news article to a firm, respectively. We only select those news stories with the news relevance score above 75, according to the suggestion in RavenPack Database Guide.

In addition, RavenPack classifies the type of news story into one of five categories: (1) FULL-ARTICLE: A news article composed of both a headline and one or more paragraphs of mostly textual material; (2) HOT-NEWS-FLASH: A news article composed of a headline and no body text marked as breaking news during the editorial process; (3) NEWS-FLASH: A news article composed of a headline and no body text; (4) PRESS-RELEASE: A corporate announcement originated by an entity and distributed via a news provider; (5) TABULAR-MATERIAL: A news article composed of both a headline and one or more segments of mostly tabular data. Because news articles in the categories of PRESS-RELEASE or TABULAR-MATERIAL are unlikely to be affected by institutional investors, we exclude news stories in these two categories to reduce the noise in our measures of news coverage.

We select three financial media firms or outlets: the Dow Jones & Company (DJC), Yahoo Finance, and CNBC. We select these three media outlets for two reasons. First, either the outlet itself or their parent firms are publicly traded firm, which enables us to identify the blockholders of these media outlets. DJC was a public firm before 2007 and acquired by another public firm, News Corp, at the end of 2007. For Yahoo Finance and CNBC, their parent firms, Yahoo and Comcast, are also public firms. Second, the news articles of these three media firms or outlets are financial-news exclusive, which attracts most of the attention from the retail and institutional investors. Especially for DJC, it owns Dow Jones Newswires (DJN), the Wall Street Journal (WSJ), Barron's, and MarketWatch, all of which are prestigious national brands of financial media outlet.

## 2.3 Measuring Firm-Media Common Ownership

To measure firm-media common ownership, for a given public firm (non-media firm), instead of aggregating all of its shareholders that are also shareholders of media firms, we construct the common ownership measures specific to each media firm or outlet mentioned in the section 2.2. The more granular media-level measure allows us to exploit the news coverage variation and firm-media common ownership variation within a firm-quarter observation. This within-variation enables us to fully control for a company's fundamental, offering a simple and clear identification, the details of which are described in section 4.

Whether the ownership in the financial media firms is able to affect the media coverage depends on two aspects: 1) owners' attention to the externality of media coverage (e.g., Lu et al. 2016; Kempf et al. 2017; Liu et al.) and 2) media firm managers' incentive to internalize the externality for the common owners (Gilje et al. 2019). From common owners' perspective, they should be well aware of this externality because media coverage has a significant impact on various aspects of financial markets (e.g., Barber and Odean 2008; Cook et al. 2006; Tetlock 2007; Bushee et al. 2010; Tetlock 2010). More relatedly, Solomon et al. (2014) document that media coverage affects fund flows by showing that extra fund inflows are primarily driven by the media coverage of a mutual fund's portfolio firms. Particularly, fund inflows are driven by a fund's media-covered portfolio firms with good past performance. Thus, the shareholders of a media outlet have a strong incentive to influence the media to selectively cover their other portfolio firms and tilt the coverage towards positive news.

From media managers' prospective, one of important determinants of whether they have incentives to internalize the externality of media coverage is the common owners' ownership stake in the media firm (Gilje et al. 2019). Prior studies provide substantial evidence that blockholders (e.g., shareholders with at least five percent ownership) have significant impacts on public firm operations (e.g., Edmans 2009; Bharath et al. 2013; see Edmans and Holderness 2017 for a review). Therefore, we restrict our focus on the blockholders (i.e., shareholders with at least five percent ownership) of media firms as the potential candidates of firm-media common owners. With a fo-

cus on blockholders, we try to reduce the noise in our common ownership measure as media firm managers may not care investors with a small stake.

The managers of a media firm are supposed to maximize the value of the firm that hires them. However, in the context of our firm-media common ownership, it is an empirical question that to what extent the managers are incentivized to internalize how their actions or news coverage could affect the value of other firms. Therefore, to ensure the robustness of the findings in this study, we construct four measures of firm-media common ownership for each publicly traded firm in the US in each quarter. We proceed to measure the firm-media common ownership by: 1) using an indicator that is equal to one if a firm has at least one investor in a given quarter that is also News Corp's blockholder, 2) counting the number of a firm's investors in a given quarter that are also News Corp's blockholders, 3) calculating the sum of ownership of News Corp for a firm's investors that are also News Corp's blockholders, and 4) using the maximum ownership of News Corp among a firms' investors in a given quarter that are also News Corp's blockholders. We repeat this process to get the same firm-media common ownership measures for Yahoo, which owned Yahoo Finance before 2017, and for Comcast, which owned CNBC after 2010. As shown in the Figure 3

In Table 2, we show that during a 20 year window from 2000 - 2019, on average, an US public firm has about 2 investors that are also blockholders of DJC in a year.<sup>7</sup> On average, a firm's DJC-firm common owners collectively own 8% of DJC at a quarter end. The average ownership for the DJC-firm common owner who owns the most shares of DJC at a quarter end among other common owners in a quarter is 5%.

### 3 Suggestive Evidence from DJC

In this section, we present our main findings by first showing how DJC-firm common ownership affects the DJC's news coverage of firms that are also owned by the common owners. Among the

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<sup>7</sup>Our observation is at quarter level, and the quarter-average is 0.56.

three financial media outlets (DJC, Yahoo Finance, and CNBC) in our sample, RavenPack has the most comprehensive coverage for DJC. In RavenPack, the news coverage from media outlets by DJC is comprehensive during a 20-year window from 2000 - 2019, whereas RavenPack's coverage of news articles from Yahoo Finance is comparable to DJC only during 2007 - 2017. Therefore, we first focus on DJC-firm common ownership to show a robust correlation with a long-period sample.

With a focus only on DJC, however, it is hard to draw a causal conclusion because the common owners may just select good companies with more good news. We then proceed to include news coverage from Yahoo Finance and CNBC. By including two more news media outlets, we are able to identify the causal effect of firm-media common ownership based on the within firm-quarter variation. We also conduct various cross-sectional tests to examine whether our findings are heterogeneous with respect to the portfolio weights of non-media firms in the common owners' portfolios, unexpected earning results, and whether the common owners are active or passive investors. Lastly, we present a series of robustness tests.

### 3.1 Baseline Regression

Given the comprehensive news coverage during 2000 - 2019 from the media outlets owned by DJC in RavenPack, in this subsection, we try to establish a robust relationship between the DJC-firm common ownership and the DJC's news coverage of public firms owned by the common owners. We use the following OLS specification:

$$\text{Pos\_Ratio}_{i,t} = \alpha_i + \theta_t + \beta \text{ComOwn}_{i,t} + \phi \mathbf{X}_{i,t} + \varepsilon_{i,t} \quad (1)$$

,where  $\text{Pos\_Coverage}_{i,t}$  is the ratio of number of positive articles to the number of total articles from DJC-owned media outlets for firm  $i$  in quarter  $t$ ,  $\alpha_i$  represents firm fixed effect,  $\theta_t$  stands for quarter fixed effects,  $\text{ComOwn}_{i,t}$  is one of our four common ownership measures, and firm-level control variables,  $\mathbf{X}_{i,t}$ , include firm size, leverage, market-to-book ratio, R&D, cash flow,

institutional ownership, and past 12-month return.

In Table 3, we present the suggestive results based on coefficients estimated from Eq. (1) with  $\text{Pos\_Coverage}_{i,t}$  as the dependent variable. The coefficients on all of our five DJC-firm common ownership measures are positive and statistically significant at 1% level. These findings show a robust positive association between DJC's blockholders and positive news coverage of the news outlets owned by DJC's blockholders. In terms of economic significance, when a non-media firm has one more investor that is the blockholder of DJC, the non-media firm's positive news articles relative to all of its news coverage increases by 1.3% on a quarterly basis and 5.2% on an annual basis, as shown by the specification (2) in Table 3. This result indicates that press articles issued by the media outlets owned by DJC regarding the holding companies of DJC's blockholders exhibit a positive tilt as compared to DJC's news articles about the other US public firms.

### 3.2 Robustness Checks

In Table 11, we present the results of the first robustness test based on coefficients estimated from Eq. (1) with  $\text{CSS}_{i,t}$  as the dependent variable. To measure positive media coverage, so far we have counted the number of positive news articles, scaled by the total number of news articles for a given firm in a given quarter. To identify positive articles, we rely on sentiment score (CSS) from RavenPack. The CSS has a value ranging between 0 and 100, and positive articles have a value greater than 50. In this subsection, we use the CSS directly to see whether our main results are robust to different measures of media tone. Moreover, since the CSS is estimated based on stock market reactions, using CSS variable as the dependent variable also allows us to better capture the market response to the non-media firms. Incorporating stock price change is particularly important in our setting because this is the main incentive for the investors to influence the media firms they own. In Table 11, we present our results based on DJC and Eq. (1). For all the specifications, the coefficient on all of our measures of DJC-firm common ownership are positive and statistically significant at 1% level. These results not only demonstrate the robustness of our extensive-margin findings, but also are consistent with incentive of blockholders of DJC to influence the coverage of

the firms they own.

Our second robustness test looks into full-news article and flash-news article separately. A full-news article consists of both a headline and one or more paragraphs of mostly textual material. and a flash-news article only has a headline without body text. Based on DJC and Eq. (1), we estimate the effect of firm-media common ownership for two types of news articles separately. In Panel A of Table 13, we examine the full-news article, the dependent variable is the number of positive full-news article, scaled by the total number of full-news article for a given firm in a given quarter. For all the specifications, the coefficient on all of our measures of DJC-firm common ownership are positive and statistically significant at 1% level. In Panel B of Table 13, we examine the flash-news article, the dependent variable is the number of positive flash-news article, scaled by the total number of flash-news article for a given firm in a given quarter. For all the specifications, the coefficient on all of our measures of DJC-firm common ownership are positive and statistically significant at 1% level. These results indicate that our main findings are not driven by a particular type of news article.

### **3.3 Cross-sectional Tests**

#### **3.3.1 News Articles Issued after Earning Announcement**

As an additional test to control for time-variant firm fundamental, we examine the news articles issued right after the earning announcement. In particular, we exploit the sensitivity of issuing earnings-related news articles to market response to firms' earnings news and, more importantly, how this sensitivity varies with firm-media common ownership. Because the market response, on average, is a fairly good indicator of a firm's performance in the past quarter, looking into the heterogenous effect of firm-media common ownership with respect to the market response to the earning news enables to disentangle the effect just from the news per se from the effect of firm-

media common ownership. We use the following OLS specification:

$$\text{Issue Positive News}_{i,t} = \alpha_i + \theta_t + \beta \text{ComOwn}_{i,t} \times \text{CAR3}_{i,t} + \eta \text{CAR3}_{i,t} + \lambda \text{ComOwn}_{i,t} + \phi \mathbf{X}_{i,t} + \varepsilon_{i,t} \quad (2)$$

, where the dependent variable is an indicator that is equal to one if one of DJC-owned media outlets issue an positive earning-related article within five days after the earning announcement in quarter  $t$  for non-media firm  $i$ ,  $\text{CAR3}_{i,t}$  is three-day abnormal return with one day before and one day after earning announcement date for firm  $i$  in quarter  $t$ ,  $\text{ComOwn}_{i,t}$  is one of our four common ownership measures,  $\alpha_i$  represents firm fixed effect,  $\theta_t$  stands for quarter fixed effects, and firm-level control variables,  $\mathbf{X}_{i,t}$ , include firm size, leverage, market-to-book ratio, R&D, cash flow, institutional ownership, and past 12-month return.

In Table 4, we report the estimated results based on Eq. (3). First, for all specifications, the coefficients on all of our measures of common ownership are positive and statistically significant. These results suggest that the probability of DJC media outlets issuing a positive article is positively associated with the magnitude of a firm's positive earnings news. Based on this finding, we examine whether this association is more pronounced when the firm is held by a DJC's blockholder. For three of the four specifications In Table 4, the coefficient on the interaction term between one of the firm-media common ownership measure and the market response (i.e. three-day abnormal return) is positive and statistically significant at 1% level. These findings show that the sensitivity of issuing positive articles to a firm's positive earnings news is higher under firm-DJC common ownership. In other works, within the same group of firms that have same performance in the past quarter, firms with investors that are also the blockholders of DJC have more earning-related positive coverage.

### 3.3.2 Portfolio Weight

To reinforce our inference, we conduct a cross-sectional test that exploits fund managers' incentives to influence media coverage. Because typical fund managers has hundreds of stocks in the

portfolio, it is unlikely that the fund managers will influence the media coverage for all their portfolio firms due to their limited resources and attentions. Instead, mutual fund managers are more likely to influence the media coverage for the firms that are more important in their portfolio. Following this argument, we predict that the effect on news coverage is stronger when a stock is more important in media blockholders' portfolio.

To test our prediction, we calculate the average of portfolio weights of a firm in the media blockholders' portfolio. We split the sample of firms into high (low) group if their weights is (not) in the first quartile within each quarter. We generate an indicator variable (`High_Weight`) that takes a value of 1 if a firm is in the high group. We interact each of the five measures for firm-media common ownership and the indicator variable `High_Weight` to test our prediction. We include the indicator variable as well as each of the five interaction terms in Eq. (1). The results are presented Table 5. The coefficients on the five measures for firm-media common ownership remains positive and statistically significant at the 1% level, providing consistent evidence with our main findings. More importantly, the interaction terms between the measures for firm-media common ownership and `High_Weight` are all positive. Except for the interaction term with `ComOwn_Max`, four out of the five interaction terms are statistically significant at the 1% level. Overall, the results provide consistent evidence with our prediction.

### 3.3.3 Active vs. Passive Investors

In this section, we conduct a cross-sectional test to examine whether the impact on financial media coverage is heterogeneous between active and passive investors. We expect the impact on media coverage among active investors is stronger.

## 4 Causal Evidence

Although the positive effect shown in section 3.1 is very robust based on a long-period sample and many national prestigious brands of financial media outlets (e.g., the WSJ and MarketWatch)



owned by DJC, the effect might just be a proxy for the institutional investors' stock-picking skill. Put differently, the blockholders of DJC may tend to invest in firms with good fundamentals. And it is not surprisingly to see that good firms are covered with more positive articles by medias outlets owned by DJC, which has nothing to do with the media bias. In this subsection, we address this endogeneity issue due to unobservable firm fundamental by two approaches: 1) exploiting the within firm-quarter variation, and 2) exploiting the variation in firm-media common ownership based on the institutional investor merger.

#### 4.1 Within Firm-Quarter Variation

In this subsection, we control for time-variant firm fundamentals by exploiting the within firm-quarter variation in news coverage and firm-media common ownership. In particular, we compare the coverage of the same firm in each quarter from DJC, Yahoo Finance, and CNBC. For example, for a given public non-media firm in a given quarter, if some of its shareholders are the blockholders of DJC but none of them are the blockholder of Yahoo, we are able to compare whether the media outlets owned by DJC issue more positive articles for this firm than Yahoo Finance. This within firm-quarter variation enables us to fully control a firm's fundamental. We use the following firm-media-quarter OLS specification:

$$\text{Pos\_Ratio}_{i,j,t} = \lambda_{i,t} + \gamma_j + \beta \text{ComOwn}_{i,j,t} + \varepsilon_{i,j,t} \quad (3)$$

, where  $\text{Pos\_Ratio}_{i,j,t}$  is the ratio of number of positive articles to the number of total articles from media outlet  $j$  for firm  $i$  in quarter  $t$ ,  $\text{ComOwn}_{i,j,t}$  is one of our four common ownership measures,  $\lambda_{i,t}$  is the firm-quarter fixed effect, which is the key to our identification, and  $\gamma_j$  is the media fixed effect.

We present the extensive-margin estimates of Eq. (2) in Table 7. The sample period for all the specifications in this table is from 2010 - 2016. As mentioned earlier, the shorter sample period is due to the incomplete coverage in RavenPack for Yahoo finance after 2009 and for CNBC before

2017. The coefficients on all of our four firm-media common ownership measures are positive and statistically significant at 1% level. In each specification of Table 7, the firm-quarter fixed effect is able to fully control for the time-variant firm fundamental. In fact, any time-variant unobservables at firm-quarter level can be controlled, which provides compelling causal interpretation for our main findings.

In Table 12, we present the estimates of Eq. (2) with CSS as the dependent variable. The sample period for all the specifications in this table is from 2010 - 2016. As mentioned earlier, the shorter sample period is due to the incomplete coverage in RavenPack for Yahoo finance after 2009 and for CNBC before 2017. The coefficients on our firm-media common ownership measures are positive and statistically significant at 1% level in specification (1) and (4), positive and statistically significant at 10% level in specification (2), while insignificant in column (3). Overall the findings here are consistent with extensive-margin findings in Table 7.

## **4.2 Institutional Investor Merger**

The previous test using within firm-quarter variation can address the endogeneity concern due to any unobservable factor at firm-quarter level (e.g., CEO turnover and time-variant firm fundamentals). This test can also address a potential matching concern between media firms and investors. For instance, a media firm manager and a fund manager may share a similar preference over certain types of companies or even have a personal connection. As a result, the fund manager may invest in both the media firm and the companies that they both like. In the previous test, we use media firm fixed effects to address this concern.

Although we do not have a plausible story, we cannot rule out the possibility that there exists a more complex unobservable factor (e.g., at firm-quarter-media-investor level) that may bias our OLS results. To address this residual endogeneity concern, we exploit the variation in firm-media common ownership resulted from the merger of two institutional investors.

### 4.2.1 Merger Event Selection

The merger event that are useful for our empirical test must meet all of the following criteria:

1. Before the merger announcement, there must be one and only one merging institution that is the blockholder of a certain financial media outlet for at least four quarters.
2. Before the merger announcement, the other merging institution that was not the blockholder in criterion (1) did not hold any share of the financial media outlet in criterion (1) for at least four quarters.
3. After the merger announcement, the merging institution that was the blockholder in criterion (1) must continue to be the blockholder for at least four quarters.
4. Given that the effect only exists in active investors as shown in Table 6, the blockerholder in criterion must be an active investor.

Based on the above selection criteria, we search in Thompson Reuters SDC Database and find only one merger event that meets all of the criteria above, which is the acquisition of Preferred Group Mutual Fund made by T. Rowe Price in 2006Q1.<sup>8</sup>

### 4.2.2 T. Rowe Price Acquired Preferred Group Mutual Fund in 2006Q1

On February 21, 2006, T. Rowe Price announced its plan to acquire Preferred Group Mutual Fund, whose parent company is Caterpillar, the world's largest construction-equipment maker. Back in October 2005, Caterpillar announced that it had decided to exit from the investment-management business. The whole acquisition process was complete in June 2006.

The divest of Preferred Group from Caterpillar and subsequent acquisition by T. Rowe Price provide us a source of plausibly exogenous variation in firm-media common ownership structure. As shown in Figure 1, T. Rowe Price was the blockholder of DJC from 2002Q2 to 2007Q3, so the sample period in this test is 2002Q2 - 2007Q3. During 1996 - 2005, Preferred Group did not hold

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<sup>8</sup>On its website ( <https://www.troweprice.com/corporate/us/en/what-we-do.html>), T. Rowe Price mentioned "We believe in strategic investing", which indicates that it is an active investor.

any share of DJC according to its form 13-F. The treatment group consists of public firms that were in the portfolio of Preferred Group Mutual Fund at the end of 2005Q4 but not in that of T. Rowe Price at the end of 2005Q4. The control group includes the common holdings of the both investors at the end of 2005Q4.

## **5 Fund Flow Analyses**

## **6 Conclusion**

An extensive literature in finance and accounting has documented that news media have significant and broad impacts on almost every aspect of financial markets. Given the critical role that media outlets play in financial markets, it is surprising that few studies have examined whether investors directly influence the media outlets in terms of the choice of which stories to cover. In this study, we investigate whether the common shareholders of a publicly traded media firm and non-media firms affect that media outlet's coverage of the non-media firms. We find causal evidence that a media firm's blockholders lead to more positive news coverage of the non-media firms owned by those blockholders.

One primary proposition of news media regulation in the United States is that concentrated media ownership is a significant obstacle to comprehensive viewpoints because greater control over a media outlet enable its owners to intervene in the news coverage in their interest more easily. To mitigate this concern, the Federal Communications Commission (FCC) has sought to spread the ownership of news media. Compared to privately owned companies, public firms have a highly dispersed ownership structure in the US. Consequently, media outlets owned by publicly traded firms are supposed to have more comprehensive viewpoints and thus have little selection bias in their coverage. However, our paper shows that even these media outlets may also have lopsided coverage for other public firms and casts doubt on the effectiveness of eliminating media slant through diffused ownership structure in financial markets.

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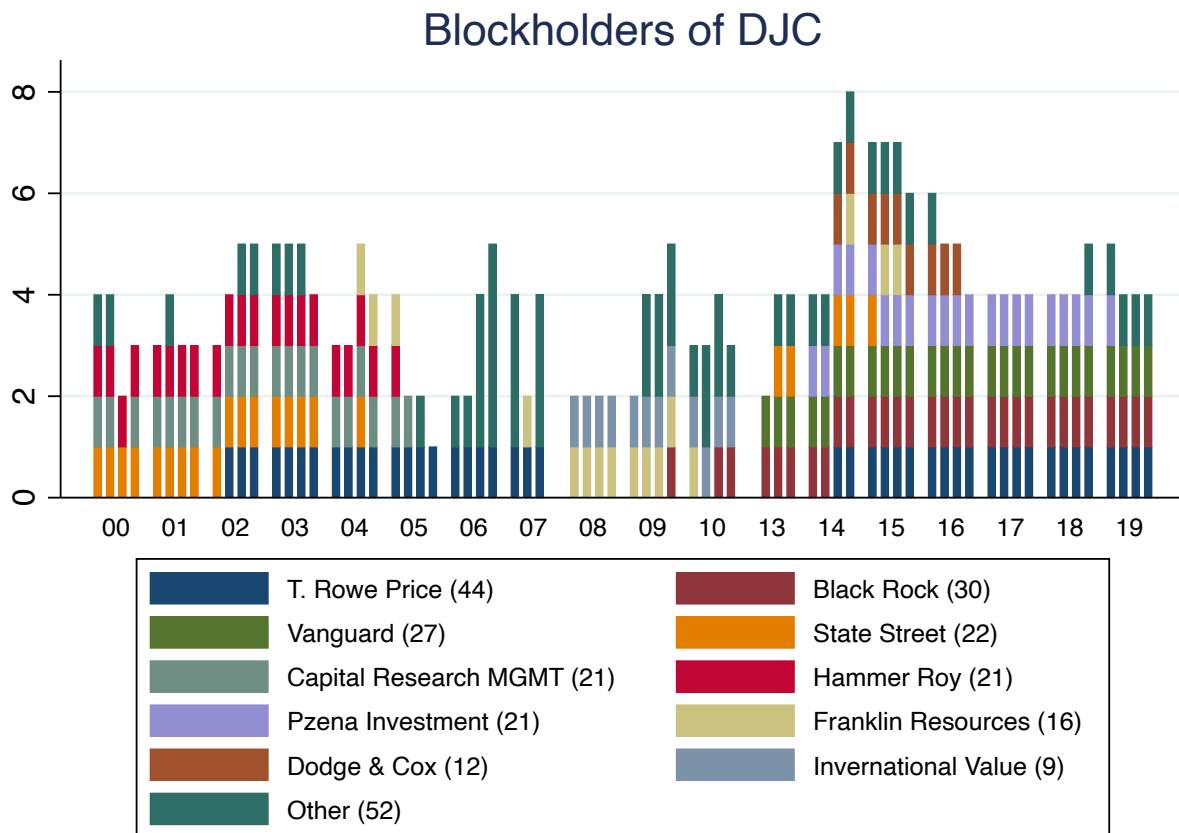
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**Figure 1 Blockholders of DJC**

This graph shows the number of blockholders of DJC in each quarter in 2000 - 2019, during which DJC had 25 unique institutional investors as the blockholders. The number next to the name of investors in the legend indicates the number of quarters for which each investor was the blockholder of DJC.

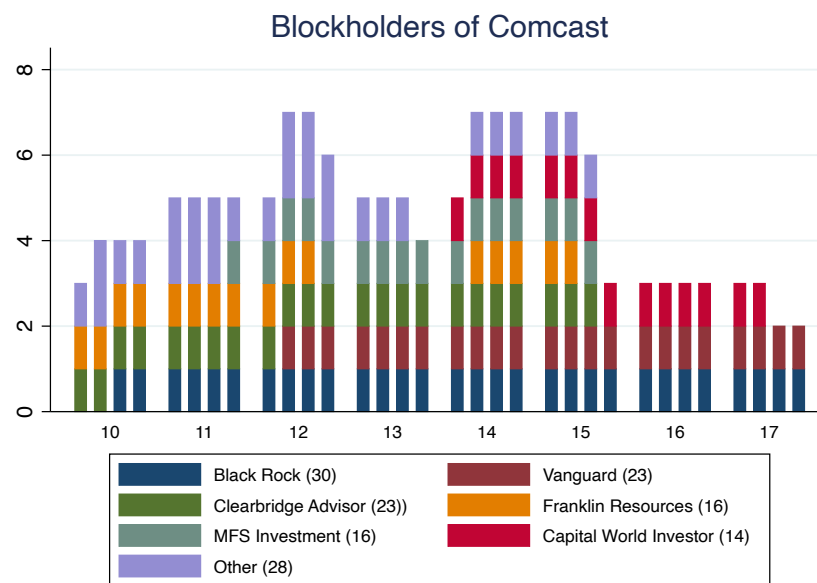




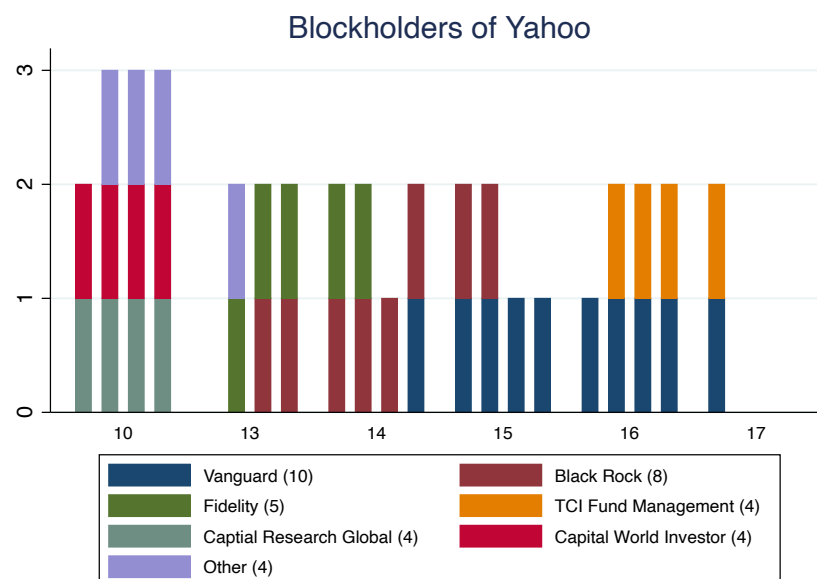
**Figure 2 Blockholders of Comcast (CNBC) and Yahoo (Yahoo Finance)**

This graph shows the number of blockholders of Comcast, the parent company of CNBC, and Yahoo, the parent company of Yahoo Finance, in each quarter in 2010 - 2017, during which Yahoo and Comcast had 8 and 11, respectively, unique institutional investors as the blockholders. The number next to the name of investors in the legend indicates the number of quarters for which each investor was the blockholder.

**Panel A**



**Panel B**



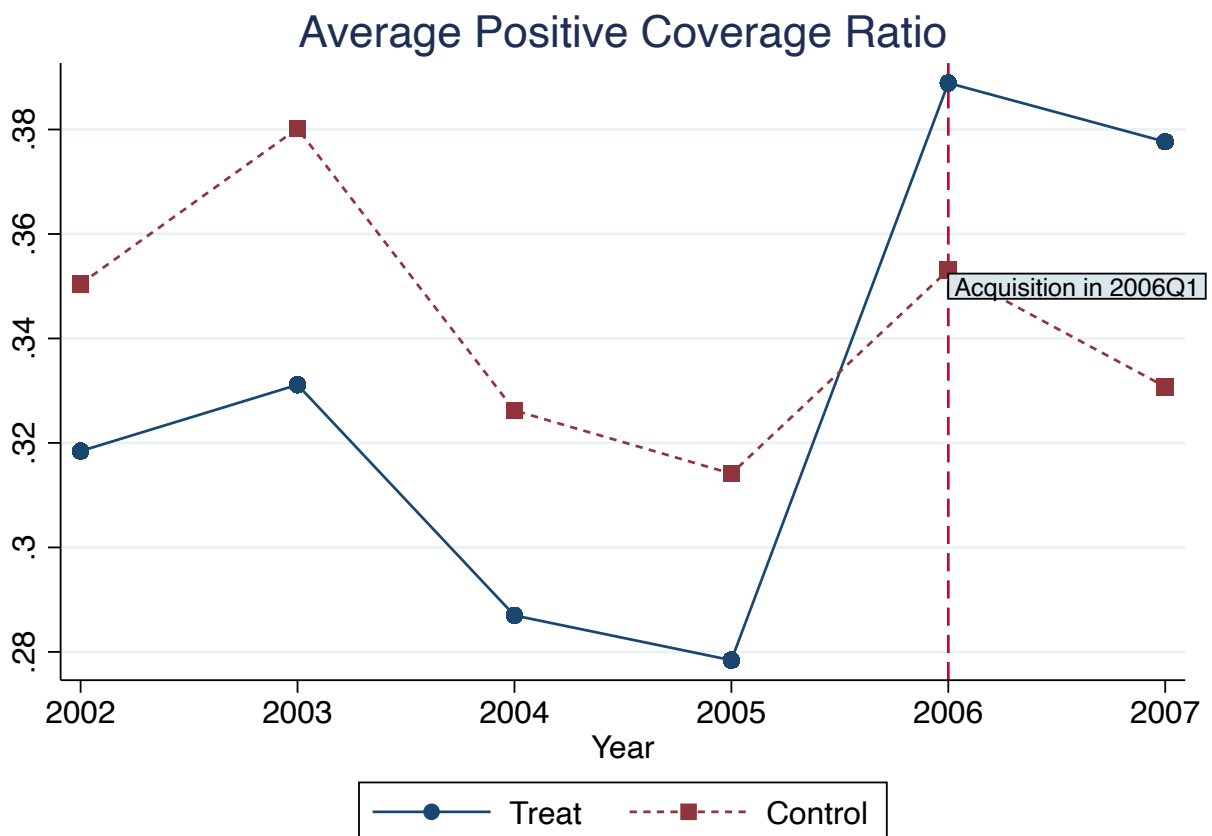
### Figure 3 Financial Media Coverage

This graph shows that in RavenPack database, the number of public firms listed in the US that were covered by three major financial news outlets in each year from 2000 to 2019. Dow Jones include multiple media outlets, such as the Wall Street Journal, Market Watch, and Barrons.



**Figure 4 T. Rowe Price Acquired Preferred Group in 2006Q1**

In this graph, we plot the average DJC's positive coverage ratio, define in Table 1, for treatment and control group separately in 2003 - 2007. The treatment group consists of public firms that were in the portfolio of Preferred Group Mutual Fund at the end of 2005Q4 but not in that of T. Rowe Price at the end of 2005Q4. The control group includes the common holdings of the both investors at the end of 2005Q4. T. Rowe Price was the blockholder of DJC from 2002Q2 to 2007Q3, so the average coverage ratio in 2007 is calculated based on the first three quarters of 2007. Preferred Group stopped to file form 13-F in 2016Q1, in which it was acquired by T. Rowe Price. During 1996 - 2005, Preferred Group did not hold any share of DJC according to its form 13-F.



**Table 1: Variable Definition**

Variable Name	Definition
Positive Coverage	Sentiment score from RavenPack is greater than 50.
Pos_Ratio	The ratio of positive coverage, measured as the number of positive articles scaled by the sum of positive, neutral, and negative articles.
Neg_Ratio	The ratio of negative coverage, measured as the number of negative articles scaled by the sum of positive, neutral, and negative articles.
Coverage	Total number of articles, measured as the sum of the number of positive, neutral, and negative articles.
CommOwn_Dummy <sub><i>i,j</i></sub>	Indicator variable that takes a value of one if non-media firm <i>i</i> is in the portfolio of at least one of media firm <i>j</i> 's blockholders, and 0 otherwise.
ComOwn_Count <sub><i>i,j</i></sub>	The number of media firm <i>j</i> 's blockholders that hold non-media firm <i>i</i> .
ComOwn_Sum <sub><i>i,j</i></sub>	The sum of non-media firm <i>i</i> 's shares owned by media firm <i>j</i> 's blockholders, scaled by the total shares outstanding of non-media firm <i>i</i> .
ComOwn_Max <sub><i>i,j</i></sub>	The maximum shares of non-media firm <i>i</i> that are owned by media firm <i>j</i> 's blockholders, scaled by the total shares outstanding of non-media firm <i>i</i> .
Size	Firm size, measured as the log of book value of total assets.
Market-to-Book Ratio	Market to book ratio, measured as the total market value scaled by the book value of total assets.
R&D	Research and development intensity, measured as the total R&D expenditure scaled by the book value of total assets.
Leverage	Leverage ratio, measured as the sum of long-term and short-term debt, scaled by the book value of total assets.
Cash Flow	Operating cash flow, measured as the income before extraordinary items, scaled by the book value of total assets.
Institutional Ownership	Institutional ownership, measured as the shares held by institutional investors, scaled by total shares outstanding.
Past Return	Abnormal cumulative returns over the past 12 months.

**Table 2: Summary Statistics**

This table presents the summary statistics for the variables defined in Table 1. The observations in this table are at non-media firm-quarter level during the sample period of 2000 to 2019.

	N	Mean	Median	SD	1st PCTL	99th PCTL
ComOwn_Dummy	267,939	0.58	1.00	0.49	0.00	1.00
ComOwn_Count	267,939	0.56	0.69	0.52	0.00	1.39
ComOwn_Sum	267,939	0.08	0.06	0.09	0.00	0.30
ComOwn_Max	267,939	0.05	0.06	0.05	0.00	0.15
Pos_Ratio	267,939	0.28	0.25	0.19	0.00	0.88
Neg_Ratio	267,939	0.21	0.19	0.17	0.00	0.81
Coverage	267,939	2.96	2.94	0.94	1.10	5.70
Size	267,939	6.46	6.46	2.11	1.95	11.81
Market-to-Book Ratio	267,939	1.58	1.08	1.59	0.12	9.46
R&D	267,939	0.01	0.00	0.03	0.00	0.18
Leverage	267,939	0.21	0.16	0.21	0.00	0.97
Cash Flow	267,939	-0.01	0.00	0.07	-0.38	0.09
Institutional Ownership	267,939	0.55	0.60	0.32	0.00	1.14
Past Return	267,939	0.11	0.05	0.56	-0.84	2.75

**Table 3: Suggestive Evidence from DJC (2000 - 2019)**

This table presents the extensive-margin results of our baseline OLS specification, showing the effect of DJC's blockholders on DJC's coverage for other firms in the portfolios of those blockholders. The observations in this table are at non-media firm-quarter level during the sample period of 2000 to 2019. The dependent variable, Pos\_Ratio, measures the weight of positive coverage relative to a firm's overall coverage from DJC in a given quarter. An article is defined as positive coverage if its sentiment score from RavenPack is greater than 50. Other regressors in this table are defined in Table 1. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Dependent Variable: Pos_Ratio				
	(1)	(2)	(3)	(4)	(5)
ComOwn_Dummy	0.008*** (0.002)				
ComOwn_Count		0.013*** (0.002)			
ComOwn_Sum			0.103*** (0.013)		
ComOwn_Max				0.136*** (0.021)	
ComOwn_PC					0.005*** (0.001)
Size	-0.006*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)	-0.007*** (0.002)
Market-to-Book Ratio	-0.001** (0.001)	-0.001** (0.001)	-0.002** (0.001)	-0.001** (0.001)	-0.001** (0.001)
R&D	0.111*** (0.037)	0.111*** (0.037)	0.110*** (0.037)	0.111*** (0.037)	0.111*** (0.037)
Leverage	-0.012** (0.005)	-0.012** (0.005)	-0.011** (0.005)	-0.011** (0.005)	-0.011** (0.005)
Cash Flow	0.145*** (0.010)	0.145*** (0.010)	0.145*** (0.010)	0.145*** (0.010)	0.145*** (0.010)
Institutional Ownership	-0.003 (0.004)	-0.005 (0.004)	-0.005 (0.004)	-0.004 (0.004)	-0.005 (0.004)
Past Return	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)	0.004*** (0.001)
Quarter FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
N	267,939	267,939	267,939	267,939	267,939
R <sup>2</sup>	0.296	0.296	0.297	0.297	0.297

**Table 4: Sensitivity**

This table presents test results exploiting the sensitivity of issuing earnings-related news articles to firms' earnings news and how this sensitivity varies with firm-media common ownership. The observations in this table are at firm-article-quarter level from 2000 to 2019. The news articles are from DJC. The dependent variable is an indicator that is equal to one if a firm has a positive news article within five days after an earning announcement. Other regressors in this table are defined in Table 1. Besides the control variables in Table 3, the controls in this table also include ComOwn\_Dummy, ComOwn\_Sum, ComOwn\_Max, and ComOwn\_Count. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Issuing Positive News Article			
	(1)	(2)	(3)	(4)
CAR3	0.259*** (0.012)	0.240*** (0.011)	0.244*** (0.011)	0.248*** (0.011)
ComOwn_Dummy×CAR3	0.022 (0.015)			
ComOwn_Sum×CAR3		0.384*** (0.094)		
ComOwn_Max×CAR3			0.530*** (0.162)	
ComOwn_Count×CAR3				0.023*** (0.008)
Controls	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	348,226	348,226	348,226	348,226
R <sup>2</sup>	0.188	0.188	0.188	0.188

**Table 5: Cross-sectional Test: Portfolio Weight**

This table shows the results of the tests examining the heterogenous effect with respect to the weight of non-media firms in the portfolios of DJC's blockholders. The observations in this table are at non-media firm-quarter level during the sample period of 2000 to 2019. The independent variable, *High\_Weight*, is a dummy variable that is equal to one if a firms's average portfolio weight in the portfolios of DJC's blockholders is in the first quartile for each quarter. The dependent variable, *Pos\_Ratio*, measures the weight of positive coverage relative to a firm's overall coverage from DJC in a given quarter. An article is defined as positive coverage if its sentiment score from RavenPack is greater than 50. Other regressors in this table are defined in Table 1. The control variables are the same as those in Table 3. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Dependent Variable: Positive Coverage			
	(1)	(2)	(3)	(4)
CommOwn_Dummy	0.008*** (0.002)			
ComOwn_Dummy $\times$ High Weight	0.004** (0.002)			
ComOwn_Count		0.010*** (0.002)		
ComOwn_Count $\times$ High Weight		0.021*** (0.004)		
ComOwn_Sum			0.078*** (0.015)	
ComOwn_Sum $\times$ High Weight			0.087*** (0.016)	
ComOwn_Max				0.116*** (0.022)
ComOwn_Max $\times$ High Weight				0.138*** (0.039)
High Weight		-0.019*** (0.004)	-0.012*** (0.002)	-0.009** (0.004)
Controls	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	267,939	267,939	267,939	267,939
R <sup>2</sup>	0.296	0.297	0.297	0.297



**Table 6: Cross-sectional Test: Passive vs. Active Funds**

This table shows the results of the tests examining the heterogenous effect with respect to whether DJC's blockholders are passive or active equity funds. The observations in this table are at non-media firm-quarter level during the sample period of 2000 to 2019. The dependent variable, Positive Coverage, measures the weight of positive coverage relative to a firm's overall coverage from DJC in a given quarter. An article is defined as positive coverage if its sentiment score from Raven-Pack is greater than 50. The independent variables are constructed in the same way as described in Table 1, except that we consider the ownership of a media firm held by active funds and passive funds, separately, from the media firm's blockholders. By decomposing blockholders' media ownership into active and passive components, we can examine whether the positive impact of media ownership on financial media coverage is driven by active or passive investors. The classification of active and passive funds are based on the fund flag in CRSP (e.g., `index_fund_flag` and `et_flag`) and fund names. The control variables are the same as those in Table 3. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Dependent Variable: Positive Coverage			
	(1)	(2)	(3)	(4)
ComOwn_active	0.013*** (0.003)			
ComOwn_Count_active		0.016*** (0.004)		
ComOwn_Sum_active			0.183*** (0.022)	
ComOwn_Max_active				0.235*** (0.027)
ComOwn_passive	0.002 (0.003)			
ComOwn_Count_passive		0.005 (0.004)		
ComOwn_Sum_passive			-0.294*** (0.084)	
ComOwn_Max_passive				-0.270*** (0.083)
Controls	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes
N	267,941	267,941	267,941	267,941
R <sup>2</sup>	0.297	0.297	0.297	0.297

**Table 7: Within Firm-Quarter Variation (DJC, Yahoo Finance, and CNBC, 2010 - 2016)**

This table shows the causal effect of firm-media common ownership on the media outlets' coverage by exploiting the within firm-quarter variation to fully control for non-media firm fundamentals. The observations in this table are at firm-media-quarter level from 2010 to 2016. Specifically, each observation aggregates the quarterly news coverage of a non-media firm from a given media firm. The dependent variable, Pos\_Ratio, measures the weight of positive coverage relative to a non-media firm's overall coverage in a given quarter from a given media firm. An article is defined as positive coverage if its sentiment score from RavenPack is greater than 50. Other regressors in this table are defined in Table 1. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Pos_Ratio			
	(1)	(2)	(3)	(4)
CommOwn_Dummy	0.024*** (0.003)			
ComOwn_Count		0.017*** (0.003)		
ComOwn_Sum			0.113*** (0.020)	
ComOwn_Max				0.442*** (0.038)
Media Firm FE	Yes	Yes	Yes	Yes
Quarter $\times$ Firm FE	Yes	Yes	Yes	Yes
N	147,326	147,326	147,326	147,326
R <sup>2</sup>	0.591	0.591	0.591	0.591

**Table 8: Institutional Investor Merger: Difference in Differences**

This table shows the results of difference-in-differences estimation based on the event that T. Rowe Price acquired Preferred Group Mutual Fund in 2006Q1. Preferred Group stopped to file form 13-F in 2016Q1. The treatment group consists of public firms that were in the portfolio of Preferred Group Mutual Fund at the end of 2005Q4 but not in that of T. Rowe Price at the end of 2005Q4. The control group includes the common holdings of the both investors at the end of 2005Q4. T. Rowe Price was the blockholder of DJC from 2002Q2 to 2007Q3, so the sample period in this test is 2002Q2 - 2007Q3. During 1996 - 2005, Preferred Group did not hold any share of DJC according to its form 13-F. Post is equal to one if a treated firm-quarter observation is in or after 2006Q1.  $T$  is defined as the event year, which is 2006. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Positive Coverage Ratio		
	(1)	(2)	(3)
Treat $\times$ Post	0.079*** (0.017)	0.076*** (0.017)	
Treat $\times$ T - 2			-0.003 (0.022)
Treat $\times$ T - 1			-0.007 (0.021)
Treat $\times$ T			0.060*** (0.022)
Treat $\times$ T + 1			0.093*** (0.025)
Size		-0.031*** (0.008)	-0.031*** (0.008)
Market-to-Book Ratio		-0.001 (0.004)	-0.001 (0.004)
R&D		-0.188 (0.288)	-0.181 (0.289)
Leverage		-0.028 (0.025)	-0.028 (0.025)
Cash Flow		0.476*** (0.134)	0.478*** (0.134)
Institutional Ownership		0.040 (0.029)	0.039 (0.030)
Past Return		0.011* (0.006)	0.012** (0.005)
Quarter FE	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes
N	6,394	6,394	6,394
$R^2$	0.406	0.414	0.414

**Table 9: Media Ownership Attracts Fund Flows**

This table presents the results examining the relationship between the flows of an equity fund and its ownership of financial media outlets. The observations in this table are at fund-quarter level. The sample period for columns (1) and (2) is from 2000 to 2019. The sample period for column (3) is from 2010 to 2019 because we calculate the ownership of CNBC after its parent company NBC was divested from GE to Comcast. We calculate flows for fund  $j$  in quarter  $t$  as the percentage growth of new assets, assuming that all flows take place at the end of the quarter,  $Flow_{j,t} = \frac{TNA_{j,t}}{TNA_{j,t-1}} - (1 + R_{j,t})$ , where  $TNA_{j,t}$  is the total net assets under management of fund  $j$  at the end of quarter  $t$ , and  $R_{j,t}$  is the total return of fund  $j$  in quarter  $t$ . The fund  $j$ 's DJC ownership at the end of quarter  $t$  is the shares held by fund  $j$  divided by the total shares outstanding of DJC. Return is the fund return in quarter  $t$ . Size is the log of total net assets at the end of quarter  $t$ . Number of stocks is the number of stock holdings in a fund's portfolio. Exp Ratio is the expense ratio of a fund. The universe of equity funds consist of all active mutual funds, passive mutual funds, and exchange-traded funds. For all specifications, robust standard errors are clustered at benchmark and quarter level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Quarterly Fund Flows <sub><i>t</i></sub>		
	(1)	(2)	(3)
DJC Ownership <sub><i>t-1</i></sub>	0.632*** (0.121)		
Yahoo Ownership <sub><i>t-1</i></sub>		1.242*** (0.234)	
CNBC Ownership <sub><i>t-1</i></sub>			1.076*** (0.300)
Return <sub><i>t-1</i></sub>	0.626*** (0.090)	0.626*** (0.090)	0.696*** (0.154)
Size <sub><i>t-1</i></sub>	-0.014*** (0.001)	-0.014*** (0.001)	-0.014*** (0.001)
Number of Stocks <sub><i>t-1</i></sub>	0.003** (0.001)	0.003** (0.001)	0.001 (0.001)
Exp Ratio <sub><i>t-1</i></sub>	-3.774*** (0.348)	-3.777*** (0.348)	-5.526*** (0.521)
Benchmark × Quarter FE	Yes	Yes	Yes
N	122,173	122,173	71,771
R <sup>2</sup>	0.072	0.072	0.066

**Table 10: Fund Flows Predict Media Ownership**

This table presents the results examining the relationship between the past flows of an equity fund and its ownership of financial media outlets. The sample period for columns (1) and (2) is from 2000 to 2019. The sample period for columns (3) and (4) is from 2010 to 2019 because we calculate the ownership of CNBC after its parent company NBC was divested from GE to Comcast. We calculate flows for fund  $j$  in quarter  $t$  as the percentage growth of new assets, assuming that all flows take place at the end of the quarter,  $Flow_{j,t} = \frac{TNA_{j,t}}{TNA_{j,t-1}} - (1 + R_{j,t})$ , where  $TNA_{j,t}$  is the total net assets under management of fund  $j$  at the end of quarter  $t$ , and  $R_{j,t}$  is the total return of fund  $j$  in quarter  $t$ . The ownership of fund  $j$  on DJC at the end of quarter  $t$  is the shares held by fund  $j$  divided by the total shares outstanding of DJC. Return is the fund return in quarter  $t$ . Size is the log of total net assets at the end of quarter  $t$ . Number of stocks is the number of stock holdings in a fund's portfolio. Exp Ratio is the expense ratio of a fund. The observations in this table are at fund-quarter level during the sample period from 2000 to 2019. The universe of equity funds consist of all active mutual funds, passive mutual funds, and exchange-traded funds. For all specifications, robust standard errors are clustered at benchmark and quarter level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Media Ownership <sub><math>t</math></sub>			
	(1)	(2)	(3)	(4)
Flow <sub><math>t-1</math></sub>	-0.0002** (0.0001)			
Flow <sub><math>t-2</math></sub>		-0.0002** (0.0001)		
Flow <sub><math>t-3</math></sub>			-0.0002** (0.0001)	
Flow <sub><math>t-4</math></sub>				-0.0003** (0.0001)
Return <sub><math>t-1</math></sub>	-0.0010* (0.0006)	-0.0011* (0.0006)	-0.0011* (0.0006)	-0.0011 (0.0006)
Size <sub><math>t-1</math></sub>	0.0003*** (0.0001)	0.0003*** (0.0001)	0.0003*** (0.0001)	0.0003*** (0.0001)
Number of Stocks <sub><math>t-1</math></sub>	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)	0.0000 (0.0001)
Exp Ratio <sub><math>t-1</math></sub>	-0.0191*** (0.0056)	-0.0182*** (0.0054)	-0.0173** (0.0053)	-0.0167** (0.0053)
Benchmark $\times$ Quarter FE	Yes	Yes	Yes	Yes
N	70,741	69,780	68,862	67,988
R <sup>2</sup>	0.061	0.062	0.062	0.063

**Table 11: Sentiment Score: DJC (2000 - 2019)**

This table presents the results investigating the effect of firm-media common ownership by directly looking at the sentiment score (CSS) that is used to define positive news coverage in the previous regression analyses. The CSS variable is estimated based on overall article tone and stock price reactions, modeled using intraday data. It has a value ranging between 0 and 100, with a value above (or below) 50 indicating the positive (or negative) sentiment, whereas a value of 50 represents a neutral sentiment. Other regressors in this table are defined in Table 1. The control variables are the same as those in Table 3. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Dependent Variable: Sentiment Score (CSS)				
	(1)	(2)	(3)	(4)	(5)
ComOwn_Dummy	0.225*** (0.039)				
ComOwn_Count		0.314*** (0.042)			
ComOwn_Sum			1.565*** (0.223)		
ComOwn_Max				1.669*** (0.369)	
ComOwn_PC					0.078*** (0.012)
Controls	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
N	267,939	267,939	267,939	267,939	267,939
R <sup>2</sup>	0.284	0.284	0.284	0.284	0.284

**Table 12: Sentiment Score: DJC, Yahoo Finance, and CNBC (2010 - 2016)**

This table shows the causal effect of firm-media common ownership on the media outlets' coverage by exploiting the within firm-quarter variation to fully control for non-media firm fundamentals. The observations in this table are at firm-media-quarter level from 2010 to 2016. Specifically, each observation aggregates the quarterly news coverage of a non-media firm from a given media firm. The dependent variable, composite sentiment score (CSS), is estimated based on overall article tone and stock price reactions, modeled using intraday data. Other regressors in this table are defined in Table 1. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

	Sentiment Score (CSS)			
	(1)	(2)	(3)	(4)
CommOwn_Dummy	0.104*** (0.038)			
ComOwn_Count		0.064* (0.038)		
ComOwn_Sum			0.060 (0.248)	
ComOwn_Max				1.535*** (0.511)
Media Firm FE	Yes	Yes	Yes	Yes
Quarter $\times$ Firm FE	Yes	Yes	Yes	Yes
N	147,326	147,326	147,326	147,326
R <sup>2</sup>	0.529	0.529	0.529	0.529

**Table 13: Full vs. Flash Article Postive Coverage Ratio**

This table presents the results of our baseline OLS specification for full and flash article separately. A full news article is composed of both a headline and one or more paragraphs of mostly textual material. A flash news article is composed of a headline only without body text. The dependent variable in Panel A, Full-Article Pos\_Ratio, measures the positive full-article coverage relative to a non-media firm's overall full-article coverage from DJC in a given quarter. The dependent variable in Panel B, Flash-Article Pos\_Ratio, measures the positive flash-article coverage relative to a non-media firm's overall flash-article coverage from DJC in a given quarter. Other regressors in this table are defined in Table 1. The control variables in both Panels are the same as those in Table 3. For all specifications, robust standard errors are clustered at the firm level, and are reported in parentheses. \*, \*\*, or \*\*\* indicates that the coefficient is statistically significant at the 10%, 5%, or 1% level, respectively.

**Panel A**

	Dependent Variable: Full-Artical Pos_Ratio				
	(1)	(2)	(3)	(4)	(5)
ComOwn_Dummy	0.001 (0.003)				
ComOwn_Count		-0.003 (0.003)			
ComOwn_Sum			0.045** (0.019)		
ComOwn_Max				0.140*** (0.031)	
ComOwn_PC					0.002** (0.001)
Controls	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
N	247,658	247,658	247,658	247,658	247,658
R <sup>2</sup>	0.233	0.233	0.234	0.234	0.234

**Panel B**

	Dependent Variable: Flash-Artical Pos_Ratio				
	(1)	(2)	(3)	(4)	(5)
ComOwn_Dummy	0.006*** (0.002)				
ComOwn_Count		0.010*** (0.003)			
ComOwn_Sum			0.054*** (0.014)		
ComOwn_Max				0.046* (0.024)	
ComOwn_PC					0.002*** (0.001)
Controls	Yes	Yes	Yes	Yes	Yes
Quarter FE	Yes	Yes	Yes	Yes	Yes
Firm FE	Yes	Yes	Yes	Yes	Yes
N	264,666	264,666	264,666	264,666	264,666
R <sup>2</sup>	0.323	0.323	0.323	0.323	0.323