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The Spillover Effect of Media Ownership on Mainstream Media Discourse

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ABSTRACT

This article investigates the spillover effect of a firm's media ownership on reporting by unaffiliated mainstream media outlets, using a sample of Chinese publicly listed firms. We find that firms with ownership stakes in media companies receive more coverage and more positive tones from unaffiliated mainstream media outlets than other firms do. We also find evidence suggesting mechanisms for this effect: media ownership facilitates firms in building connections with unaffiliated media outlets. In addition, we find that this spillover effect of media ownership on unaffiliated media outlets is more prominent when market-investor sentiment is more pessimistic, when firms are in "sin" industries, and when firms encounter corporate scandals. Furthermore, we document that media ownership enhances the dissemination of information disclosure and increases firm value.

JEL Classification: G12, G14, G34

1 | Introduction

There is growing empirical evidence supporting the pivotal role of the media in financial markets. Typically, the media act as an information intermediary (e.g., Engelberg and Parsons 2011; Peress 2014) and a corporate monitor (e.g., Chen et al. 2021; Dai et al. 2015; Dyck et al. 2008; Khalifa et al. 2024). However, media slant or bias has been widely documented in political and economic reports (Groseclose and Milyo 2005). Prior studies document that government-owned media outlets distort and manipulate information to entrench incumbent politicians (Djankov et al. 2003; Piotroski et al. 2017), and the reporting tone of connected newspapers regarding firms within the same business group is more positive than that of unconnected newspapers (Ru et al. 2022). As ownership bestows control due to voting rights, the linkage between direct ownership and media bias is straightforward. In this study, we investigate whether the impact of media ownership on media reporting can spill over to reporting by unaffiliated mainstream media and its potential consequences for firm information environment.

We define a firm as a *media-affiliated firm* (or a *firm with media affiliations*) when it has at least one media company among its subsidiaries, joint ventures, or associates. Further, these media-affiliated firms have no ownership links to the mainstream media outlets in question. We hypothesize that firms with media affiliations receive greater media coverage and more favorable media reports from unaffiliated media outlets because media affiliation enables firms to build connections with unaffiliated financial outlets. The media industry operates through complex

interdependencies among companies and their upstream and downstream partners, such as printing presses, online platforms, and advertising agencies. These collaborations foster networks of reciprocal favors and mutual benefits, especially in relationship-based societies where trust and long-term partnerships are highly valued. Media affiliation enables firms to build connections with unaffiliated financial outlets, often resulting in favorable coverage driven by expectations of reciprocal benefits, such as exclusive information, advertising deals, or future collaborations. In such societies, informal mechanisms like trust facilitate the exchange of soft information—confidential details that cannot be disclosed publicly. Firms may strategically rely on media partners to disseminate this information, indirectly influencing unaffiliated outlets. Additionally, cooperative dynamics and potential collusion within the media industry may further enhance favorable reporting, as unaffiliated outlets prioritize maintaining harmonious relationships. Ultimately, media affiliation serves as a crucial mechanism for fostering information flow and reciprocal collaboration, shaping media narratives in an interconnected and cooperative landscape.

We do not argue that firms invest in media industries mainly for the purpose of building connections with mainstream media outlets. There are other less costly channels that firms can manage their relationship with news outlets for favorable reporting (Cahan et al. 2015; Gurun 2020; Gurun and Butler 2012; Ru et al. 2020; Tsileponis et al. 2020). Firms can invest in media industries for making profit, improving efficiency, or other purposes. The impact on reporting by unaffiliated media is a consequence of such investment, but not necessarily the incentive.

We examine how a firm's media affiliation influences media reporting from unaffiliated media outlets using data from the Chinese market for two reasons. First, the impact of media affiliation on media reports is likely to be more intense in relationship-based societies like China, where firms can build connections with media outlets via media affiliation to obtain privileged access to media resources. Second, compared to many alternative settings, Chinese stock markets have a higher proportion of retail investors relative to institutional investors. Contrasting institutional investors, retail investors are less sophisticated and heavily rely on media reports as their main sources of information, making them more susceptible to the influence of news media (Barber and Odean 2008). Consequently, Chinese firms can have strong incentives to inflate their media favorability to capture the attention of retail investors. Alibaba Group, one of China's largest technology companies, provides a prime example of media industry involvement. Over the years, Alibaba has been engaged in various media ventures, including acquiring stakes in newspapers, TV stations, and social media platforms. However, in 2021, the Chinese government mandated Alibaba to divest its media assets to diminish the company's influence over the media sector. Prior to this intervention, there were concerns among some members of the public and industry observers that Alibaba's ownership of media outlets could lead to a potential conflict of interest. There was a risk that the company could leverage its media assets to promote its interests and suppress negative reports about itself.[1]

Following You et al. (2018), we focus on media reports from the eight most dominant nationwide financial newspapers in China: *China Securities Journal*, *Securities Daily*, *Securities Times*, *Shanghai Securities Journal*, *China Business Journal*, *First Financial Daily*, *The Economic Observer*, and *21st Century Business Herald*. These newspapers, which have a significant impact on daily life in China and on the Chinese stock markets, are closely controlled by the government or individuals. These eight newspapers are not subsidiaries, joint ventures, or associates of any listed firms in our sample. Notably, media outlets that listed firms are affiliated with are not prominent. Affiliation with less prominent media might not have a substantial influence on the coverage by the prominent eight newspapers. Therefore, ex ante, whether firms can influence the coverage of prominent media outlets by holding ownership of other less prominent media outlets is an open empirical question. However, if they can, it would suggest that holding ownership of prominent media outlets will have even stronger influence on the coverage of other unaffiliated media outlets.[2]

We measure the tone of reporting based on the ROST Content Mining System (Borochin and Cu 2018).[3] In-line with our base conjecture, we find that firms with media affiliations receive more coverage and more positive reports from unaffiliated financial newspapers. Our results are robust under extensive empirical scrutiny, including controlling for the impact of advertising expenditure, use of various alternative empirical measures for the tone of media reports, and use of alternative measures for media affiliations.

One major obstacle to claiming a causal role for media affiliations on favorable media reports is that media-affiliated firms are potentially endogenous. That is, the characteristics that make firms likely to receive more positive media reports can also make these same firms more likely to have ownership stakes in media companies. To combat this concern, we conduct several alternative analyses, including propensity score matching (PSM), difference-in-differences (DID) analysis with a PSM-matched sample, entropy-balanced matching, the potential impact of unobserved confounding variables (ITCV), instrumental variable (IV) estimation, and DID analysis utilizing two external events. The first event is *Plan on Reinvigoration of the Cultural Industries* released by the State Council in 2009. We exploit this event as an exogenous shock to firms' investment in media companies. We find that, relative to firms without media affiliation, firms with investment in the media industry after this plan receive more coverage and favorable reports from unaffiliated media outlets. The second event is a scandal of the *21st Century Business Herald* newspaper. We utilize this event as an exogenous shock to firms' connection with media outlets. We find that firms' media image shaping through media affiliations is weakened after the scandal, consistent with our causal storyline that links media-affiliated firms and favorable unaffiliated media reports.

We also investigate the empirical relevance of the proposed mechanism underlying the spillover effect of media affiliation on unaffiliated media discourse. We find that the positive relationship between media-affiliated firms and favorable reporting is stronger when firms with non-print media affiliations are located in the same city as one of the eight major financial newspapers. These findings suggest an amplified impact stemming from a closer connection between media affiliations and unaffiliated news outlets. This evidence supports our argument that media affiliation plays a "connection" role in fostering relationships

with unaffiliated news outlets. Furthermore, we posit that firms with media affiliations exhibit greater similarity in the content of reports compared to those without such affiliations. The higher similarity in reports serves as additional evidence of a coordinated or aligned approach to media coverage. Our findings provide robust support for these arguments.

Although biased reporting can entail costs, such as reputation damage for newspapers or skepticism from investors, we argue that the benefits of influencing media coverage may outweigh these costs. The net benefit scenario is especially plausible when firms perceive a significant advantage in managing their media image. Consistent with this idea, our findings show that the impact of media affiliation on favorable reporting is more pronounced when market investor sentiment is more pessimistic, when firms operate in "sin" industries, and when firms are involved in corporate scandals.

We further investigate the consequences of firms' media affiliation. First, because the media works as an information intermediary in the financial market, we examine whether media affiliation facilitates the dissemination of firms' information disclosure. We find that after the announcement of dividends and mergers and acquisitions (M&A), media-affiliated firms receive more coverage and more positive reports from news outlets, suggesting that media affiliation enhances the dissemination of firms' information disclosure. In addition, we examine the market effects of media affiliation and favorable reporting. Our results show that media-affiliated firms have a higher firm value due to more positive media reporting.

Finally, we explore whether the ownership nature of listed firms and news outlets impacts our baseline findings. Our evidence shows that although media affiliations in favorable reports impact both state-owned enterprises (SOEs) and non-SOEs, the positive association is stronger in the state-controlled media than in the market-oriented media, consistent with previous literature that market-oriented media are more critical and more accurate (You et al. 2018).

Our study contributes to several streams of recent research. First, prior studies have documented direct impacts of ownership. For instance, Ru et al. (2022) find that newspapers tend to have a more positive reporting tone toward firms within the same business group compared to unconnected newspapers. In their study, the firm and the newspaper are controlled by the same owner, establishing a direct ownership connection between the firm and the newspaper. Kedia et al. (2017) find that Moody's assigns more favorable ratings to bonds issued by firms that are invested in by Moody's two largest shareholders. Chan et al. (2018) find that analysts who own stock in companies they follow issue target-price forecasts that are more optimistic and make recommendations that are more informative. Complementing this line of research that focuses on direct ownership, our study contributes by documenting a spillover effect of ownership by showing that media ownership has a positive impact on reporting from unaffiliated media outlets.

Second, the previous literature documents that firms can shape and inflate their media favorability through various channels, such as hiring investor relation firms (Solomon 2012), investing in marketing (Gurun and Butler 2012), exploiting executives' media expertise (Gurun 2020), building social ties with media (Hossain and Javakhadze 2020), and engaging in corporate social responsibility (CSR) (Cahan et al. 2015). Our study complements this research effort by documenting another channel through which firms can manage media coverage in prominent newspapers, namely, though ownership stakes in less prominent media outlets.

Third, our study contributes to the literature on the determinants of media bias. Existing evidence on the determinants of media bias from previous studies includes political incentives (Piotroski et al. 2017), competition in the media industry (Mullainathan and Shleifer 2005), customer demand (Gentzkow and Shapiro 2010), and profit considerations (Ellman and Germano 2009). Our study extends the literature by documenting that firms' investment in the media industries can induce media bias in favor of those firms.

Our findings have practical and policy implications. First, for media-affiliated firms, investors and other stakeholders need to be aware of the potential for nontrivial media slant arising from firms' connections to unaffiliated media outlets. In addition, as government officials and other related institutions assign importance to the fairness and transparency of media reports for sustainable business and economic development, these results alert regulators that ownership stakes in media companies might compromise the independence of unaffiliated media outlets. Second, our findings that the impact of media affiliation on media bias is magnified when firms have closer connections with media outlets or have stronger incentives in media image management can be relevant to investors or regulators for identifying circumstances underlying firms' media manipulation and the need to discount media favorability accordingly. Last but not least, our findings that the impact of media affiliation on media bias is stronger in the state-controlled media than in the market-oriented media can also be relevant to investors and regulators in many markets because the state controls a large proportion of media outlets in many jurisdictions throughout the world (Djankov et al. 2003).[4]

The remainder of our study is organized as follows. Section 2 outlines the hypothesis development, and Section 3 details the dataset and the research design. Section 4 presents the empirical results, followed by additional analyses and robustness checks in Section 5. Finally, Section 6 concludes the study.

2 | Hypothesis Development

The media industry is inherently characterized by close interdependencies among companies and their upstream and downstream partners. For instance, newspaper publishers often collaborate with printing presses for physical production, online platforms like news aggregators or social media for content distribution, and advertising agencies to sell advertising space.[5] Moreover, national newspapers frequently form alliances with local newspapers, sharing resources to enhance news coverage and expand readership.[6]

These collaborative relationships can foster a network of reciprocal favors and mutual benefits within the industry. In

a relationship-based society, where personal connections and long-term trust are paramount, such alliances often lead to positive interactions and cooperative dynamics.[7] Listed firms with media affiliations can leverage their ties with affiliated media to build relationships with unaffiliated mainstream financial newspapers. In turn, unaffiliated outlets might provide favorable coverage, driven by implicit expectations of reciprocal benefits, such as access to exclusive information, advertising opportunities, or future collaboration.

Moreover, relationship-based societies often emphasize informal mechanisms, such as trust and mutual understanding, to facilitate commercial transactions. These transactions frequently involve the exchange of soft information—confidential and proprietary information that cannot be publicly disclosed (Li et al. 2020). When firms possess positive information that is difficult to reveal directly, they may rely on media outlets with which they share strong relationships to disseminate it strategically. This informal flow of information can serve as a mechanism through which firms indirectly influence reporting by unaffiliated media outlets.

Additionally, potential collusion between media companies can further amplify the effects of media affiliation. Firms with media ties may indirectly benefit from the broader cooperative dynamics within the industry, where unaffiliated outlets might prioritize maintaining harmonious relationships with industry peers to avoid conflict, foster goodwill, or ensure continued collaboration. These dynamics could lead to favorable media coverage for firms.

In sum, media affiliation plays a critical role in fostering connections between firms and unaffiliated media outlets by providing an intermediary platform for information flow and reciprocal collaboration within the media industry. These relationships help facilitate greater media coverage and more favorable reports by unaffiliated financial outlets, highlighting the importance of media affiliation as a mechanism for shaping media narratives in a cooperative and interconnected industry landscape. Building on this understanding, we formulate the following hypothesis:

Hypothesis 1. *Firms with media affiliations receive greater media coverage and more favorable reports from unaffiliated mainstream media outlets.*

It is important to highlight that the relationship between media ownership and spillover effects on unaffiliated media outlets is less direct and evident than the relationship between direct ownership and media bias. Biased reporting carries potential costs, particularly for mainstream newspapers, including reputational damage and loss of credibility. As a result, unaffiliated media outlets can lack clear incentives to align their coverage with firms that have media affiliations, especially if such alignment risks undermining their independence and public trust. Consequently, whether media ownership has spillover effects on unaffiliated media outlets is an empirical issue.

We further explore mechanisms underlying the media affiliation and media coverage from unaffiliated media outlets. We argue that media affiliations enable listed firms to establish connections with financial newspapers through collaborations and interactions facilitated by subsidiary companies within the media industry. If this argument holds, we expect to observe a greater impact of media affiliations on favorable media coverage when there are closer networks between media-affiliated companies and unaffiliated news outlets. When firms and media outlets are closer, the frequency of interactions increases, and the incentive for reciprocal favors becomes more tangible. In tightly knit networks, there is an incentive for media outlets to avoid negative reporting about firms with whom they share closer ties. Unaffiliated media may avoid publishing critical stories about firms with whom they have formed informal or strategic relationships out of concern for damaging future access to information, advertising opportunities, or collaboration. This tendency can manifest as more favorable coverage or softer reporting on sensitive topics, especially when the proximity between firms and outlets increases the likelihood of future interactions. Thus, we establish the following hypothesis:

Hypothesis 2. *The positive relationship between firms' media affiliations and favorable media coverage and tone from unaffiliated mainstream media outlets is stronger when there are closer networks between media-affiliated companies and unaffiliated news outlets.*

We further posit that if the favorable coverage from unaffiliated newspapers is indeed driven by connections between firms and mainstream newspapers, facilitated by reciprocal favors or potential collusion, we would expect to observe a greater similarity in the content of reports for firms with media affiliations compared to those without. This similarity would suggest a more coordinated or aligned approach to reporting, indicating the influence of ongoing relationships between firms and media outlets. By analyzing the consistency of coverage across multiple unaffiliated outlets, we aim to provide more direct evidence of the role these connections play in shaping media narratives. Accordingly, we establish the following hypothesis:

Hypothesis 3. *Firms with media affiliations exhibit greater similarity in the content of reports across unaffiliated outlets compared to firms without media affiliations.*

3 | Sample Selection and Research Design

3.1 | Data

The sample is drawn from all A-share firms listed on the Shanghai and Shenzhen stock exchanges from 2005 to 2017, obtained from the China Stock Market & Accounting Research (CSMAR) database. The sample period begins in 2005 because one of the eight most dominant nationwide financial newspapers, *First Financial Daily*, was officially launched at 15th November 2004. We exclude firms in the financial industry, because their financial statements are not comparable to those of nonfinancial firms, and firms in the media industry, because we aim to isolate the impact on media reports to firms through their ownership stakes in media companies. The industry classification is based on the China Securities Regulatory Commission (CSRC) industry codes. We further exclude observations with missing information on stock price, financial statements, ownership structure, and

corporate governance. After these steps, the sample comprises 23,092 firm-year observations. Controlling firm fixed effects in the regression results excludes firms with only one observation during the sample period. This results in a final sample of 22,868 firm-year observations.

Data for ownership in media companies are manually collected from the database of Affiliated Companies in CSMAR, which provides the data on listed firms' subsidiaries and associated companies as well as the main business of the affiliated companies. For observations with missing information on the main business of affiliated companies, we search various online sources, such as Sina Finance and Baidu Baike, to identify if they are media companies. The locations of these media affiliations are manually collected from online sources, such as Baidu Baike, Sina Finance, and Qichacha.[8]

The media report data are mainly retrieved from the CSMAR News Database. We also supplement media reports data from the Chinese Research Data Services (CNRDS) database and the China National Knowledge Infrastructure (CNKI) Newspapers database.[9] Following You et al. (2018), we focus on the eight largest nationwide Chinese financial newspapers: *China Securities Journal*, *Securities Daily*, *Securities Times*, *Shanghai Securities Journal*, *China Business Journal*, *First Financial Daily*, *The Economic Observer*, and *21st Century Business Herald*. None of these financial media are owned by any A-share listed firms in the sample. Relevant details of these newspapers are presented in Appendix A.[10]

3.2 | Proxy Variable Construction

3.2.1 | Ownership Stakes in Media Companies

Ownership of media affiliations is a key independent variable of interest. The variable, Ownership, is a dummy variable that equals 1 if a firm has an ownership stake in at least one media company; otherwise, it equals 0.

3.2.2 | Media Reports

We examine two alternative dependent variables; one is media coverage (Coverage), and the other is the tone of media reports (Tone). Coverage is the natural logarithm of the total number of reports across the eight largest Chinese business newspapers for a given firm in each year. As mentioned earlier, none of these eight newspapers have ownership connections with any A-share listed firms in our sample. Therefore, the reports from the eight newspapers are all counted. Following Borochin and Cu (2018), the tone of media reports is measured by the ROST Content Mining System. A higher (lower) tone value indicates a more positive (negative) tone of reporting. The values in the sample range from −284 to 2267. We use the average value of the tone of all reports for each firm in each year as the first measure, Tone_value. In addition, to minimize the influence of extreme values, we rank all media reports in each year based on the tone values from the ROST system and split the reports into 10 deciles from the lowest to the highest value. We then assign a value from 1 to 10 to each report according to the group indicator every year and calculate the average of the ranks for each firm in each year as the second measure, Tone_rank.

3.2.3 | Control Variables

We select and specify determinants of media reports following previous literature (e.g., Cahan et al. 2015; Gurun 2020; Gurun and Butler 2012; Piotroski et al. 2017; You et al. 2018), including firm size (Size), financial leverage (Leverage), annual EBIT growth rate (Growth), return on assets (ROA), book-to-market ratio (BM), cumulative daily raw return over 12-month prior to year t (Momentum), and idiosyncratic volatility (Idiosyncratic). We also include variables relating to firms' ownership structure and corporate governance because firms with better corporate governance are more likely to receive positive media reports. These variables include CEO and chairman duality (Dual), board size (Board), board independence (Ind), the shareholding of the largest stockholder (Top), the shareholding from the second largest shareholder to the 10th largest shareholder (Block), the ratio of the shareholding held by the largest stockholder to the shareholding held by the second largest stockholder (Z-index), and an indicator for state control (SOE). Because firms with media professionals (MPs) as executives or directors are positively associated with a favorable media slant (Gurun 2020), we further control MP, a dummy variable that equals 1 if at least one director or senior manager has experience or currently works in the media industry. Following convention, all financial variables are winsorized at the top and bottom 1% percentiles. Appendix B provides the details of the variable definitions. Finally, we control for firm and year fixed effects.

3.3 | Empirical Specification

To examine the impact of media affiliation on media coverage and the tone of media reports, we specify the following equations:

$$\text{Coverage}_{i,t}/\text{Tone}_{i,t} = \alpha_0 + \alpha_1 \text{Ownership}_{i,t} + \text{Control}_{i,t} + \varepsilon_{i,t} \quad (1)$$

where Coverage measures the natural logarithm of the total media coverage by the eight largest Chinese financial newspapers for firm i in year t. Tone represents the favorability of media coverage, measured alternatively as either Tone_value or Tone_rank, for which a higher value reflects reports that are more favorable. Ownership, a dummy variable that equals 1 if a firm has an ownership stake in at least one media company, is the key test variable. In-line with H1, we predict that the coefficient on Ownership is positive.

4 | Empirical Results

4.1 | Descriptive Statistics

4.1.1 | Sample Distribution

Table 1 presents the sample distribution. The distribution of sample observations with media affiliations across the sample years is presented in Panel A, Table 1. In general, the number of firms with media affiliations increases over the sample period

TABLE 1 | Sample distribution.

Panel A: Media affiliation yearly distribution			
Year	**No. of firms**	**No. of firms with media affiliations**	**% of firms with media affiliations**
2005	1,167	156	13.368
2006	1,162	163	14.028
2007	1,153	167	14.484
2008	1,290	181	14.031
2009	1,387	196	14.131
2010	1,455	209	14.364
2011	1,771	231	13.043
2012	2,068	242	11.702
2013	2,189	254	11.603
2014	2,137	260	12.167
2015	2,209	283	12.811
2016	2,446	321	13.123
2017	2,434	338	13.887
Total	22,868	3,001	13.123

Panel B: Type of media affiliations		
Type of media affiliations	**No. of firms**	**% of firms**
Advertising and Marketing	2,049	68.277
Television	1,612	53.715
Film	1,571	52.349
Social Media or News Media	1,407	46.884
Broadcast and Audio	1,066	35.521
Newspapers, Journals, and Magazines	792	26.391
Others (Digital Media, Animation, Print, …)	1,402	46.718

Panel C: Location of media affiliations at the provincial level					
Provinces	**No. of firms**	**% of firms**	**Provinces**	**No. of firms**	**% of firms**
Anhui	72	2.399	Beijing	499	16.628
Chongqing	48	1.599	Fujian	131	4.365
Gansu	11	0.367	Guangdong	481	16.028
Guangxi	10	0.333	Guizhou	19	0.633
Hainan	41	1.366	Hebei	34	1.133
Henan	27	0.900	Heilongjiang	64	2.133
Hubei	90	2.999	Hunan	116	3.865
Jilin	31	1.033	Jiangsu	174	5.798
Jiangxi	53	1.766	Liaoning	125	4.165
Inner Mongolia	18	0.600	Ningxia	16	0.533
Qinghai	12	0.400	Shandong	88	2.932
Shanxi	35	1.166	Shaanxi	90	2.999
Shanghai	523	17.428	Sichuan	116	3.865
Tianjin	95	3.166	Xizang	15	0.500
Xinjiang	80	2.666	Yunnan	19	0.633
Zhejiang	210	6.998	Others (i.e., Hong Kong)	80	2.666

Note: This table presents the sample distribution across years in Panel A, types of media affiliations in Panel B, and locations of media affiliations in Panel C.

from 2005 to 2017, whereas the percentage of those firms is relatively stable over time. The peak is in 2007: Overall, 14.5% of listed firms have at least one media affiliation. On average, 13.1% of the sample observations have at least one media affiliation. This value suggests a nontrivial prevalence of media affiliations for listed firms in China.

Panel B of Table 1 presents the distribution of different types of media affiliations. We list several typical types of media affiliations in our sample, including film, television, broadcast and audio, newspaper, journal and magazine, social media or new media, advertising and marketing, and others (such as digital media, animation, and print). When a media affiliation encompasses multiple types of media businesses, we classify it based on its major business in Panel B. It is worth noting that the number of firms with these different types of media affiliations in Panel B is larger than the number of observations with media subsidiaries in Panel A because many observations have multiple media subsidiaries, which are categorized separately in Panel B.[11] In our sample, approximately 26.4% of sample observations with media affiliation have ownership in print media companies (newspaper, journal, and magazine). Additionally, the majority of media affiliations (68.3%) have advertising and marketing businesses. Panel C of Table 1 presents the distribution of media affiliations' location at the provincial level. The three regions with the highest numbers of media affiliations are Shanghai (17.4%), Beijing (16.6%), and Guangdong (16.0%).

4.1.2 | Summary Statistics

The descriptive statistics for the main empirical measures are reported in Table 2. All variables are defined in Appendix B. The mean value of Coverage is 2.3, and the standard deviation is 1.0, suggesting a large variation in media coverage across the sample firms. Regarding the tone of reports, the mean values of Tone_value and Tone_rank are 41.1 and 4.7, respectively, suggesting that news outlets generally take a positive view toward the firms that they cover.[12]

The Pearson and Spearman correlations (untabulated) between media coverage (Coverage) and media ownership (Ownership) are statistically significantly positive, suggesting that firms holding ownership stakes in media companies have more media coverage. We also find that Ownership is positively associated with the tone of the reports (Tone_value and Tone_rank), consistent with our expectations.

In addition, we divide the sample observations into two groups based on the indicator variable, Ownership, and conduct a univariate test on whether media affiliation affects media reports (untabulated). Consistent with our expectations, the results reveal that media-affiliated firms on average have a higher incidence of media coverage and more positive tones of media reports than non-media-affiliated firms.

4.2 | Baseline Findings (H1)

The main regression results for the relationship between media affiliation and media coverage are presented in Columns (1)–(3) of Table 3. The dependent variables are Coverage in Column (1), Tone_value in Column (2), and Tone_rank in Column (3), respectively. All regressions include control variables, firm fixed effects, and year fixed effects. Robust *t*-statistics are calculated based on standard errors adjusted by firm clustering. The estimated coefficient on Ownership is 0.185 and statistically significant at the 1% level in Column (1). It suggests that firms with media affiliations receive more media coverage from the eight largest financial newspapers compared to firms without media affiliations, consistent with our hypothesis. In Columns (2) and (3), the estimated coefficient on Ownership is 13.002 and 0.548, respectively, and both are statistically significant at the 1% level, suggesting that firms with media affiliations receive more favorable reporting compared to firms without such affiliations.

Reflecting on its economic importance, we follow the method outlined in Mitton (2024) to quantify the impact of holding an ownership stake in media companies. Our findings show that, on average, this ownership is associated with an 8.1% increase in Coverage and a 31.6% (11.7%) increase in Tone_value (Tone_rank) relative to their respective sample mean value.[13] These effects are economically important compared to other channels discussed in the literature. For instance, the media expertise of corporate board members, denoted as MP, as examined in Gurun (2020), is included as a control in our regression. Using the same method to calculate economic significance, we find that executive media expertise is associated with a 0.3% increase in media coverage, a 2.1% increase in Tone_value and a 1.3% increase in Tone_rank. In our robustness checks (Section 5.4.1, results not tabulated), we also include advertising expenditure in our estimation, following Gurun and Butler (2012), who document that firms with higher media advertising expenditures tend to have a more positive media slant. Our findings indicate that the economic significance of media ownership (Ownership) is considerably larger than that of advertising expenditure.

Furthermore, we compare the economic importance of Ownership to other mechanisms that firms might use to manage their media image, as identified in prior studies (Cahan et al. 2015; Gurun 2020; Ru et al. 2022; Ru et al. 2020; Solomon 2012). Due to data limitations, it is not feasible to include all these variables in a single estimation. Instead, we follow the method outlined in Mitton (2024) to calculate the economic significance of each channel. We also assess the economic significance of Ownership in our study using the calculation methods employed in each referenced study. The results of these calculations, summarized in Appendix C, show that the economic significance of Ownership is substantial compared to the other channels. Although comparisons across studies and channels should be interpreted with caution, these results underscore the importance of media affiliation in influencing media narratives.

Many firms in our sample never have or always have media ownership (i.e., have no changes in media ownership) during the sample period. Controlling firm fixed effects might lead to biased results. To mitigate this concern, we conduct an alternative model specification that includes industry fixed effects instead. The results (untabulated) are similar to those reported in Columns (1)–(3), suggesting that our results remain robust to this alternative model specification.[14]

TABLE 2 | Summary statistics.

Variable	N	Mean	SD	Q1	Median	Q3
Ownership	22,868	0.131	0.338	0	0	0
Ownership_num	22,868	0.180	0.549	0	0	0
Ownership_per (%)	22,868	10.710	29.150	0	0	0
Coverage	22,868	2.287	1.022	1.609	2.303	2.944
Tone_value	22,084	41.150	33.700	16	36.710	59.380
Tone_rank	22,084	4.692	1.909	3.301	4.778	6
Negative	22,084	−13.610	7.916	−18.110	−13.51	−8.983
Favor	22,084	−8.516	8.661	−13.800	−8.230	−1.558
Q	20,040	2.809	2.258	1.443	2.091	3.295
Circulation	22,868	0.266	0.150	0.132	0.258	0.387
Size	22,868	21.960	1.289	21.050	21.800	22.700
Leverage	22,868	0.458	0.208	0.296	0.463	0.618
BM	22,868	0.962	0.906	0.381	0.662	1.203
Growth	22,868	−0.003	0.042	−0.004	0.001	0.004
ROA	22,868	0.035	0.061	0.012	0.033	0.062
Momentum	22,868	0.250	0.602	−0.158	0.161	0.613
Idiosyncratic	22,868	0.071	0.030	0.051	0.063	0.084
Dual	22,868	0.207	0.405	0	0	0
Board	22,868	8.904	1.819	8	9	9
Ind (%)	22,868	36.880	5.226	33.330	33.330	40
Top (%)	22,868	36.100	15.260	23.890	34.110	47.230
Block (%)	22,868	21.230	13.150	10.130	19.760	30.640
Z-index	22,868	0.146	0.331	0.019	0.044	0.130
SOE	22,868	0.462	0.499	0	0	1
MP	22,868	0.198	0.399	0	0	0

Note: This table presents the summary statistics of the main variables. All variables are defined in Appendix B.
Abbreviations: BM, book-to-market ratio; MP, media professional; ROA, return on assets; SOE, state-owned enterprise.

4.3 | Endogeneity

The decision to take an ownership stake in media affiliations is endogenously determined by industry or firm characteristics that could also affect media coverage and the tone of reports, leading to potentially spurious correlations between media ownership and media coverage (tone). To mitigate this concern, we control firm and year fixed effects, as well as firm characteristics, in our empirical specification. In this section, we perform several additional analyses to further confront the endogeneity threats.

4.3.1 | A PSM Sample

One concern is that the observations of firms without media affiliation (control group) are much larger than the observations of firms with media affiliation (treatment group), and an unbalanced sample could bias our baseline findings. Further, our sample is not randomly assigned to media-affiliated firms and non-media-affiliated firms. Instead, some factors impacting firms' decision to have ownership stakes in media affiliations may be correlated with favorable media reports. To alleviate the self-section concern, we conduct a PSM approach to balance potentially confounding covariates between the treatment group and the control group.

In particular, we match each observation in the group of firms with media affiliations with one observation from firms without media affiliations in the whole sample period with the nearest propensity score. We use a probit model to estimate the probability of being in the treatment group (i.e., of having media affiliations) as a function of factors that impact firms' ownership decisions. Following previous studies (e.g., Azar et al. 2018; Demsetz and Lehn 1985), we employ the following characteristics: firm size (Size, the natural logarithm of total assets in RMB), firm-specific risk (Idiosyncratic, the standard deviation of the monthly return for 1 year before year *t*), and market volatility (STD, the

TABLE 3 | Baseline analysis.

Dependent variable	(1) Coverage	(2) Tone_value	(3) Tone_rank
Ownership	0.185***	13.002***	0.548***
	(3.735)	(5.540)	(4.430)
Size	0.317***	2.311***	0.221***
	(19.265)	(3.836)	(6.682)
Leverage	0.329***	5.051**	0.300**
	(6.035)	(2.322)	(2.459)
BM	−0.206***	−2.258***	−0.195***
	(−16.921)	(−4.838)	(−7.580)
Growth	0.057	10.971**	0.721**
	(0.492)	(2.183)	(2.406)
ROA	0.110	22.308***	0.669***
	(0.951)	(5.142)	(2.673)
Momentum	0.109***	3.763***	0.133***
	(7.953)	(5.680)	(3.585)
Idiosyncratic	0.659**	−47.764***	−1.205
	(2.257)	(−3.524)	(−1.521)
Dual	−0.010	0.980	0.042
	(−0.495)	(1.152)	(0.883)
Board	0.002	−0.052	−0.021
	(0.299)	(−0.208)	(−1.520)
Ind	0.002	0.159**	0.010**
	(1.452)	(2.212)	(2.503)
Top	−0.002**	0.059	−0.002
	(−2.192)	(1.455)	(−0.869)
Block	0.001	0.120***	0.002
	(1.123)	(3.638)	(1.209)
Z-index	−0.002	0.158	−0.023
	(−0.084)	(0.188)	(−0.470)
SOE	−0.158***	−5.850***	−0.274***
	(−4.254)	(−3.651)	(−3.491)
MP	−0.007	0.842	0.061
	(−0.400)	(1.056)	(1.350)
Constant	−4.698***	−17.582	−0.195
	(−13.250)	(−1.333)	(−0.272)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	22,868	22,084	22,084
Adj. R^2	0.615	0.182	0.160

Note: This table presents the baseline findings. The dependent variables include media coverage (Coverage) and the tone of media reports (Tone_value and Tone_rank). All variables are defined in Appendix B. Robust *t*-statistics based on standard errors clustered by firm are reported in parentheses.

Abbreviations: BM, book-to-market ratio; MP, media professional; ROA, return on assets; SOE, state-owned enterprise.

*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

standard deviation of the monthly stock market rates of return for 1 year before year t). We also include some control variables: financial ratio (Leverage, Growth, BM, ROA), firms' ownership structure (Top, Block, Z-index, SOE), firms' MP, and industry and year fixed effects. The balance tests for PSM are reported in Appendix D.

Columns (1)–(3) in Panel A of Table 4 report the regression results with the matched sample. In Column (1), the dependent variable is media coverage (Coverage), and in Columns (2) and (3), the dependent variable is the tone of media reports, measured by Tone_value and Tone_rank, respectively. The estimated coefficient on Ownership is positive and statistically significant across all columns, consistent with the baseline analyses.

4.3.2 | DID Analysis With a Matched Sample

To further address endogeneity, we employ DID analysis with a matched subsample to examine whether the changes in the status of (with vs. without) media affiliations during the sample period impact favorable media reports. The steps are as follows: We identify firms for which the value of Ownership changes from 0 to 1 in the sample period. These firms constitute the treatment group. We identify the first year when a firm starts to hold an ownership stake in media-affiliated companies during the sample period as the year T (i.e., when the change happens). To identify the control group, we use the same PSM approach as discussed earlier and measures in year $T-1$ to select a matched firm without media affiliations. We then examine media reports for the matched subsample in year $T-1$ and year $T+1$ using the following regression model:

$$\text{Media}_{i,t} = \alpha_0 + \alpha_1 \text{Treat}_{i,t} \times \text{Post}_{i,t} + \alpha_2 \text{Post}_{i,t} + \text{Control}_{i,t} + \varepsilon_{i,t} \quad (2)$$

where Media is one of Coverage, Tone_value, and Tone_rank. Treat equals 1 if an observation is in the treatment group, and 0 if it belongs to the control group. Post equals 1 if observations are in year $T+1$, 0 if it is in year $T-1$. We also include firm fixed effects and year fixed effects in our specification. The variable Treat is excluded from our regression analysis due to the incorporation of firm fixed effects. As a result, this variable is not included in our current model.

The results are shown in Columns (4)–(6) in Panel A of Table 4. The estimated coefficients on the interaction term between Treat and Post are positive and statistically significant across all three columns, suggesting that holding ownership stakes in media affiliation increases favorable media reports, reinforcing our baseline results.

4.3.3 | Exogenous Shocks

We utilize two exogenous shocks to corroborate the causality of our baseline findings. First, we exploit the *Plan on Reinvigoration of the Cultural Industries* (*the Plan*, hereafter) released in 2009 as an exogenous shock to firms' investment in media companies.[15] According to *the Plan*, the cultural industries have become a focus of strategic development in China. *The Plan* encourages non-state capital to enter cultural industries and promotes investment to the cultural industries via loan interest subsidies, project subsidies, preferential tax treatment, more access to bank loans, and easier seasoned equity offering for publicly listed firms. Most of culture industries covered in *the Plan*, such as film and TV program production, broadcasting, publishing and distribution, printing and replication, digital media, and advertisement, belong to the media industry. These preferential policies for cultural industries provided in *the Plan* attracted investment in the media industry but do not have direct impact on media reporting.[16] We expect that firms investing in media outlets in the year after *the Plan* are likely for obtaining those financial benefits rather than for influencing media coverage. Therefore, the release of *the Plan* provides an ideal setting to test for the concern on the self-selection problem, that is, firms with incentives to influence media reporting invest in media companies.

We employ DID analysis with a matched subsample to examine whether the new investment in media companies on 2010 impacted media coverage and tones of media reports in the subsequent years. The steps are as follows. First, we identify 65 firms that made new investments in the media industry in 2010 as the treatment group. We select the control group from observations without media affiliation during our sample period in the same year using the same PSM approach as discussed in Section 4.3.1. We then examine media reports for the matched subsample in the pre-plan period (2008 and 2009) and the post-plan period (2011 and 2012) using the regression model (2).

The results are shown in Panel B in Table 4. The estimated coefficients on the interaction term, Treat_Reinvigoration × Post_Reinvigoration, are positive and statistically significant at the 5% level across all three columns. It suggests that, relative to control group, treatment firms are more likely to receive favorable media reporting after investing in media companies. As such, this analysis helps to strengthen the causal implication of our baseline findings.

We acknowledge that this test does not fully rule out the endogeneity problem because although *the Plan* might have encouraged investment in the media industry, it is not mandatory. Firms' decisions to invest in the media industries could still be endogenous to a series of factors. Therefore, to further rule out the endogeneity problem, we employ a quasi-natural experiment stemming from a scandal involving the *21st Century Business Herald* to examine whether an exogenous shock to firms' connections with media outlets impacts media-affiliated firms' management of media reports.

The *21st Century Business Herald* is one of the non-state-controlled business newspapers in China. In September and October 2014, this newspaper was accused of extorting listed firms for hundreds of million Chinese yuan to avoid negative reports. Executives from the *21st Century Business Herald* were arrested by Shanghai police and were sentenced to jail for extortion. Right after the news of blackmail, this newspaper was ordered by the media regulator of China to rectify. As a result of this scandal, we expect that firms are less likely to engage in media image management with the *21st Century Business Herald* for two reasons. First, given the severity of the penalty, it is less likely that the newspaper would engage in tone management for firms with connections, as this may attract the attention of regulators.

TABLE 4 | Endogeneity analysis.

Panel A: Matched sample regressions

	PSM-matched sample			DID analysis with a matched subsample		
	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	**Coverage**	**Tone_value**	**Tone_rank**	**Coverage**	**Tone_value**	**Tone_rank**
Ownership	0.262***	14.971***	0.523***			
	(2.969)	(3.922)	(2.629)			
Treat × Post				0.263*	15.035**	1.007**
				(1.972)	(2.129)	(2.402)
Post				−0.240	23.623*	1.418**
				(−1.150)	(1.784)	(2.186)
Controls	Included	Included	Included	Included	Included	Included
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,410	5,290	5,290	332	332	332
Adj. R^2	0.676	0.209	0.210	0.638	0.160	0.158

Panel B: The impact of the *Plan On Reinvigoration* of the *Cultural Industries*

	(1)	(2)	(3)
Dependent variable	**Coverage**	**Tone_value**	**Tone_rank**
Treat_Reinvigoration × Post_Reinvigoration	0.306**	13.098**	0.587**
	(2.242)	(2.053)	(2.118)
Controls	Included	Included	Included
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	520	520	520
Adj. R^2	0.650	0.218	0.259

Panel C: The impact of the scandal of the *21st Century Business Herald*

	(1)	(2)	(3)
Dependent variable	**Coverage_21st**	**Tone_value_21st**	**Tone_rank_21st**
Ownership	0.441**	28.908**	1.376**
	(2.459)	(2.150)	(2.557)
Ownership × Post_21st	−0.229***	−10.047**	−0.406**
	(−3.148)	(−2.173)	(−2.022)
Post_21st	−0.081**	5.981	0.181
	(−2.328)	(1.648)	(1.632)
Controls	Included	Included	Included
Firm FE	Yes	Yes	Yes
Observations	928	928	928
Adj. R^2	0.512	0.167	0.252

(Continues)

TABLE 4 | (Continued)

Panel D: IV estimation				
	(1)	**(2)**	**(3)**	**(4)**
	First-stage regression	**Second-stage regression**		
Dependent variable	**Ownership**	**Coverage**	**Tone_value**	**Tone_rank**
Circulation	0.100***			
	(2.748)			
Ownership		3.769**	57.401**	2.657**
		(2.519)	(2.214)	(2.031)
Controls	Included	Included	Included	Included
Industry FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	22,868	22,868	22,084	22,084
Adj. R^2	0.110	0.309	0.182	0.117

Note: This table presents the results of endogeneity analyses. Panel A reports matched sample regression. Columns (1)–(3) report regression results from PSM-matched sample. Columns (4)–(6) report regression results from the DID analysis with a PSM-matched subsample. *Treat* equals 1 if an observation belongs to the treatment group and 0 if observation belongs to the control group. Post equals 1 if an observation is in year $T + 1$, and 0 if an observation is in year $T - 1$. Panel B regression results from the DID analysis to examine the impact of the *Plan on Reinvigoration of the Cultural Industries*. Firms that invested in the media industry in 2010 are our treatment group, whereas the firms in control group are obtained from the PSM procedure. Post_Reinvigoration is dummy variable that equals 1 if it is in the post-treatment period (2011 and 2012), and 0 if it is in the pre-treatment period (2008 and 2009). Panel C displays regression results from the DID analysis to examine the impact of the scandal of the *21st Century Business Herald*. Media-affiliated firms are our treatment group, while firms without media affiliation are our control group. Post_21st is a dummy variable that equals 1 if it is in the post-treatment period (November 2014–October 2015), and 0 if it is in the pre-treatment period (September 2013–August 2014). Panel D displays the results for the IV approach. The endogenous variable is Ownership. The instrumental variable is Circulation, the natural logarithm of the total circulation of newspapers and magazines in a year in each province scaled by the provincial population. The dependent variable in the first stage is Ownership. The dependent variable in the second stage is media reporting (Coverage, Tone_value, and Tone_rank). All variable definitions are presented in Appendix B. Robust *t*-statistics based on standard errors clustered by firm are reported in parentheses.
*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

Second, the reputation of the newspaper has suffered substantial damage, leading firms with connections to be less inclined to manage their image through its publications. Meanwhile, this scandal does not have a direct impact on firms' engagement in media affiliation. Therefore, we use a DID approach to address the endogeneity issue and examine whether this scandal weakens the importance of media affiliation on favorable reporting.

In this test, the treatment firms are media-affiliated firms during the sample period, and control firms are those without media affiliations. To examine the impact of the scandal of the *21st Century Business Herald*, we rely on reports from this newspaper only and construct three media report variables (Coverage_21st, Tone_value_21st, and Tone_rank_21st) using the same approach as described earlier. The pre-treatment period is 1 year before the scandal (September 2013–August 2014), whereas the post-treatment period is 1 year after the scandal (November 2014–October 2015). We construct a new dummy, Post_21st, that equals 1 if it is in the post-treatment period and 0 if it is in the pre-treatment period. We then include the interaction term between Ownership and Post_21st in our specification to investigate the impact of the scandal on the positive association between media-affiliated firms and favorable media reports. The interaction term Ownership × Post_21st presents the DID effect and shows how this shock attenuates firms' media image management through their media affiliation.

The results are presented in Panel C in Table 4. We find that the estimated coefficient on Ownership is still significantly positive, whereas the coefficient on the interaction term, Ownership × Post_21st is negative and statistically significant, showing that media-affiliated firms are less likely to receive favorable media reports from the media outlet after the scandal, consistent with our baseline expectation.

4.3.4 | IV Estimation

We further conduct an IV estimation to address concerns about omitted variables and the potential for reverse causality. The exogenous IVs should be correlated with the determinants of holding media-affiliated firms but have no direct correlation with favorable media reports. We use the provincial location of the firm headquarters and select the natural logarithm of the total circulation of newspapers and magazines in a year in the province scaled by the provincial population as the IV (Circulation).[17] On the one hand, larger circulation rates for newspapers and magazines imply more media companies, especially newspaper media companies, in one province. When there are more media outlets in a province, listed firms in the same province have more opportunities to own an ownership stake in a media company. On the other hand, the total circulation numbers for

newspapers and magazines in each province are less likely to have a direct influence on the coverage in the eight national financial newspapers because the volume numbers in these eight newspapers are quite stable each year. In addition, the newspaper and magazine circulation does not have a direct correlation with the tone of media reports.

We report the results in Panel D of Table 4.[18] In the first-stage regression, the estimated coefficient on Circulation is 0.100 and significant at the 1% level, suggesting that firms are more likely to have a media affiliation when the circulation numbers for newspapers and magazines are larger in the same province. Additionally, the Wald *F* statistic is 31.89, which is much greater than the critical value (16.38 in this case, at the 10% level), suggesting that the IV is not a weak instrument. In the second stage, we use the predicted value of Ownership from the first-stage regression as the key independent variable and re-estimate the regression models (1) and (2). The estimated coefficients on Ownership are positive and statistically significant in all three cases, consistent with the main results.

In addition, we identify candidate instruments from heteroscedastic errors that are uncorrelated with the regression. This approach is developed by Lewbel (2012) and is widely used in recent studies (e.g., De Villiers et al. 2022; Mayberry et al. 2021). This method is particularly recommended when appropriate IVs are weak or are very hard to find. As a vector of exogenous variables, *Z* could be all or a subset of independent variables. Our *Z* comprises CEO and chairman duality (Dual), board size (Board), board independence (Ind), and year dummies, which are arguably exogenous to the decisions of holding ownership stakes in media companies and media coverage and the tone of media reports. The results from the heteroscedasticity-based instrument (untabulated) show that the estimated coefficients on predicted Ownership remain positive and highly significant in all cases, consistent with the main results.

4.4 | Impact of Networks (H2)

As discussed, we posit that media affiliations enable firms to establish connections with financial newspapers through collaborations and interactions with companies in the media industry. Consequently, the influence of media affiliations on favorable media reporting is expected to be more pronounced in the presence of stronger networks between media-affiliated firms and unaffiliated news outlets.

To measure the closeness of these connections, we examine the geographic proximity of media affiliations to major financial newspapers. Specifically, when a firm's affiliated media and a leading financial newspaper are located in the same city, the likelihood of a close connection increases (e.g., Dai et al. 2015). Physical proximity enhances opportunities for interactions and collaborations within media industries, facilitating reciprocal favors and potential collusion among media industries.

We exclude listed firms with affiliations to print media (newspaper, journal, and magazine). Although such affiliations can facilitate connection-building, they might also increase the likelihood of unaffiliated media referencing reports from affiliated print media.[19] Further, we partition the sample observations with media affiliations into two groups: observations with at least one affiliated media firm located in the same city as one of the eight newspapers (Same) and observations without any affiliated media located in the same city as any of the eight newspapers (Different).

It is important to note that, in this analysis, it is the media affiliations, not the listed firms, that are located in the same cites as the mainstream newspapers. As shown in Appendix A, the mainstream newspapers are all located in the largest cities in China. A majority of media affiliations in our sample are also located in those cities. If listed firms holding those media affiliations are also located in those cities, they tend to exhibit better performance due to more favorable local economic conditions and, consequently, receive more positive media coverage. Under such circumstances, geographic proximity may not serve as a proxy for a closer connection but rather a proxy for local conditions. To address this concern, we exclude observations where both listed firms and their media affiliations are located in the same cities as the mainstream newspapers and re-run the regression analysis outlined above.[20] Using the same PSM approach as described earlier, we select the "best" match from observations without media affiliations to each observation with media affiliations. We run regression model (1) with the two matched subsamples separately.

The analysis is reported in Table 5. Our results across all variations consistently show that the estimated coefficient on Ownership is positive and significant at the 1% level in the "Same" group, whereas they are not significant in the "Different" group. Additionally, chi-square tests derived from seemingly unrelated regression estimation suggest that this difference is statistically significant. Overall, we find evidence in favor of *H2*, namely, that the positive association between media affiliation and favorable media reports is more prominent when firms have stronger connections with the eight largest financial newspapers.

4.5 | Similarity of Media Reports (H3)

By examining the consistency of coverage across multiple unaffiliated outlets, we now aim to provide deeper evidence of the role media affiliations on shaping media narratives. To measure the similarity of media reports, we focus on press-initiated news while excluding reprinted content. For each press-initiated report, we calculate the total number of similar reports published by the eight major financial newspapers or all financial newspapers within 15 days of the initial report's release. Data on similar reports are sourced from the CNRDS database.[21] We construct two dependent variable constructs for use in re-estimating regression model (1), Similarity_eight and Similarity_all, to capture the extent of content similarity. Similarity_eight is defined as the natural logarithm of the total number of similar reports from the eight largest financial newspapers divided by the total number of press-initiated reports for a firm in a given year. Similarly, Similarity_all is defined as the natural logarithm of the total number of similar reports from all financial newspapers in the database divided by the total number of press-initiated reports for a firm in a given year.

TABLE 5 | Impact of networks.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	**Coverage**		**Tone_value**		**Tone_rank**	
Location	**Same**	**Different**	**Same**	**Different**	**Same**	**Different**
Ownership	0.735**	0.096	70.308***	1.038	2.217***	−0.182
	(2.156)	(0.497)	(2.730)	(0.134)	(2.698)	(−0.419)
Size	0.282***	0.430***	2.265	4.775**	−0.040	0.240**
	(2.688)	(9.847)	(0.476)	(2.229)	(−0.142)	(2.272)
Leverage	0.663***	0.185	9.485	−6.250	−0.118	−0.235
	(2.889)	(0.976)	(0.465)	(−0.748)	(−0.117)	(−0.538)
BM	−0.399***	−0.192***	−8.463***	−5.468***	−0.314*	−0.289***
	(−3.953)	(−5.381)	(−2.860)	(−2.960)	(−1.779)	(−3.068)
Growth	0.321	0.331	0.114	18.947	−0.759	1.146
	(0.535)	(1.014)	(0.003)	(0.750)	(−0.408)	(0.960)
ROA	−0.300	0.421	−10.566	7.701	−0.999	−0.262
	(−0.448)	(1.225)	(−0.347)	(0.432)	(−0.706)	(−0.245)
Momentum	−0.039	0.105*	4.084	1.896	0.263	0.020
	(−0.392)	(1.891)	(0.705)	(0.570)	(1.046)	(0.131)
Idiosyncratic	1.853	1.126	−201.588*	−91.042	−7.519	−4.800
	(1.168)	(0.879)	(−1.809)	(−1.345)	(−1.321)	(−1.323)
Dual	−0.119	0.087	−0.257	4.724	0.031	0.361*
	(−1.006)	(1.196)	(−0.045)	(1.248)	(0.127)	(1.745)
Board	0.038	0.012	−1.103	1.152	−0.042	0.060
	(1.062)	(0.754)	(−0.715)	(1.429)	(−0.575)	(1.385)
Ind	0.007	0.005	0.122	0.421	0.016	0.027**
	(0.949)	(0.746)	(0.266)	(1.407)	(0.860)	(2.157)
Top	−0.011**	−0.003	0.100	−0.270	−0.007	−0.014
	(−2.127)	(−0.878)	(0.380)	(−1.541)	(−0.641)	(−1.555)
Block	−0.006	0.004	0.041	−0.111	−0.003	−0.003
	(−1.217)	(1.415)	(0.205)	(−0.857)	(−0.306)	(−0.462)
Z-index	−0.142**	−0.031	1.044	2.416	0.408**	0.021
	(−2.147)	(−0.326)	(0.218)	(0.899)	(2.437)	(0.155)
SOE	−0.370**	−0.201*	−2.372	−8.012*	0.419	−0.522**
	(−2.262)	(−1.687)	(−0.269)	(−1.956)	(0.985)	(−2.553)
MP	−0.070	0.033	−0.703	0.630	0.008	0.047
	(−0.618)	(0.547)	(−0.110)	(0.213)	(0.028)	(0.276)
Constant	−4.249*	−7.271***	−27.307	−58.595	5.264	−0.324
	(−1.724)	(−7.878)	(−0.253)	(−1.219)	(0.833)	(−0.139)
Difference	0.639		69.270		2.453	
Chi-square	2.84*		8.30***		8.81***	
Controls	Included	Included	Included	Included	Included	Included
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	678	2,090	672	2,044	672	2,044
Adj. R^2	0.711	0.635	0.261	0.211	0.314	0.233

(Continues)

TABLE 5 | (Continued)

Note: This table reports the results for the impact of network on the relationship between media affiliation and media report favorability. The dependent variables include media coverage (Coverage) and the tone of media reports (Tone_value and Tone_rank). Sample observations are classified either as "Same," including observations with at least one affiliated non-print media firm located in the same city as one of the eight newspapers, or "Different," including observations without any affiliated media located in the same city as any of the eight newspapers. The seemingly unrelated regression estimation is used to examine the difference between two groups, and chi-square statistics are shown in the table. All variable definitions are presented in Appendix B. Robust *t*-statistics based on standard errors clustered by firm are reported in parentheses.

Abbreviations: BM, book-to-market ratio; MP, media professional; ROA, return on assets; SOE, state-owned enterprise.

$^{*}p < 0.1$. $^{**}p < 0.05$. $^{***}p < 0.01$.

The results are presented in Table 6. The estimated coefficient on Ownership is positive and statistically significant at the 5% level for both measures. This analysis indicates that firms with media affiliations exhibit greater content similarity in reports across unaffiliated outlets compared to firms without such affiliations, thereby supporting *H3*.

4.6 | Cross-Sectional Tests

In this section, we examine whether the relationship between media affiliation and media coverage is more pronounced when firms perceive a significant advantage in managing their media image, and therefore, the benefit of exerting influence on media coverage exceeds the associated costs. In particular, we identify three circumstances when firms perceive a significant advantage in managing their media image.

4.6.1 | Market-Wide Investor Sentiment

Prior studies have shown that investor sentiment is exogenous to the firm, and firms have greater incentive to manage their media image when the prevailing investor sentiment is more pessimistic (e.g., Cahan et al. 2015). Therefore, we expect that the importance of media affiliation to favorable media reports rises when market-wide investor sentiment is more pessimistic.

To test this sentiment conjecture, we measure market-wide investor sentiment with the Baker–Wurgler (BW) sentiment index (Baker and Wurgler 2006).[22] Pessimistic is a dummy variable that equals 1 when the BW sentiment index in year *t* is lower than the median index value during our sample period and 0 otherwise. We include the interaction term of Ownership × Pessimistic in the regression model (1). Results reported in Panel A of Table 7 show that the estimated coefficient on the interaction term is positive and statistically significant in all cases, consistent with our prediction.

4.6.2 | "Sin" Industries

Firms in "sin" industries generally have a negative public image (Hong and Kacperczyk 2009). Due to this, they have stronger incentive to improve their media image than firms in non-sin industries (Cahan et al. 2015). Following previous literature, we classify nuclear operations (El Ghoul et al. 2011) and biotech (Fabozzi et al. 2008) as "sin" industries.[23] We construct an indicator variable, Sin, which equals 1 for firms in these industries and zero otherwise, and we include an interaction term between Ownership and Sin in the regression model (1).[24]

The regression results are presented in Panel B of Table 7. The estimated coefficient on Ownership remains positive and statistically significant. The estimated coefficient on the interaction term Ownership × Sin is also positive and significant at the 1%, 5%, and 10% levels, respectively. These results are consistent with our expectations and indicate that firms in "sin" industries are more likely to manage media reporting through affiliated media firms.

4.6.3 | Corporate Scandals

We also conjecture that firms with scandals can obtain more benefits through improved media image and, therefore, have stronger incentive to engage in media management. With corporate scandal data obtained from the Enforcement Actions dataset in CSMAR, we use firm-daily observations to examine the impact of corporate scandals on the positive relationship between media affiliation and favorable reporting with the following regression model:

$$\begin{aligned}\text{Media}_{i,t} = {} & \alpha_0 + \alpha_1 \text{Ownership}_{i,t} \times \text{Post\_scandal}_{i,t} \\ & + \alpha_2 \text{Post}_{i,t} + \text{Control}_{i,t-1} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

where Media is one of Coverage, Tone_value, and Tone_rank. Specifically, Coverage is the natural logarithm of one plus the total number of reports from eight business newspapers for firm i on each day of the event window; Tone_value and Tone_Rank are the average tone value and the average tone rank of the reports for firm *i* on each day of the event window, respectively; Post_scandal is an indicator variable that equals 1 after a scandal announcement and 0 before the scandal announcement. The event window comprises 10 days before the announcement ([−10, −1]) and 10 days after the announcement ([+1, +10]).[25] Following Ahern and Sosyura (2014), we use firm fixed effects to control for any time-invariant firm characteristics. Other control variables include Return (the daily stock return on day $t-1$) and Turnover (the turnover, measured as the daily volume divided by shares outstanding, on day $t-1$). We investigate whether scandals strengthen firms' engagement in media management via media affiliation and therefore lead to a stronger association between media affiliation and favorable media reporting after announcements of scandals. We expect the coefficient on the interaction term, α_1, to be positive.

Panel C of Table 7 presents the results. The estimated coefficient on Post in the first column is positive and statistically significant

TABLE 6 | Content similarity of media reports.

Dependent variable	(1) Similarity_eight	(2) Similarity_all
Ownership	0.084**	0.110**
	(2.102)	(2.441)
Size	0.108***	0.112***
	(8.760)	(8.039)
Leverage	0.149***	0.154***
	(3.602)	(3.390)
BM	−0.022**	−0.010
	(−2.391)	(−0.910)
Growth	−0.169*	−0.156
	(−1.788)	(−1.502)
ROA	0.372***	0.397***
	(4.578)	(4.407)
Momentum	0.033***	0.033***
	(3.268)	(2.995)
Idiosyncratic	0.229	0.113
	(1.060)	(0.477)
Dual	0.002	0.005
	(0.137)	(0.278)
Board	0.008*	0.008*
	(1.883)	(1.736)
Ind	0.003***	0.003**
	(2.680)	(2.359)
Top	0.002***	0.003***
	(2.797)	(3.307)
Block	0.000	0.001
	(0.096)	(0.858)
Z-index	−0.019	−0.017
	(−1.115)	(−0.904)
SOE	−0.006	−0.024
	(−0.201)	(−0.697)
MP	−0.007	−0.005
	(−0.563)	(−0.326)
Constant	−2.033***	−2.063***
	(−7.361)	(−6.583)
Firm FE	Yes	Yes
Year FE	Yes	Yes
Observations	22,084	22,084
Adj. R^2	0.497	0.503

Note: This table examines the association between media affiliation and similarity reports from the business press. The dependent variable is either Similarity_eight or Similarity_all. All variable definitions are presented in Appendix B. Robust *t*-statistics based on standard errors clustered by firm are reported in parentheses. Abbreviations: BM, book-to-market ratio; MP, media professional; ROA, return on assets; SOE, state-owned enterprise.

*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

TABLE 7 | Impact of firms' media image management motivations.

Panel A: Market pessimistic			
	(1)	**(2)**	**(3)**
Dependent variable	**Coverage**	**Tone_value**	**Tone_rank**
Ownership	0.142***	9.125***	0.393***
	(2.800)	(3.913)	(3.171)
Ownership × Pessimistic	0.083***	7.642***	0.305***
	(3.576)	(5.361)	(4.358)
Controls	Included	Included	Included
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	22,868	22,084	22,084
Adj. R^2	0.615	0.184	0.161
Panel B: Sin versus non-sin Industries			
	(1)	**(2)**	**(3)**
Dependent variable	**Coverage**	**Tone_value**	**Tone_rank**
Ownership	0.157***	11.408***	0.490***
	(3.037)	(4.833)	(3.841)
Ownership × Sin	0.366***	20.572**	0.754*
	(2.860)	(2.267)	(1.743)
Controls	Included	Included	Included
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	22,868	22,084	22,084
Adj. R^2	0.615	0.183	0.160
Panel C: Pre versus post corporate scandal			
	(1)	**(2)**	**(3)**
Dependent variable	**Coverage**	**Tone_value**	**Tone_rank**
Ownership	0.115**	21.986**	1.251***
	(2.249)	(2.116)	(3.538)
Ownership × Post_scandal	0.080***	14.124**	0.650***
	(5.987)	(2.067)	(2.766)
Post_scandal	0.107**	−7.033***	−0.378***
	(2.020)	(−4.304)	(−4.946)
Return	0.038***	2.190***	0.086***
	(22.582)	(7.645)	(6.520)
Turnover	0.003	0.184*	0.012**
	(1.540)	(1.726)	(2.550)
Constant	0.301***	19.107***	1.803***
	(29.275)	(11.321)	(26.919)
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	7,409	3,968	3,968
Adj. R^2	0.297	0.388	0.145

(Continues)

TABLE 7 | (Continued)

Note: This table explores the impact of firms' media image management motivations on the association between media affiliation and favorable reports. Firms with a stronger motivation: Panel A—when investor sentiment is more pessimistic, Panel B—sin industries versus non-sin industries, and Panel C—after corporate scandal (compared with before the corporate scandal). All variable definitions are presented in Appendix B. Robust *t*-statistics based on standard errors clustered by firm are reported in parentheses.
$^{*}p < 0.1$. $^{**}p < 0.05$. $^{***}p < 0.01$.

when the dependent variable is Coverage, whereas the counterparts in Columns (2) and (3) are negative and statistically significant when the dependent variables are Tone_value and Tone_rank, respectively. Collectively, these results suggest that listed firms attract more media attention after corporate scandals, whereas the tone of those reports is generally negative. The estimated coefficient on the interaction term Ownership × Post_scandal is positive and significant at the 1%, 5%, and 1% level, respectively, suggesting that media affiliation mitigates negative reports after corporate scandals, consistent with our conjecture that firms engage more in media image management after corporate scandals through their media affiliations.[26]

5 | Additional Analyses and Robustness Tests

5.1 | The Dissemination of Information Disclosure

After documenting the vital role of media affiliation in media image management, we further extend our study by investigating whether media-affiliated firms are associated with favorability in information dissemination. In particular, we use firms' announcements of dividend payment and M&A as the events and explore whether media affiliation facilitates the dissemination of firms' information disclosure. We estimate the following equation:

$$\text{Media}_{i,t}\,[-1,\ 28] = \alpha_0 + \alpha_1 \text{Ownership}_{i,t} + \text{Control}_{i,t} + \varepsilon_{i,t} \quad (4)$$

where Media [−1, 28] presents the media coverage (Coverage [−1, 28]), and the tone of media reports (Tone_value [−1, 28] and Tone_rank [−1, 28]) over [−1, 28] spanning the day of an announcement.[27] When we focus on dividend payment, we add △DRP as an additional variable. △DRP is measured as the annual change of dividend per share. In addition, M&A Size is measured as the M&A deal value, scaled by total assets. This variable, M&A Size, is added to our estimation when we focus on M&A event. Other variables are the same as Equation (1).

In our sample period, we identify 16,595 announcements of dividend payment. We examine whether firms with media affiliation are associated with favorable reporting after they announce dividend payments. The corresponding results are reported in Panel A of Table 8. Across all specifications, the estimated coefficient on Ownership is positive and significant at the 1% level, suggesting that media outlets attach more attention to media-affiliated firms and provide them more positive reports.

We also focus on the announcement of M&A and examine the effect of media affiliation on information dissemination after the announcement of M&A. The results are presented in Panel B of Table 8. The estimated coefficient on Ownership is still positive and significant. Overall, our results indicate that media affiliation has a positive impact on the dissemination of firms' disclosure.

5.2 | Firm Value

We also examine how media affiliation and favorable media reports affect firm value. We measure firm value with Tobin's Q (*Q*), calculated as the log of the market-to-book ratio for firm *i* at the end of year *t* (e.g., Cahan et al. 2015). Following the previous literature (e.g., Cahan et al. 2015; Gurun and Butler 2012), we control various firm characteristics that might affect firm value, including firm size (Size), financial leverage (Leverage), growth opportunities (Growth), ROA, capital expenditure (CAPX), cumulative daily raw return over 12-month prior to year *t* (Momentum), idiosyncratic volatility (Idiosyncratic), firms' ownership structure (Top, Block, *Z*-index, SOE), CEO and chairman duality dummy (Dual), board size (Board), board independence (Ind), and the percentage of institutional ownership in the firm (Institution). The detailed definitions of these variables are shown in Appendix B. The equation is as follows:

$$\begin{aligned} Q_{i,t} = {} & \alpha_0 + \alpha_1 \text{Coverage}_{i,t}/\text{Tone}_{i,t} + \alpha_2 \text{Coverage}_{i,t}/\text{Tone}_{i,t} \\ & \times \text{Ownership}_{i,t} + \alpha_3 \text{Ownership}_{i,t} + \text{Control}_{i,t} + \varepsilon_{i,t} \quad (5) \end{aligned}$$

We report the regression results in Table 9. We first regress *Q* on Ownership (Column 1). We find that holding an ownership stake in media companies is positively associated with firm value. Next, we add media coverage (Coverage) and the tone of the media reports (Tone_value and Tone_rank) into our regression models. The tone of the media reports is measured by Tone_value in Columns (4) and (5) and Tone_rank in Columns (6) and (7). Our analyses show that both media coverage and favorable tone of media reports are positively associated with firm value, consistent with previous studies (e.g., Cahan et al. 2015; Gurun and Butler 2012). After including variables for media reports (Coverage, Tone_value, and Tone_rank) to the regression models, the estimated coefficient on Ownership becomes smaller and insignificant in Columns (2), (4), and (6), implying that media-affiliation increases firm value due to more favorable media reporting.

Further, we add the interaction term between media reporting (Coverage, Tone_value, and Tone_rank) and Ownership to examine whether investors differentiate favorable reporting of firms with media affiliations from those without media affiliations. Regarding media coverage, we find that the estimated coefficient on Coverage is still positive and significant at the 1% level, whereas the estimated coefficient on the interaction term is statistically insignificant. Regarding the tone of media reports, we find that the estimated coefficient on the interaction term is also statistically insignificant, and the estimated coefficients on Tone_value and Tone_rank remain positive, although they

TABLE 8 | Media ownership and the dissemination of information disclosure.

Panel A: Dividend payment			
	(1)	**(2)**	**(3)**
Dependent variable	**Coverage [−1, 28]**	**Tone_value [−1, 28]**	**Tone_rank [−1, 28]**
Ownership	0.496***	28.153***	0.933***
	(8.332)	(5.038)	(5.511)
△DPS	0.083*	23.083***	0.373**
	(1.827)	(3.870)	(2.055)
Controls	Included	Included	Included
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	16,595	7,931	7,931
Adj. R^2	0.442	0.108	0.145
Panel B: M&A			
	(1)	**(2)**	**(3)**
Dependent variable	**Coverage [−1, 28]**	**Tone_value [−1, 28]**	**Tone_rank [−1, 28]**
Ownership	0.120**	9.735**	0.361***
	(2.148)	(2.544)	(2.862)
M&A Size	1.098***	35.183***	1.510***
	(33.795)	(12.900)	(17.816)
Controls	Included	Included	Included
Firm FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	35,734	22,893	22,893
Adj. R^2	0.473	0.130	0.216

Note: This table reports the results for the impact of media affiliation on the dissemination of firms' information disclosure. The announcement of Panel A is dividend payment, and the announcement of Panel B is mergers and acquisitions. All variable definitions are presented in Appendix B. Robust *t*-statistics based on standard errors clustered by firm are reported in parentheses.
*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

are smaller than those in Columns (4) and (6), but remain significant at the 1% level. These results suggest that investors do not discount favorable reports for firms with media affiliations when pricing the firms.

Collectively, our analysis reveals that media-affiliated firms have a higher firm value due to more positive media reporting and that investors do not discount the media favorability created by media affiliations. It further provides evidence of an incentive for firms to manage their media images through media affiliations.

5.3 | The Impact of State Ownership

In this section, we examine whether the association between firms' media affiliation and favorable media slant is influenced by state ownership in news outlets and in listed firms, respectively. Compared with state-controlled newspapers, non-state-controlled newspapers are market-oriented and superior in terms of operating efficiency and independence (Piotroski et al. 2017; You et al. 2018). Therefore, we expect that the association between a favorable media slant and firms' media affiliation is stronger in reports in state-controlled newspapers than in those in market-oriented (non-state-controlled) newspapers.

We partition the media reports into two groups: One group includes reports from state-controlled newspapers (State) versus the other group that includes reports from market-oriented newspapers (Market). The ownership structure of media outlets is shown in Appendix A. We measure media coverage and tone of the reports from these two groups separately and run regression models (1) for these two sets. The results are reported in Panel A, Table 10. In Columns (1), (3), and (5), the dependent variables (Coverage, Tone_value, and Tone_rank) are measured with reports from state-controlled newspapers. The dependent variables are measured with reports from market-oriented newspapers in Columns (2), (4), and (6). Results in Columns (1) and (2) show that media-affiliated firms are associated with more coverage from state-controlled and market-oriented newspapers, whereas the association is stronger in state-controlled newspapers. Results in Columns (3)–(6) suggest that firms' media affiliation is associated with more positive tone of

TABLE 9 | Media ownership, media reports, and firm value.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Ownership	0.255*	0.252*	0.431**	0.202	0.077	0.216	0.050
	(1.768)	(1.743)	(2.078)	(1.407)	(0.480)	(1.504)	(0.271)
Coverage		0.091***	0.100***				
		(4.180)	(4.310)				
Ownership × Coverage			−0.068				
			(−1.253)				
Tone_value				0.004***	0.003***		
				(7.440)	(6.491)		
Ownership × Tone_value					0.002		
					(1.446)		
Tone_rank						0.067***	0.062***
						(7.693)	(6.784)
Ownership × Tone_rank							0.030
							(1.153)
Size	−0.347***	−0.328***	−0.328***	−0.330***	−0.332***	−0.341***	−0.342***
	(−10.372)	(−9.560)	(−9.566)	(−9.781)	(−9.839)	(−10.173)	(−10.198)
Leverage	−0.368*	−0.415**	−0.414**	−0.395**	−0.396**	−0.378**	−0.379**
	(−1.954)	(−2.199)	(−2.194)	(−2.097)	(−2.101)	(−2.011)	(−2.014)
Growth	0.674	0.665	0.666	0.687*	0.690*	0.693*	0.695*
	(1.633)	(1.612)	(1.614)	(1.660)	(1.668)	(1.676)	(1.681)
ROA	3.750***	3.687***	3.682***	3.656***	3.664***	3.686***	3.690***
	(8.085)	(7.973)	(7.955)	(7.905)	(7.927)	(7.960)	(7.968)
CAPX	−0.116***	−0.120***	−0.120***	−0.119***	−0.119***	−0.118***	−0.118***
	(−5.861)	(−6.037)	(−6.008)	(−6.009)	(−6.008)	(−5.978)	(−5.982)
Momentum	0.372***	0.376***	0.376***	0.381***	0.380***	0.366***	0.366***
	(19.032)	(19.086)	(19.070)	(19.445)	(19.300)	(18.974)	(18.916)
Idiosyncratic	6.483***	6.399***	6.388***	6.507***	6.523***	6.922***	6.930***
	(12.489)	(12.345)	(12.324)	(12.629)	(12.658)	(13.313)	(13.337)
Dual	0.137**	0.138**	0.138**	0.131**	0.129**	0.130**	0.129**
	(2.123)	(2.137)	(2.142)	(2.043)	(2.008)	(2.026)	(2.006)
Board	−0.025	−0.028*	−0.028*	−0.025	−0.025	−0.024	−0.024
	(−1.611)	(−1.795)	(−1.791)	(−1.632)	(−1.624)	(−1.574)	(−1.572)
Ind	0.018***	0.018***	0.018***	0.017***	0.017***	0.017***	0.017***
	(4.405)	(4.420)	(4.433)	(4.314)	(4.303)	(4.259)	(4.252)
Top	−0.023***	−0.023***	−0.023***	−0.024***	−0.023***	−0.023***	−0.023***
	(−8.579)	(−8.773)	(−8.785)	(−8.901)	(−8.882)	(−8.701)	(−8.706)
Block	−0.015***	−0.016***	−0.016***	−0.016***	−0.016***	−0.015***	−0.015***
	(−6.293)	(−6.488)	(−6.510)	(−6.463)	(−6.450)	(−6.250)	(−6.246)
Z-index	−0.125**	−0.127**	−0.128**	−0.125**	−0.125**	−0.118**	−0.119**
	(−2.490)	(−2.535)	(−2.560)	(−2.492)	(−2.503)	(−2.366)	(−2.371)
SOE	−0.634***	−0.633***	−0.634***	−0.620***	−0.619***	−0.623***	−0.622***
	(−4.997)	(−4.970)	(−4.982)	(−4.872)	(−4.859)	(−4.916)	(−4.906)
Institution	0.051***	0.050***	0.050***	0.051***	0.051***	0.051***	0.051***
	(12.847)	(12.502)	(12.502)	(12.792)	(12.764)	(12.848)	(12.844)

(Continues)

TABLE 9 | (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Constant	12.779***	12.312***	12.289***	12.365***	12.419***	12.372***	12.409***
	(17.052)	(16.076)	(16.018)	(16.312)	(16.387)	(16.429)	(16.476)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	20,040	20,040	20,040	20,034	20,034	20,034	20,034
Adj. R^2	0.500	0.500	0.500	0.502	0.503	0.502	0.502

Note: This table examines the impact of media-affiliated firms and favorable reports on firm value. The dependent variable in this table is Tobin's Q (Q). All variables are defined in Appendix B. Robust t-statistics based on standard errors clustered by firm are reported in parentheses.
Abbreviations: CAPX, capital expenditure; ROA, return on assets; SOE, state-owned enterprise.
*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

TABLE 10 | Impact of state ownership.

Panel A: State-controlled media vs. market-oriented media

	(1)	(2)	(3)	(4)	(5)	(6)
	Coverage		Tone_value		Tone_rank	
	State	Market	State	Market	State	Market
Ownership	0.252***	0.104**	21.324***	9.589***	1.279***	0.318**
	(5.473)	(2.004)	(5.316)	(3.297)	(6.183)	(2.171)
Difference	0.148		11.735		0.961	
Chi-square	11.08***		6.06**		17.43***	
Controls	Included	Included	Included	Included	Included	Included
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	22,868	22,868	15,182	21,957	15,182	21,957
Adj. R^2	0.622	0.591	0.223	0.149	0.178	0.126

Panel B: SOEs vs. non-SOEs

	(1)	(2)	(3)	(4)	(5)	(6)
	Coverage		Tone_value		Tone_rank	
	SOE	non-SOE	SOE	non-SOE	SOE	non-SOE
Ownership	0.217***	0.156**	12.225***	12.821***	0.398**	0.698***
	(2.762)	(2.421)	(3.634)	(3.956)	(2.126)	(4.333)
Difference	0.061		−0.596		−0.300	
Chi-square	0.36		0.02		1.47	
Control	Included	Included	Included	Included	Included	Included
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	10,507	12,276	10,221	11,778	10,221	11,778
Adj. R^2	0.653	0.578	0.194	0.182	0.171	0.152

Note: This table presents the regression results of the impact of state ownership on the relation between media affiliation and favorable reports. In Panel A, media reports are classified into "State" (which includes reports in state-controlled newspapers) and "Market" (which includes reports in market-oriented newspapers) groups. In Panel B, sample observations are classified, based on the ownership nature of a firm, into SOEs and non-SOEs groups. The seemingly unrelated regression estimation is used to examine the difference between two groups, and chi-square statistics are shown in the table. All variable definitions are presented in Appendix B. Robust t-statistics based on standard errors clustered by firm are reported in parentheses.
*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.

reports from state-controlled and market-oriented newspapers, and the association is stronger for state-controlled newspapers. The findings are generally consistent with previous studies (You et al. 2018); namely, that market-oriented media outlets are more independent and accurate than their state-controlled counterparts.

We further investigate whether state ownership of listed firms matters. Compared with SOEs that enjoy preferential treatment from the government from many perspectives, non-SOEs have stronger incentives to manage their media image to facilitate building reputation among stakeholders (Gentzkow and Shapiro 2006). However, SOE executives might suppress negative news and manage the firms' media image for promotion purposes (Jin et al. 2016). Therefore, ex ante, how the state ownership of listed firms impacts the association between firms' media affiliation and favorable media slant is an empirical question.

On the basis of the ownership nature of a firm, we divide the sample observations into SOEs versus non-SOEs groups and run regression models (1) for the two subsamples separately. The results are presented in Panel B in Table 10. The results for SOEs are presented in Columns (1), (3), and (5), whereas results for non-SOEs are reported in Columns (2), (4), and (6). The analysis shows that firms' media affiliations are associated with more media coverage and a favorable tone of reports for both SOEs and non-SOEs. Although the point estimate on Ownership is larger in non-SOEs in media coverage and tone of reports, the difference is not statistically significant, suggesting no detectible difference in the impact of media affiliation on media reports between SOEs and non-SOEs.

5.4 | Robustness Tests[28]

5.4.1 | Controlling Advertising Expenditure

Gurun and Butler (2012) document that firms with higher media advertising expenditures tend to have a more positive media slant. We do not control advertising expenditure in the main analysis because most listed firms only began disclosing this information in 2012, leading to a substantial reduction in the sample size if included. To mitigate concerns that decisions about holding ownership stakes in media companies and advertising expenditures may be correlated, we include the natural logarithm of total advertising expenditure as an additional control variable and re-estimate regression model (1) with a smaller subsample covering the period from 2012 to 2017. Furthermore, advertising expenditure is not a mandatory disclosure. We assume zero advertising expenditures in cases where firms do not disclose advertising expenditures. The estimated coefficients on Ownership remain positive and statistically significant at the 1% level.

5.4.2 | Alternative Matching Approach: Entropy-Balanced Matching

We examine whether our core results persist under an alternative multivariate matching technique known as entropy-balanced matching. Widely used in recent studies (e.g., Madsen and McMullin 2020), this matching method re-weights observations in both treatment and control groups in the moments of the distributions (i.e., mean, variance, and skewness), leading to a proper covariate balance in both groups. The matching variables are the same as those in the PSM approach. The estimated coefficient on Ownership remains positive and statistically significant, consistent with the main results.

5.4.3 | Alternative Measures of Tone

Utilizing positive/negative words in each article to measure media tone is another common method in the literature (e.g., Solomon 2012; Tetlock et al. 2008). We construct several alternative measures of media tone using the same method through a Chinese word list provided in You et al. (2018).[29] The first measure focuses on negative words, as negative information has more impact and is more thoroughly processed than positive information across a wide range of contexts (e.g., Baumeister et al. 2001; Tetlock 2007). Following You et al. (2018), we count the number of negative words per 1000 words in each article. We then use the average value for each firm in a given year and multiply by negative 1 as the measure for media tone (Negative). Next, we follow Solomon (2012) and measure the tone of each article with the number of positive words minus the number of negative words in the article, scaled by the total number of words in the article. Similarly, we use the yearly average for each firm as a measure for media tone (Favor). A higher value for either measure represents a more positive reporting tone. Using these two variables as alternative proxies for media tone, we re-estimate regression model (1), and the estimated coefficient on Ownership is positive and significant in both cases at the 1% level, consistent with the results reported in Table 3.

5.4.4 | Alternative Measures of Media Affiliation

In the main analysis, we use a dummy variable, Ownership, to measure the existence of affiliated media firms. This variable measures the simple binary difference between firms with versus those without media affiliations but ignores the possibility that firms with more media affiliations or firms that have a higher ownership percentage in media are firms that have a stronger ability to manage the relationship with media outlets. To consider variations in the ownership of media firms, we construct two alternative measures, Ownership_num and Ownership_per. Ownership_num represents the number of media affiliations held by a firm, while Ownership_per represents the percentage of ownership in media companies.[30] The estimated coefficients on Ownership_num and Ownership_per are both positive and statistically significant, consistent with the main results.

5.4.5 | The Impact Threshold for a Confounding Variable

To mitigate the issue of omitted variables from unobservable factors, we examine the potential ITCV (Frank 2000; Larcker and Rusticus 2010). This approach was proposed by Frank (2000) and has been widely used in current studies (e.g., Blaylock et al. 2015; Christensen 2016; Karampatsas et al. 2014) to quantify the

level of difficulty for a potential omitted variable to overturn a statistically significant coefficient. When the dependent variable is Coverage, the ITCV for Ownership is 0.0119, suggesting that a potentially correlated omitted variable must have a correlation of at least 0.1091 ($0.0119^{1/2}$) with Ownership and Coverage to overturn our main findings. Among the control variable, Size has the largest impact, with a partial correlation of 0.0109 and a raw correlation of 0.0454. However, both values are smaller than the ITCV for Ownership. Considering that our specification incorporates a wide selection of feasible control variables from prior studies and demonstrates strong explanatory power (Adj. R^2 is 0.615), we argue that we have a compelling case against the concern of a potential omitted variable overturning our baseline findings. The results are similar when the dependent variables are Tone_value and Tone_rank, as the ITCV for Ownership is larger than the impact of all the control variables. Overall, the findings in this section suggest that our baseline analysis is unlikely to be driven by unobserved confounding variables.

5.4.6 | An Alternative Explanation

One alternative explanation for the positive association between media-affiliated firms and media coverage is that favorable media coverage is due to journalists' active attention. That is, media affiliation attracts more media attention to a firm. The notion of journalists paying attention to firms with media affiliations relates to the peer attention effect, which suggests that individuals pay more attention to their peers or those who are similar to them (e.g., Kaustia and Rantala 2015) and to those who are in the same social circle (e.g., Wu et al. 2004). As news outlets and media companies affiliated with listed firms are in the same industry and likely share a similar social network, firms with media affiliations are more likely to obtain attention from journalists than those without media affiliations.

However, this explanation is inconsistent with our findings of the positive association between media-affiliated firms and favorable tone of media reports. If this alternative argument is true, we expect that the tone of media reporting is neutral or even negative, because this explanation suggests only that journalists pick up more information from firms with media affiliations rather than necessarily favoring them. Alternatively, journalists might negatively cover those firms because they are inclined to cater to readers' natural thirst for negative news and controversy (Arango-Kure et al. 2014; Baumeister et al. 2001; Tetlock 2007). Therefore, we argue that the positive relation between favorable media coverage and media-affiliated firms is well explained by firms' media image management rather than journalists' active attention.

6 | Conclusion

Using a large sample of Chinese data, we document that firms receive greater coverage and more favorable reports from unaffiliated media outlets when they hold ownership stakes in media firms. To validate our baseline findings, we provide empirical evidence supporting the proposed mechanism. In-line with the arguments that media ownership facilitates firms in establishing connections with unaffiliated media outlets, we find that the positive association between media affiliation and favorable media reporting is stronger for firms with non-print media affiliations located in the same city as one of the eight major financial newspapers. In addition, we find that firms with media affiliation exhibit greater content similarity in media reports compared to firms without such affiliation. This finding offers additional evidence of the role media affiliations play in shaping media narratives.

Further, we find that the association between media-affiliated firms and favorable reporting is more prominent when the benefits of managing a favorable media image are greater. Specifically, the relationship is stronger when market-wide investor sentiment is more pessimistic, or when they operate in controversial or "sinful" industries, or when firms are involved in corporate scandals.

Our additional analyses reveal that media-affiliated firms receive more coverage and better coverage from news outlets following their announcements of dividend payments and M&A, suggesting that media-affiliation promotes firm's information dissemination. Moreover, we find that media-affiliated firms have a higher firm value due to more favorable media reporting. This evidence lends support to the notion that the economic benefits of media favorability can motivate firms to manage their media image. In addition, the positive association between media affiliation and media reports is stronger in state-controlled newspapers than in market-oriented newspapers, while the influence on media reports through media-affiliations works for both SOEs and non-SOEs.

We show that firms can influence media reporting of unaffiliated media outlets through their ownership holdings in media firms. This evidence is (especially) important for (retail) investors and any stakeholders who are particularly reliant on using information collected from media reports to evaluate firms. Such information users need to be aware that reports on firms holding ownership stakes in media firms are more likely to be influenced and over-optimistic than reports for firms without any ownership in media firms. Given the crucial role of a fair media environment in promoting sustainable business and economic development, the implications of our findings have potential relevance for regulators around the world.

We acknowledge various limitations of our study. Although our location-based approach and content similarity analysis provide evidence supporting our arguments, the specific mechanisms through which media ownership facilitates connections and relationship-building between firms and unaffiliated outlets remain unobservable. For instance, pressure from advertisers or other stakeholders with crossholdings in both the focal firm and the unaffiliated media company could serve as alternative mechanisms underlying our findings. However, because the media companies affiliated with our sample firms are unlisted, we lack access to detailed information about their advertising revenue sources or other stakeholder relationships. Consequently, direct evidence of advertiser or stakeholder influence falls outside the scope of this study. We encourage future research to explore these mechanisms, potentially through surveys or interviews.

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Data Availability Statement

The data analyzed in this study are derived from the China Stock Market & Accounting Research (CSMAR) database, the Chinese Research Data Services (CNRDS) database, the China National Knowledge Infrastructure (CNKI) Newspapers database, and online sources, such as Baidu Baike (https://baike.baidu.com/), Sina Finance (https://finance.sina.com.cn/), and Qichacha (https://www.qcc.com/).

Endnotes

[1] This article reported on Alibaba's media assets: https://www.163.com/dy/article/FTODR7GP0511D84J.html. In this article, the author expressed concerns about Alibaba's effort to prevent the media from reporting negative news about itself through the media companies it controls. This article was published on NetEase in December 2020. It was originally from a WeChat public account (ID: shichangcaijing). WeChat Public Account is a social media platform launched by Tencent that allows individuals, businesses, and organizations to create and manage their own public accounts to publish articles, pictures, videos, and other content, and interact with fans. WeChat Public Accounts is one of the most popular social media platforms in China.

[2] We are unable to collect reports from all media outlets in this study. We follow many previous media studies and focus only on reports from prominent media outlets (e.g., Fang and Peress 2009; Piotroski et al. 2017; Tetlock et al. 2008). If firms with media affiliations have the ability to influence reports from prominent newspapers, they would likely have stronger ability to influence reports from other less prominent unaffiliated media outlets. Therefore, we expect the findings in this study can be extrapolated to reports from other unaffiliated media outlets that are not included in our sample.

[3] The ROST Content Mining System is a text analysis tool with a negative and positive Chinese dictionary to assess the tone of media reports. This software is developed by Professor Yang Shen and his team.

[4] Djankov et al. (2003) document that families and the state own the media around the world, and in particular, "the state controls approximately 29 percent of newspapers and 60 percent of television stations" (p. 357). For example, the Australian Broadcasting Corporation is owned and operated by the Australian government.

[5] A recent example is the cooperation between Southern Metropolis Daily and Baidu. Southern Metropolis Daily, a leading newspaper in Southern China, has a partnership with Baidu, one of the largest internet and artificial intelligence (AI) companies in China. Southern Metropolis Daily provides news content to Baidu's ERNIE bot, a ChatGPT-like chatbot, and applies AI dialogue technology in news production.

[6] An example is the cooperation between People's Daily and Guangzhou Daily. People's Daily is the official newspaper of the Communist Party of China and is distributed throughout the country. Guangzhou Daily is a local newspaper that is widely read in Guangzhou, the capital city of Guangdong Province. People's Daily and Guangzhou Daily have formed a partnership to share news content and resources, which allows Guangzhou Daily to provide its readers with more comprehensive coverage of national and international news, according to this article http://media.people.com.cn/n1/2019/0730/c120837-31263703.html (accessed on February 24, 2023).

[7] Companies in media industries often have long-term cooperations. For instance, Tencent and Huayi Brothers have collaborated since 2011. Huayi Brothers is a Chinese entertainment company that focuses on film and television production. Tencent is one of the largest internet platform companies in China. Tencent Video broadcasts Huayi Brothers' film and television works and provides data analysis and user feedback for Huayi Brothers.

[8] Sina Finance: https://finance.sina.com.cn/. Baidu Baike: https://baike.baidu.com/. Qichacha: https://www.qcc.com/.

[9] For media reports from the CNRDS database, we use the title of each report to download its full contents from the CNKI database because the full contents of reports are not included in CNRDS database.

[10] Regulation-mandated announcements or press releases made by listed firms, such as quarterly earnings reports, annual reports, and any ad hoc filings, are not included in media reports.

[11] We provide two examples to illustrate media companies invested by listed firms in our sample. Example 1: Xilinmen Furniture (stock code: 603008) is a Chinese company that specialized in the design, manufacture, and sale of home furniture. Xilinmen Furniture has three media subsidiaries, including Zhejiang Shengxihua Media Culture Co. Ltd., Huoerguosi Shengxihua Media Culture Co. Ltd., and Haining Shengxihua New Media Co. Ltd. These subsidiaries are primarily engaged in advertising and cultural media businesses. Example 2: Jinzhi Technology (stock code: 002090) is a Chinese IT company. Nanjing Cang'er Cultural Communication Co. Ltd. is one of Jinzhi Technology's subsidiaries, mainly engaging in the culture and entertainment industry.

[12] The number of observations for the tone of reports (*Tone_value* and *Tone_rank*) is slightly smaller than that for *Coverage* because a few firms have no coverage in some years. That is, observations with zero *Coverage* have no information for the tone of reports.

[13] The economic impact is calculated as |0.185/2.287| = 8.089% for *Coverage*, |13.002/41.150| = 31.597% for *Tone_value*, and |0.548/4.682| = 11.679% for *Tone_rank*, where 2.287, 41.150, and 4.682 are the mean values of *Coverage*, *Tone-value*, and *Tone_rank* in the sample, respectively.

[14] To conserve space, we only report the results with firm fixed effects and year fixed effects in the remaining analyses. All findings are qualitatively preserved with industry fixed effects and year fixed effects. These results are available from the authors upon request.

[15] The plan was approved by the State Council on July 22, 2009. Xinhua News Agency published this plan on September 26, 2009.

[16] We find that ROA, EPS, and annual stock return of the media industry in 2010 and 2011, that is, the two years after *the Plan*, are much higher than the average levels in our sample period. We also find that there are 30 and 38 firms making new investment in media companies in 2008 and 2009, respectively, whereas there are 65 and 57 firms making new investment in media companies in 2010 and 2011, showing a substantial increase in investment in media companies after *the Plan*.

[17] The annual data of total circulation of newspapers and magazines in each province are obtained from the Wind database and China Statistical Yearbook.

[18] As the headquarter location of a listed firm is time-invariant, we include industry fixed effects rather than firm fixed effects in this regression to avoid the IV being absorbed by the firm fixed effects.

[19] When observations with print media affiliations are included, the results remain unchanged.

[20] When observations where both listed firms and their media affiliations are located in the same cities are included, the results remain the same.

[21] The CNRDS Media Report Database differentiates between press-initiated news and reprinted news for each media report and provides similarity metrics for reports published by news outlets within 15 days of the initial report's release. The similarity metric is calculated using the vector space model, which evaluates the number of similar words between two reports. Detail information on the calculation method can be found at https://www.cnrds.com. The similarity value between two reports ranges from 0 to 1, with higher values indicating greater similarity. For the purposes of this study, reports with a similarity value larger than 0.5 are classified as "similar" reports.

[22] The BW sentiment index is calculated based on the principal components analysis from six underlying proxies for sentiment, comprising the closed-end fund discount, share turnover, the number and average first day returns on IPOs, the equity share of new issues, and the dividend premium. More details about the calculation method and proxies are shown in Baker and Wurgler (2006).

[23] Previous literature also classifies tobacco and alcohol (e.g., Hong and Kacperczyk 2009) as a "sin" industry. In China, there are no listed firms in the tobacco industry. Further, because alcohol is widely used in social activities in China, we exclude the alcohol industry from the sin classification.

[24] Note that the indicator variable, Sin, is absorbed by the firm fixed effect as this variable is time-invariant.

[25] We also try alternative time windows ([−15, −1] and [1, 15]; [−30, −1] and [1, 30]) and get the same results. Details are available from the authors upon request.

[26] It is worth noting that the sum of *Post* and Ownership × Post_Scandal *is* positive when the dependent variables are the tone of media report (Tone_value and Tone_rank). This is consistent with our argument that media-affiliated firms exhibit a stronger incentive to manage media reporting after a corporate scandal. Managed reports could include clarifications, remedies, or even apologies from the listed firms, which can potentially mitigate the negative impact of fraud on the market. Consequently, the tone of these reports can even become positive.

[27] We try alternative time windows ([0, 30] and [0, 15]) and get the same results. Details are available from the authors upon request.

[28] To conserve space, we briefly discuss the results of these robustness tests absent tabulation. The details are available from the authors upon request.

[29] The Chinese word list from You et al. (2018) includes two sources: an "inherited" list of Chinese words, which are translated from Loughran and McDonald (2013); and a "self-made" list. For detailed descriptions and the full list, refer to You et al. (2018).

[30] We measure Ownership_per with the highest percentage of ownership in media-affiliated companies if a firm has multiple media affiliations. If the ownership percentage is not disclosed, we assume a listed firm holds a 100% ownership stake in a media company.

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Appendix A

Details of the major chinese newspapers

Newspaper	Ownership structure	Designated to disclose information for public companies	Location
China Securities Journal	State-controlled	Yes	Beijing
Securities Daily	State-controlled	Yes	Beijing
Securities Times	State-controlled	Yes	Shenzhen
Shanghai Securities Journal	State-controlled	Yes	Shanghai
China Business Journal	Market-oriented	No	Beijing
First Financial Daily	Market-oriented	No	Shanghai
The Economic Observer	Market-oriented	No	Beijing
21st Century Business Herald	Market-oriented	No	Guangzhou

Note: This table lists the details of the eight largest national business newspapers in China. The details are retrieved from You et al. (2018).

Appendix B

Variable definitions

Variable	Definition
A. Independent variables	
Ownership	A dummy variable that equals 1 if a firm owns at least one media affiliation and 0 otherwise
Ownership_num	The number of media affiliations held by a firm
Ownership_per	The percentage of ownership held by a firm in media companies. It equals the highest percentage of ownership in media affiliation if a firm has multiple media affiliations
B. Dependent variables	
Coverage	The natural logarithm of 1 plus the total number of reports across the eight largest Chinese business newspapers about a given firm in a year. None of these eight financial media are owned by any A-share listed firms in the sample
Coverage_21st	The natural logarithm of 1 plus the total number of reports from the 21st Century Business Herald in 1 year before (September 2013–August 2014) or 1 year after (November 2014–October 2015) the scandal of the 21st Century Business Herald
Coverage [−1, 28]	The natural logarithm of 1 plus the total number of reports across the eight largest Chinese business newspapers about a given firm over [−1, 28] days around the announcement of dividend payment or M&A
Tone_value	The average value of tones across all reports from the eight largest Chinese business newspapers for a given firm in each year, using the value from the ROST system
Tone_rank	The average rank of the tones of media reports from the eight largest Chinese business newspapers for a given firm in a year
Tone_value_21st	The average value of tones from the *21st Century Business Herald* in 1 year before (September 2013–August 2014) or 1 year after (November 2014–October 2015)
Tone_rank_21st	The average rank of media reports from the *21st Century Business Herald* in 1 year before (September 2013–August 2014) or 1 year after (November 2014–October 2015)
Tone_value [−1, 28]	The average value of tone across all reports from the eight largest Chinese business newspapers for a given firm over [−1, 28] days around the announcement of dividend payment or M&A
Tone_rank [−1, 28]	The average rank of the tone of reports from the eight largest Chinese business newspapers for a given firm over [−1, 28] days around the announcement of dividend payment or M&A
Negative	The average value for the number of negative words per 1000 words in each article for each firm in each year, multiplied negative 1
Favor	The number of positive words minus the number of negative words in all articles for each firm in each year, scaled by the total words in all articles
Similarity_eight	The natural logarithm of the total number of similar reports across the eight largest Chinese business newspapers divided by the number of press-initiated reports from these eight business newspapers
Similarity_all	The natural logarithm of the total number of similar reports across all business newspapers in the database divided by the number of press-initiated reports from the eight largest Chinese business newspapers
Q	The natural logarithm of the market-to-book ratio at the end of year *t*
C. Other variables	
Size	The natural logarithm of total assets at the end of year *t*
Leverage	The ratio of total liabilities to total assets at the end of year *t*
Growth	Annual EBIT growth rate
BM	Book value of equity divided by the market value of equity at the end of year *t*

(Continues)

Variable	Definition
ROA	The ratio of net income before extraordinary items to total assets at the end of year *t*
Momentum	Cumulative daily raw return over 12-month prior to year *t*
Idiosyncratic	The standard deviation of monthly return for 1 year before year *t*
Top	The percentage of shares held by the largest stockholder at the end of year *t*
Block	The shareholding from the second largest shareholder to the tenth largest shareholder at the end of year *t*
Z-index	The ratio of the shareholding held by the largest stockholder to the shareholding held by the second largest stockholder at the end of year *t*, divided by 100
Board	Number of directors on the board at the end of year *t*
Ind	The ratio of the total number of independent directors to the total number of directors on the board at the end of year *t*
Dual	A dummy variable that equals 1 if CEO and chairman are the same people and 0 otherwise
SOE	A dummy variable that equals 1 if the largest controlling owner of the firm is the state and 0 otherwise
MP	A dummy variable that equals 1 if at least one director or senior manager has experience or currently works in the media industry and 0 otherwise
Treat	A dummy variable that equals 1 if an observation is in the treatment group, and 0 if it belongs to the control group. PSM approach is used to identify observations in the control group, and we select a matched firm from these without media affiliations
Treat_Reinvigoration	A dummy variable that equals 1 if an observation is in the treatment group, and 0 if it belongs to the control group. Firms that invest in the media industry in 2010 are our treatment group. We select the control group from observations without media affiliation during our sample period in the same year using the PSM approach
Post	Post equals 1 if observations are in year $T+1$, 0 if it is in year $T-1$. Year T is defined as the year when the value of Ownership changes from 0 to 1
Post_Reinvigoration	A dummy variable that equals 1 if an observation is in the 2 years after the release of *the* Plan (2011 and 2012), and 0 if the observation is in the 2 years before the release of *the* Plan (2008 and 2009)
Post_21st	A dummy variable that equals 1 if an observation is in 1 year after the scandal of the 21st Century Business Herald (November 2014–October 2015), and 0 if the observation is in 1 year before the scandal (September 2013–August 2014)
Return	The daily stock return on day $t-1$
Turnover	Daily stock turnover, measured as the daily trading volume divided by shares outstanding, on day $t-1$
Post_scandal	A dummy variable that equals 1 if an observation is in 10 days after an announcement of a corporate scandal ([1, 10]) and 0 if the observation is in 10 days before the announcement ([−10, −1])
Pessimistic	A dummy variable that equals 1 when the BW sentiment index is a below-median index value during our sample period and 0 otherwise
STD	The standard deviation of monthly stock market rates of return for the year before year *t*
Advertisement	The natural logarithm of total advertising expenditure at the end of year *t*
Circulation	The natural logarithm of the total circulation of newspapers and magazines in a year in the province scaled by the provincial population
$\triangle$DRS	The annual change of dividend per share
M&A Size	The value of M&A deal divided by total assets
CAPX	The natural logarithm of total capital expenditure at the end of year *t*
Institution	The percentage of the institutional ownership in a firm at the end of year *t*

Appendix C

Comparisons of economic significance across media image management channels

Channel	References	(1) Economic significance in the referenced study	(2) Economic significance using the method in Mitton (2024)
Hiring investor relation (IR) firms	Solomon (2012)	The economic significance interpretation in this article includes two ways. First, the authors directly use the coefficient to measure the magnitude of the impact. For example, the authors mention that "the coefficient on the IR firm dummy is 0.255, which means that IR firm use is associated with **25.5%** more media coverage, significant at the 1% level" (page 608). Second, the economic significant of interaction term is derived by multiplying the coefficient on the independent variable by the standard deviation of that variable. For instance, the authors mention "a one standard deviation increase in negative tone causes the IR firm effect to decrease by **3.9%**" (page 610). Using the same method (the second method), the economic significance of Ownership in our study is calculated as follows: **18.907%** (0.185 × 1.022) for Coverage, **43816.74%** for Tone_value (13.002 × 33.700), and **104.61%** (0.548 × 1.909) for Tone_rank	**2.122%** (0.262/12.347)—The mean value of media coverage is not reported in the article. Instead, the author provides the mean value for companies hiring IR firm (29.50, $n = 22{,}151$) and for those not using IR firm (9.57, $n = 136{,}828$). We calculate the mean value as follows: (29.50 × 22,151 + 9.57 × 136,828)/(22,151 + 136,828))
Engaging in corporate social responsibility (CSR)	Cahan et al. (2015)	To assess economic significance, this article refers to the following calculation: "A shift from one standard deviation below the mean of CSR to one standard deviation above the mean of CSR is associated with media favorability that is **8%** more positive based on the mean of *Media* (i.e., (0.007 × (1.954 − (−2.514))/0.390)" (page 412). Following this method, the economic significance of Ownership in our study is calculated as follows: **16.653%** (0.185 × (3.309 − 1.265)/2.287) for Coverage, **2129.611%** (13.002 × (74.850 − 7.450)/41.150) for Tone_value, and **44.592%** (0.548 × (6.601 − 2.783)/4.692) for Tone_rank	**4.010%** (0.007 × 2.234/0.390)

(Continues)

Channel	References	(1) Economic significance in the referenced study	(2) Economic significance using the method in Mitton (2024)
Social connections between media and firm executives	Ru et al. (2020)	The economic significance in the article is calculated by dividing the coefficient on key independent variable by the median value of the dependent variable. The authors find that social connections bias the news tone upward about **11.2%** of absolute sample median (full sample, page 981) and about **20.3%** of absolute sample median (common sample, page 983). Based on their method, the economic significance of Ownership in our study is calculated as follows: **8.033%** (0.185/2.303) for Coverage, **35.418%** (13.002/36.710) for Tone_value, and **11.469%** (0.548/4.778) for Tone_rank	**16.404%** (0.104/0.634) for media coverage; **8.946%** (0.028/0.313) for the tone of reports
Common business group affiliation	Ru et al. (2022)	The economic significance reported in this article is calculated using the method proposed by Mitton (2024) and indicates that "the tone of news articles on a firm published by connected newspapers is about **14.804%** more positive than the tone of articles on the same firm but published by unconnected newspapers"	**14.804%** (0.049/0.331)

Note: This table summarizes the economic significance of the channels firms use to manage their media image, as documented in prior studies. Column (1) reports the economic significance calculation used in each respective study and compares them to the economic significance of Ownership in our study, calculated using their methods. Column (2) reports the economic significance calculation based on the approach proposed by Mitton (2024). Specifically, when the explanatory variable is a dummy variable, economic significance is measured as the coefficient on the explanatory variable divided by the mean value of the dependent variable. For continuous explanatory variables, economic significance is calculated as the coefficient on the explanatory variable multiplied by the standard deviation of the explanatory variable, then divided by the mean value of the dependent variable. The economic significance of Ownership in our study, based on Mitton (2024) method, is as follows: 8.089% for Coverage, 31.597% for Tone_value, and 11.679% for Tone_rank.

Appendix D

Balance test of propensity score matching

	Unmatched sample			Matched sample		
	Mean		Diff.	Mean		Diff.
	Treatment	Control	*t*-Statistics	Treatment	Control	*t*-Statistics
Size	22.43	21.90	21.36***	22.43	22.44	−0.18
Idiosyncratic	0.07	0.07	3.51***	0.07	0.07	−0.77
STD	0.04	0.04	−2.47**	0.04	0.04	1.39
Leverage	0.52	0.45	17.46***	0.52	0.51	1.32
Growth	−0.01	−0.01	1.61	−0.01	−0.01	−0.34
BM	1.18	0.93	13.99***	1.18	1.16	0.83
ROA	0.03	0.04	−1.92*	0.03	0.03	0.08
Top	34.89	36.29	−4.65***	34.89	35.55	−1.60
Block	18.51	21.63	−12.11***	18.51	18.60	−0.26
Z-index	0.16	0.15	2.02**	0.16	0.16	−0.49
SOE	0.61	0.44	17.60***	0.61	0.61	−0.19
MP	0.27	0.19	10.01***	0.27	0.28	−1.05

Note: This table represents propensity score matching process. Firms with media affiliations are in the treatment group, while firms without media affiliations belong to the control group. We report *t*-statistic for testing the difference between the two groups. In the probit estimation, we include year and industry fixed effects, whereas we do not report the difference tests for year and industry dummies in this table. All variables are defined in Appendix B.

*$p < 0.1$. **$p < 0.05$. ***$p < 0.01$.