

Media visibility and board gender diversity

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Abstract

Despite the efforts of governments and market regulators, the under-representation of women on corporate boards continues to be a global concern. In this context, this study extends prior literature by investigating the relationship between media visibility and gender diversity on boards of directors. We examine a sample of 101 Spanish nonfinancial listed firms over the period 2003–2016. We find that media visibility positively affects board gender diversity. This finding is robust to alternative measures of media visibility and different econometric specifications. This research contributes to the existing literature on the relationship between media and board composition by suggesting the role of the media as a driver of board gender diversity. Results support the notion that the media are able to discipline managers and dominant owners by inflicting reputational costs.

KEYWORDS

board gender diversity, media, reputation, women directors

1 | INTRODUCTION

Previous literature has shown that media attention positively affects corporate social responsibility (hereinafter CSR) behavior (Borghesi et al., 2014; Zyglidopoulos et al., 2012). However, the effect of media visibility on board gender diversity remains unexplored. Thus, the analysis of this relation may be especially relevant since, although CSR forms a key part of agendas for academics, politicians, investors, and firms, the under-representation of women on corporate boards is a global concern. Accordingly, several countries have implemented policies to resolve the scarce presence of women on corporate boards, by establishing diversity quotas for listed companies (e.g., Norway in 2003, the 27 European Union member states in 2012) or by including board gender recommendations in codes of good governance, such as the United States in 2010, Australia in 2011, or the United Kingdom in 2012. Despite these institutional instruments, the movement toward greater female participation on corporate boards has been “glacially slow” (Labelle et al., 2015). In 2018,

the percentage of women on the boards of the largest publicly listed companies in the EU reached 26.7% (European Commission, 2019) while the figure stood at 21.4% in the world's 200 largest firms (Corporate Women Directors International, 2018). It is not therefore clear whether policies have proven to be effective in addressing the issue of female under-representation in corporate leadership (Terjesen et al., 2015).

In this study, we analyze the influence of the media on board gender diversity. Media encourage managers and dominant owners to accentuate stakeholders' interests since greater media visibility increases firms' vulnerability to pressures from different stakeholders and will drive firms to meet such demands in order to achieve survival and long-term success (Fiss & Zajac, 2006; Zyglidopoulos et al., 2012). Accordingly, the media become a driver of reputation through visibility and scrutiny, encouraging firms to evidence social commitment beyond the law and to adjust to institutional logic (Jansson, 2013; Lauterbach & Pajuste, 2017; Liu et al., 2017). Previous literature establishes that one reason why women are present on boards of directors is firms'

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desire for reputation and their wish to convey a good public image (Baselga-Pascual et al., 2018; Bear et al., 2010; Brammer et al., 2009; Mallin & Michelon, 2011). Thus, our hypothesis is that the media encourage companies to increase gender diversity on boards in order to improve the public image and reputation of managers and dominant owners. More specifically, we explore the effect of media visibility on women's presence on the board of directors in a continental European country, Spain. We find that media visibility positively affects board gender diversity. This finding is robust to alternative measures of media visibility and different econometric specifications as well as procedures that avoid endogeneity problems.

This study makes several contributions to the current literature. First, to the best of our knowledge, we are the first to provide strong evidence of a positive effect of media visibility on board gender diversity. Previous studies have indeed evidenced a positive relation between media visibility and CSR (Borghesi et al., 2014; Zyglidopoulos et al., 2012). However, diversity in those works is explored as an aggregate dimension to other dimensions in CSR (employees, environment, etc.). Moreover, diversity is examined based on gender as well as manager and director membership of ethnic minority groups. These aspects mean that the link between media visibility and gender diversity remains unclear. Furthermore, this lack of clarity is even greater if we consider the obstacles facing women who are seeking to join boards of directors (glass ceiling or old boys' club). Additionally, although board gender diversity does enhance corporate governance, at the same time it may lead to more conflicts among board members, complicate decision making, and damage group cohesion (Baker et al., 2020; Eulerich et al., 2014; Triana et al., 2014). Such factors could give rise to the use of other CSR activities, to the detriment of women being appointed as directors. Thus, our study sheds light on the media's impact on gender diversity in boards, addressing gender diversity as a separate isolated component.

Second, previous research has analyzed media impact on CSR in US firms, where the legal system affords a high level of stakeholder protection, and the corporate governance system proves effective. In this context, the media's role as a driver of diversity may differ from the continental European setting, where the legal system fails to offer strong stakeholder protection and the effectiveness of the governance system is weak (Djankov et al., 2008; La Porta et al., 1998). Such an institutional setting offers an advantage when exploring the media's role in company behavior since, as argued by Dyck et al. (2008), if the legal system and corporate governance are effective, it might prove difficult to identify any impact the media could have on corporate decisions.

Third, the American setting is characterized by a disperse ownership structure in which any decisions concerning investment in CSR are mainly taken by managers. However, in the continental European framework, the presence of dominant owners is prevalent (Faccio & Lang, 2002; La Porta et al., 1999), which might translate into important variations in insiders' incentives to invest in CSR and to appoint women as directors. High levels of participation in the hands of dominant shareholders could reduce the use of investing in CSR as an entrenchment mechanism and weaken the pressure of stakeholders' demands

on the company (Barnea & Rubin, 2010; Cespa & Cestone, 2007; Dam & Scholtens, 2013; Ducassy & Montandrou, 2015; López-Iturriaga & López-de-Foronda, 2011). Moreover, dominant shareholders may have little incentive to include women on the board, since female directors offer more protection for minority shareholder interests than their male counterparts (Adams & Ferreira, 2009) due to their exercising better control over the action of internal agents (the so-called watchdog role). Consequently, it is difficult to directly extrapolate research findings in the US context to a continental European setting, given that the institutional differences and presence of a different agency paradigm advocate exploring the media's role as a driver of board gender diversity in the European continental context.

Fourth, while other studies have explored the media-gender diversity relationship through media reaction to the appointment of female directors (Cahan et al., 2015; De Anca & Gabaldon, 2014), our research focuses on the media's role as a driver of gender diversity. In so doing, we help to expand the scarce literature examining what role the media play as a corporate governance mechanism in Europe (Jansson, 2013; Lauterbach & Pajuste, 2017) and we provide evidence on one of the factors that might impact board gender diversity, an aspect of corporate governance research that remains under-researched and unclear (Baker et al., 2020). Finally, we contribute to previous studies which focus on analyzing the impact of media attention on CSR behavior (Borghesi et al., 2014; Zyglidopoulos et al., 2012) by adding to the analysis of the media's role concerning the effect of news content on board gender diversity.

The remainder of the paper is organized as follows. Section 2 develops our hypotheses regarding how media visibility influences board gender diversity. Section 3 describes the data sources, sample selection, model specification, and summary statistics. Section 4 shows the empirical results. Section 5 concludes.

2 | THEORETICAL DEVELOPMENT AND HYPOTHESIS

Previous literature has pointed to industry type and firm-specific characteristics, such as size, network linkages, and strategic orientation, as drivers of female representation on corporate boards (Arena et al., 2015; Hillman et al., 2007). Similarly, contextual factors, such as legislation, corporate governance guidelines, or economic, legal, or political aspects play a key role concerning board gender diversity (Brammer et al., 2007; Grosvold & Brammer, 2011; Terjesen et al., 2015). However, media impact on board gender diversity has not been directly addressed in the literature.

The media increase the level of transparency of corporate decisions and influence the image and reputation of managers and dominant owners (Ahern & Sosyura, 2014; Dyck et al., 2008; Fang & Peress, 2009; Lauterbach & Pajuste, 2017; Liu & McConnell, 2013). According to this view, the media act as social referees who make judgments about managers and dominant owners, influencing the perceptions of a larger audience and helping to forge public opinion (Bednar, 2012; Dyck & Zingales, 2002; Farrell & Whidbee, 2002; Miller, 2006; Pollock &

Rindova, 2003; Wiesenfeld et al., 2008). Moreover, the media encourage politicians to make legislative changes or to enforce legal provisions in favor of external investors and can also affect the level of punishment for corporate governance violations (Dyck et al., 2008).

Media visibility thus induces managers and dominant owners to emphasize the interests of external investors and other stakeholders. The more visible that firms are in the media the more vulnerable they will be to pressure from different stakeholders and the more they will strive to meet such demands in order to achieve survival and long-term success (Fiss & Zajac, 2006; Zyglidopoulos et al., 2012). Consequently, the media become a driver of reputation through visibility and scrutiny, urging companies to display social commitment beyond the law and to adapt to institutional logic (Jansson, 2013; Lauterbach & Pajuste, 2017; Liu et al., 2017). Therefore, the media discipline managers and dominant owners by inflicting reputational costs that can negatively affect their professional careers, public image, and access to capital markets (Choi & Jung, 2008; Donker et al., 2008; Dyck et al., 2008; Dyck & Zingales, 2002; Fischer & Khoury, 2007). Specifically, the media play a corporate governance role by focusing the spotlight on firm performance and by pushing firms to make changes aimed at correcting deviant behavior, particularly vis-à-vis board composition. Farrell and Whidbee (2002) point out how media scrutiny of poor performing firms increases the likelihood of forced CEO turnover. Dyck et al. (2008) report that foreign media coverage of corporate governance violations by Russian firms increases the tendency of these firms to revert their violations. Liu and McConnell (2013) find support for the idea that the media can prompt managers to abandon value reducing acquisition attempts. Joe et al. (2009) show that media coverage of board ineffectiveness forces corrective actions that increase shareholder wealth. Liu et al. (2017) evidence how the media can play a role in corporate governance by influencing the value of CEOs' human capital, and Lauterbach and Pajuste (2017) demonstrate that media criticism increases the likelihood of voluntary dual class share unifications.

From an agency approach, reputation is an instrument that disciplines the actions of managers and dominant owners (Fama, 1980; Fama & Jensen, 1983). This may prove especially important in a continental European setting, where managers face a narrow labor market, dominant owners have incentives to protect their long-term control in the firm, and where the weakness of the legal system means that reputation is a substitute mechanism to discipline internal agents (Cuervo, 2002; La Porta et al., 1998, 1999, 2000). In addition, managers and dominant owners might feel driven to create a "halo effect" that promotes their own reputation and professional career, or which strengthens their entrenchment, thereby reducing the attention focused on agency conflicts with different stakeholders such as disgruntled employees or protests from consumer groups (Barnea & Rubin, 2010; Baron, 2008; Borghesi et al., 2014; Malmendier & Tate, 2009).

Previous studies have established that one of the reasons why women are present on boards is because of a firm's desire to secure a sound reputation and to convey a positive public image (Baselga-Pascual et al., 2018; Bear et al., 2010; Mallin & Michelon, 2011). Brammer et al. (2009) argue that gender diversity improves firms'

public image by signaling good corporate governance. Board gender diversity brings valuable resources and shows that the firm is sensitive to stakeholders' demands (De Anca & Gabaldon, 2014; Zyglidopoulos et al., 2012). Therefore, women directors may positively affect the perceptions of external agents since gender diversity increases a board's effectiveness by enhancing its knowledge and skills, motivating cognitive conflict, increasing creativity, and expanding its possible information pool, as well as its capacity to incorporate complementary information. Moreover, women directors may help the firm to manage its relationships with stakeholders (Daily et al., 1999; Jehn & Mannix, 2001; Lau & Murnighan, 1998; Schulze et al., 2001; Tuggle et al., 2010). Thus, there is previous evidence to support the positive relationship between women directors and reputation (Baselga-Pascual et al., 2018; Bear et al., 2010; Brammer et al., 2009; Mallin & Michelon, 2011). In this line, our hypothesis is that the media encourage companies to increase gender diversity on boards in an effort to improve their public image and reputation. Therefore, we suggest the following hypothesis:

H: Media visibility increases board gender diversity.

3 | RESEARCH DESIGN

3.1 | Sample

We examine a sample of 101 Spanish nonfinancial listed firms included in the OSIRIS (Bureau Van Dijk) database over the period 2003–2016. We thus obtained an unbalanced sample of 1,170 firm-year observations, with 87.1% of the firms having six or more observations during the period. This sample accounts for 97.8% of Spanish market capitalization in 2016. The continuous variables have been winsorized at the 1st and 99th percentiles in order to reduce the impact of potential outliers.

3.2 | Media visibility

To generate our measures of media attention and tone we use data from Peña-Martel et al. (2018), compiling the level of coverage from the FACTIVE database considering the number of news items that offer financial information by firm and year for the period 1996–2014 in the Spanish financial press (*Expansión*, *El Economista* and *Cinco Días*) and international press (*Dow Jones*, *Reuters*, *Financial Times*, *Wall Street Journal*, and *Business Wire*). These data exclude news that does not provide informative content such as alerts, announcements of dividend payments, or quotes. Since our study covers the period 2003–2016, we complete the previous database by adding new data covering 2015 and 2016. In line with previous research (Ahmad et al., 2016; Gurun & Butler, 2012; Liu & McConnell, 2013; Liu et al., 2017), we capture the tone of the news using the negative word list in financial texts provided by Loughran and McDonald (2011). We thus count the number of negative words in the news throughout the year for each firm in the period 2003–2016.

3.3 | Institutional context

The choice of Spanish firms is based on two main aspects. First, Spain offers a paradigmatic setting in which to evaluate media impact on gender diversity in boards of directors and so extrapolate the results obtained to most other continental European countries for several reasons. First, there is great freedom of the press in Spain (Freedom of the Press Index, 2020, *Freedom House*), companies are generally controlled by dominant owners (Fan & Wong, 2002; La Porta et al., 1999), and formal institutions offer weak protection for business transactions (Djankov et al., 2008). This context can therefore increase the relevance of reputation as a mechanism with which to discipline managers and dominant owners (Djankov et al., 2008; La Porta et al., 2000). Furthermore, focusing on a context with weak protection is an advantage when studying what role the media play in corporate governance, since in environments where legal rights are stronger, it is hard to tell whether changes in corporate governance are determined by the media or by the legal system (Dyck et al., 2008). Second, since 2006, Spain's corporate governance code has included the requirement to report gender diversity recruitment efforts, with Spain being the second country in the world to apply a mandatory law¹ to increase female boardroom member quotas (40% of seats). Both instruments recommend, but do not oblige, women to be appointed as directors. Furthermore, Spain showed a decline in gender-based disadvantage between 2003 and 2016, similar to other European countries such as France, Germany, and Italy (Gender Inequality Index, Human Development Reports 2020, United Nations, 2020). The Spanish context thus facilitates a study of the media's role as evaluators or judges of company management vis-à-vis board gender diversity.

3.4 | Variables

The dependent variable is *Women_Directors*, measured as the percentage of women directors out of the total number of directors. Our variable of interest is the level of media visibility (*Media*). Following previous literature (Ahern & Sosyura, 2014; Core et al., 2008; Dyck et al., 2008; Gurun & Butler, 2012; Liu & McConnell, 2013; Liu et al., 2017), we use two different perspectives of media visibility: (1) *Media_Attention*, defined as the of the number of news items on a firm reported by the media in each year between 2003 and 2016, and (2) *Media_Tone*, measured as the percentage of negative words to total words in the news. Consequently, a lower measure of media tone suggests more positive (or less negative) coverage of the firm.

In addition, we control for several firm characteristics that might affect the presence of women on boards. In particular, we include ROA (return on assets), measured as the relationship between earnings before interest, taxes, depreciation, and amortization to total assets (Deckop et al., 2006; Maas, 2018). To control the leverage effect, we use *Leverage*, which is defined as the ratio of total debt (short- and long-term debt) divided by total assets (Katmon et al., 2019; Rodríguez-Ariza et al., 2017). Growth opportunities are

controlled by the *QTobin* (Boubakri et al., 2016), and are computed as the market value of equity plus total debt, divided by total assets. In addition, we consider the size of the firm (*Size*) as the natural logarithm of total assets and age (*Age*), defined as the natural logarithm of one plus the number of years since the firm was created (Choi et al., 2010; Harjoto & Jo, 2011; Katmon et al., 2019; Li & Chen, 2018; Rodríguez-Fernández, 2016). Furthermore, we incorporate the *Voting* variable, which represents the voting rights of the largest shareholders (Oh et al., 2011; Zaid et al., 2020). We also include *Board_size*, measured as the natural logarithm of the total number of directors (Arena et al., 2015; Hillman et al., 2007) and *MD_WD*, defined as the fraction of a firm's male directors who sit on other boards with at least one female director (Adams & Ferreira, 2009; Chen et al., 2017; Levi et al., 2014). Finally, we also consider the presence of the company in the selective index of the Spanish stock market through the *Ibex35* variable (Odriozola & Baraibar-Diez, 2017). The model also includes the fixed effects of the industry and year. All the variables are defined in the Appendix.

3.5 | Model specification and estimation

After a preliminary descriptive analysis, we run three different analyses. First, the main regressions are estimated using the Generalized Method of Moments (GMM) developed by Blundell and Bond (1998). The use of this methodology allows us to address endogeneity problems. Baron (2008), Malmendier and Tate (2009), Barnea and Rubin (2010), and Borghesi et al. (2014) argue that internal agents who are particularly sensitive to their public reputation may be more inclined to encourage media coverage. Managers and dominant owners can thus influence media coverage themselves by affording greater accessibility. Internal agents who consider board diversity as a means of enhancing their reputation may attempt to promote these activities by cooperating with the media. This source of endogeneity is due to the simultaneity that exists between media and gender diversity. The GMM method also allows individual heterogeneity to be controlled, since the omitted unobservable factors may affect both media coverage and the percentage of women directors on boards. To analyze the effect of media visibility on board gender diversity, we estimate the following empirical model:

$$Women_Directors_{i,t} = \alpha + \beta \times Media_{i,t-1} + \gamma Z_{i,t} + Industry_i + Year_t + \epsilon_{i,t}$$

Second, we estimate a system of two simultaneous equations through three-stage least squares (3SLS). In the first equation, women directors depend on media coverage and a number of control variables (*Z* is the vector of control variables). In the second equation, media coverage is run against women directors and the control variables. By doing so, we control for possible reverse causality since the appointment of female directors could increase firms' media visibility. To reinforce the control for reverse causality, media coverage and women directors are lagged one year. The system of simultaneous equations is as follows:

$$Women_Directors_{i,t} = \alpha + \beta \times Media_{i,t-1} + \gamma Z_{i,t} + Industry_i + Year_t + \epsilon_{i,t} \quad (1)$$

$$Media_{i,t} = \alpha + \beta \times Women_Directors_{i,t-1} + \gamma Z_{i,t} + Industry_i + Year_t + \epsilon_{i,t} \quad (2)$$

Finally, although the GMM estimator reduces the potential problems associated with endogeneity in the media-gender diversity relationship, several authors who have focused their studies on media have estimated their regressions using the Two-Stage Least Squares (2SLS) approach (Liu & McConnell, 2013; Liu et al., 2017). This method enables the exogenous component from media coverage to be extracted and then used to explain board gender diversity, employing instrumental variables (IV) that capture media visibility, but which are uncorrelated with gender diversity. The 2SLS estimator therefore proves useful in purging coefficients of endogeneity bias (Baum et al., 2011; Chen et al., 2017). The 2SLS model we use can be expressed as:

$$Media_Estimated_{i,t} = \alpha + \beta \times IV_{i,t-1} + \gamma Z_{i,t} + Industry_i + Year_t + \epsilon_{i,t} \quad (1)$$

$$Women_Directors_{i,t} = \alpha + \beta \times Media_Estimated_{i,t-1} + \gamma Z_{i,t} + Industry_i + Year_t + \epsilon_{i,t} \quad (2)$$

4 | RESULTS

4.1 | Sample distribution

Figure 1 shows the sample distribution of the main variables of interest used in the analysis; on the one hand, the presence of at least one woman on the board (left) and, on the other, the fraction of female directors on the board (right), both expressed in percentages. The results show an increase in the number of boards with at least one female director, from 52.48% in 2003 to 80.20% in 2016. However, the increase is lower when analyzing the percentage of female directors, which rose from 12.80% to 18.03% in the period 2003–2016. These data suggest that, although the presence of women on the boards of Spanish firms has experienced an upward trend, the level of representation remains low.

In addition, since this paper focuses on analyzing the influence of the media on board gender diversity, it is interesting to look at the evolution of media information disclosure. Figure 2 shows that news about Spanish firms increased up to 2007, and then decreased

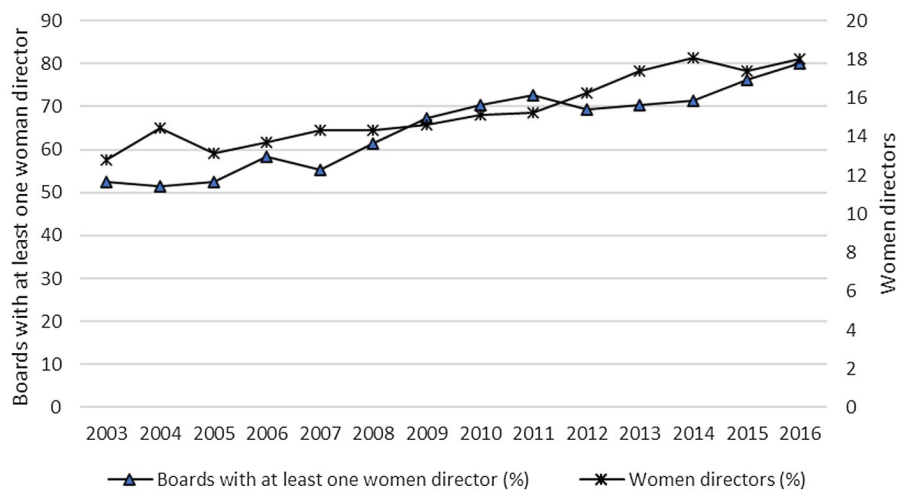


FIGURE 1 Annual board gender diversity

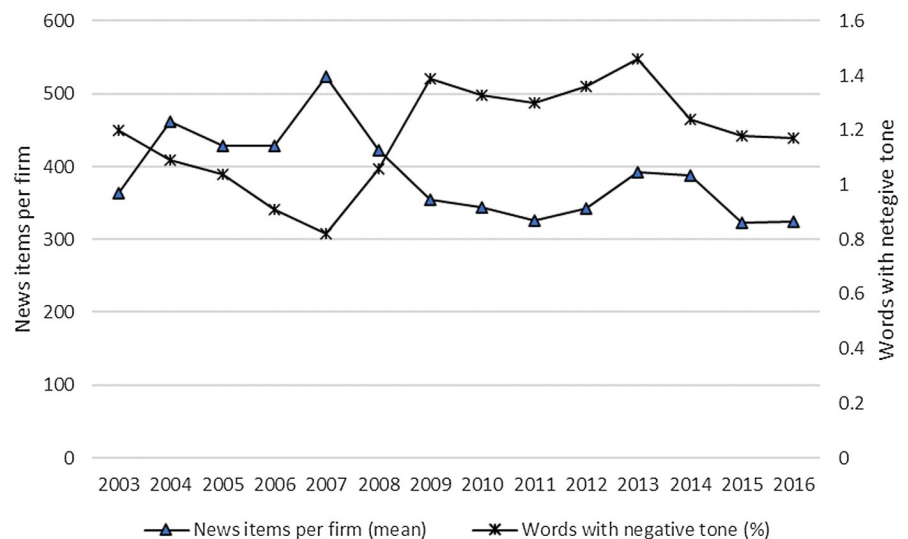


FIGURE 2 Annual media visibility

TABLE 1 Descriptive statistics

Panel A. Summary statistics												
	Mean	Median	S.D	1st Q	3rd Q							
Women_Directors (%)	9.198	7.692	10.167	0.000	15.384							
Media_Attention	383.788	113.000	728.053	49.000	352.000							
Media_Tone (%)	1.193	1.157	0.418	0.919	1.411							
ROA	0.084	0.058	0.832	0.025	0.091							
Size	13.936	13.761	1.975	12.438	15.150							
Leverage	67.811	64.000	81.639	50.000	76.923							
Age	49.452	43.000	29.632	26.000	70.000							
QTobin	1.591	1.206	1.518	0.988	1.600							
Voting	29.795	24.386	19.580	14.190	44.462							
Board_size	2.322	2.302	0.329	2.197	2.565							
MD_WD	4.756	0.000	8.539	0.000	8.333							
Panel B. Correlation matrix												
	Media_Attention	Media_Tone	Women_Directors	ROA	Size	Leverage	Age	QTobin	Voting	Board_size	MD_WD	VIF
Media_Tone	0.061**											
Women_Directors	0.075***	0.051*										
ROA	0.142***	-0.355***	0.021									1.21
Size	0.816***	-0.010	0.131***	-0.107***								2.19
Leverage	0.241***	0.125***	0.055*	-0.298***	0.351***							1.66
Age	0.111***	0.032	-0.019	-0.013	0.172***	0.190***						1.05
QTobin	-0.019	-0.090**	-0.003	0.343***	-0.138***	-0.030	-0.024					1.72
Voting	0.074**	-0.063**	0.149***	0.002	0.102***	0.099***	-0.011	0.092***				1.02
Board_size	0.496***	-0.091***	0.013	0.103***	0.651***	0.150***	0.161***	-0.153***	-0.070**			1.81
MD_WD	0.185***	0.053*	0.366***	0.040	0.191***	0.041	-0.017	0.018	0.096***	0.036		1.07
Ibex35	0.714***	0.035	0.067**	0.189***	0.726***	0.164***	0.120***	-0.007	-0.039	0.507***	0.164***	2.32
Panel C. Firms with high and low media attention												
	Firms with high media attention (N = 585)			Firms with low media attention (N = 585)								
	Mean	Median	SD	Mean	Median	SD	t-student					
Women_Directors	9.314	8.333	9.519	9.063	6.666	10.885	-0.422					
ROA	0.060	0.059	0.113	0.112	0.056	1.221	1.065					
Size	14.878	14.808	1.810	12.831	12.565	1.541	-20.652***					
Leverage	68.436	67.441	26.610	67.079	58.597	116.880	-0.283					
Age	50.921	45.000	28.494	47.731	41.000	30.850	-1.839*					
QTobin	1.449	1.193	0.965	1.756	1.222	1.966	3.464***					
Voting	28.135	22.993	18.599	31.741	26.732	20.518	3.156***					
Board_size	2.470	2.484	0.294	2.176	2.197	0.294	-17.054***					
MD_WD	6.592	0.000	9.695	2.934	0.000	6.744	-7.505***					
Ibex35	0.548	1.000	0.498	0.006	0.000	0.082	-25.977***					
Panel D. Firms with high and low negative media tone												
	Firms with high negative media tone (N = 585)			Firms with low negative media tone (N = 585)								
	Mean	Median	SD	Mean	Median	SD	t-student					
Women_Directors	9.056	7.417	9.620	9.366	8.333	10.782	0.520					

(Continues)

TABLE 1 (Continued)

Panel D. Firms with high and low negative media tone							
	Firms with high negative media tone (N = 585)			Firms with low negative media tone (N = 585)			t-student
	Mean	Median	SD	Mean	Median	SD	
ROA	0.062	0.059	0.120	0.109	0.057	1.221	0.955
Size	14.815	14.808	1.848	12.902	12.638	1.580	-18.873***
Leverage	68.563	67.579	27.131	66.927	58.650	116.840	-0.341
Age	51.463	45.000	28.113	47.087	41.000	31.185	-2.526***
QTobin	1.540	1.200	1.296	1.650	1.211	1.742	1.239
Voting	28.524	23.766	18.827	31.291	25.870	20.348	2.416**
Board_size	2.322	2.302	0.328	2.432	2.484	0.485	0.819
MD_WD	4.780	0.000	8.555	0.000	0.000	0.000	-1.368
Ibex35	0.327	0.000	0.469	0.227	0.000	0.419	-3.863***

Note: *****,**Statistically significant at $p .01$, $p .05$, and $p .10$, respectively.

after that year. Furthermore, there is also seen to be little variation in the percentage of words with a negative tone during the period 2003–2016.

4.2 | Descriptive statistics

Table 1 reports the descriptive statistics for all the variables. In Panel A (Table 1), we show that the average value of women directors is 9.19%, with the median being 7.69%. As regards the variables measuring media visibility, the average number of published news items is 383, with a median of 113. The average value of the percentage of negative words included in the published news is 1.19%, while the median is 1.15%. In Panel B (Table 1), we report the correlation matrix for all the variables. In addition, since the correlation between the key variables of interest is low, multicollinearity is not likely to be driving our regression results. This is confirmed by the low values of the VIF (Studenmund, 1997).

To shed some initial light on whether media visibility affects board gender diversity, we report simple comparisons of means of variables according to media coverage. More specifically, we consider firms with high and low media attention (Table 1. Panel C), and (b) high and low negative media tone (Table 1. Panel D). Results indicate there are no statistically significant differences in the percentage of women directors (*Women_Directors*), profitability (*ROA*), and leverage (*Leverage*) between firms with high and low visibility. Moreover, data suggest that firms with higher media visibility are larger and older, have fewer investment opportunities, lower ownership concentration, larger boards of directors, and more male directors linked with women directors, and that they are exposed to greater market control. Therefore, the relation between media visibility and board gender diversity seems to be more complex than initially anticipated and calls for further analysis.

TABLE 2 Media and board gender diversity. GMM estimator

	Women_Directors		
	Model 1	Model 2	Model 3
Media_Attention _{t-1}	0.001*** (2.68)		0.007** (1.95)
Media_Tone _{t-1}		1.574*** (4.14)	0.767* (1.79)
ROA	2.815*** (2.81)	3.297*** (3.53)	5.506 (0.62)
Size	0.429 (0.63)	0.872 (1.19)	0.716 (0.87)
Leverage	9.514* (1.94)	6.378 (1.40)	4.248 (0.88)
Age	-1.460 (-0.98)	-1.119 (-0.77)	-0.605 (-0.51)
QTobin	3.139** (2.27)	3.215** (2.63)	2.359** (2.02)
Voting	-0.069* (-1.92)	-0.041 (-1.43)	-0.056 (-1.56)
Board_size	0.108 (0.40)	-1.429 (-0.49)	1.846 (0.88)
MD_WD	0.221*** (3.20)	0.193*** (3.72)	0.195*** (3.91)
Ibex35	2.073* (1.72)	4.281* (1.85)	2.088 (0.87)
Constant	4.322** (2.01)	7.433 (0.62)	16.902 (1.61)
Industry effect	Yes	Yes	Yes
Year effect	Yes	Yes	Yes
m_2	1.39	-0.96	-0.59
Z_1	5.78***	8.77***	4.77***
Z_2	7.12***	2.87***	2.65***
Z_3	10.43***	11.75***	19.31***
Hansen test	67.72	62.48	41.56
F test	507.83***	371.2***	312.05***
No. of observations	1,170	1,170	1,170

Note: *****,**Statistically significant at $p .01$, $p .05$, and $p .10$, respectively.

4.3 | Media and board gender diversity

The results of the effect of media visibility on board gender diversity are given in Table 2. Consistent with our hypothesis, Model 1 (*Media_Attention*), Model 2 (*Media_Tone*), and Model 3—including

both the dimensions considered—show a positive and statistically significant effect of media visibility on board gender diversity (*Women_Directors*). In terms of the public image and reputation effect, agents are therefore more likely respond to greater gender diversity on boards when firms have greater media visibility and when the media tone is more negative. As for the control variables, we see that profitability (ROA), growth opportunities (*QTobin*), debt (*Leverage*), the fraction of male directors linked to women directors (*MD_WD*), and market control (*Ibex35*) display a positive and statistically significant effect on gender diversity. However, ownership concentration (*Voting*) shows a negative effect on gender diversity. Finally, firm size (*Size*), firm age (*Age*), and board of director seats (*Board_size*) have no significant effect. In addition, in order to test the consistency of the GMM estimates, we run two tests. First, the Hansen test indicates that instruments used by GMM regressions are valid. Second, the m_2 test shows that the second-order autocorrelation is not present in the GMM regressions. Finally, we run Wald tests for the joint significance of the reported coefficients (z_1), the joint significance of the time dummies (z_2), and the joint significance of industry dummies (z_3).

4.4 | Reverse causality

The results of estimating the system of simultaneous equations through 3SLS are reported in Models 4 and 5 of Table 3. In Model 4, we study media attention and in Model 5 we study the media tone of news. In both models, the dependent variable of Equation (1) is *Women_Directors* while the dependent variable of Equation (2) is media visibility (*Media_Attention* and *Media_Tone*). Each equation includes the main explanatory variables together with the control variables. In this regard, the control variables used in Equation (2) are firm's size and age, the fraction of a firm's male directors who sit on other boards with at least one female director, and market control, through the firm being listed on the Spanish stock exchange index. Equation (1) in Models 4 and 5 (Table 3) show a positive and statistically significant effect of media visibility on board gender diversity. In contrast, the presence of women directors has no significant influence on media coverage (Equation (2) in both Models). These results lend support to the idea concerning the lack of reverse causality between board gender diversity and media visibility.

TABLE 3 Media and board gender diversity. Three-stage Least Squares (3SLS)

	Model 4		Model 5	
	Women_Directors (Equation (1))	Media_Attention (Equation (2))	Women_Directors (Equation (1))	Media_Tone (Equation (2))
Women_Directors _{t-1}		0.015 (0.43)		0.013 (1.50)
Media_Attention _{t-1}	0.032*** (2.88)			
Media_Tone _{t-1}			3.014*** (4.07)	
ROA	3.266 (1.22)		7.765 (1.08)	
Size	-2.537*** (-8.24)	-0.634*** (-7.96)	-0.720** (-2.04)	-0.025 (-1.40)
Leverage	0.821 (1.08)		-0.214 (-0.11)	
Age	-0.915* (-2.25)	-0.079 (-0.82)	-0.021** (-2.05)	0.001 (0.8)
QTobin	2.432*** (6.18)		2.281*** (3.09)	
Voting	-0.059*** (-6.51)		-0.040*** (-2.62)	
Board_size	2.797** (2.37)	-0.476* (-1.68)	-0.8895 (-0.69)	-0.212*** (-3.42)
MD_WD	0.262*** (9.35)	0.039*** (2.70)	0.366*** (10.63)	-0.001 (-0.16)
Ibex35	2.623*** (2.64)	0.845*** (3.69)	-0.976 (-0.90)	0.156*** (3.07)
Constant	-1.642 (-0.45)	-2.534*** (-3.16)	-1.574 (-0.36)	1.853*** (10.72)
Industry effect	Yes	Yes	Yes	Yes
Year effect	Yes	Yes	Yes	Yes
Wald Chi ² Women_Directors	487.14***		194.13***	
Wald Chi ² Media_Attention		419.21***		
Wald Chi ² Media_Tone				37.26***
No. of observations	1,170	1,170	1,170	1,170

Note: *****,**Statistically significant at p .01, p .05, and p .10, respectively.

4.5 | Two-Stage Least Squares (2SLS) approach

We employ the instrumental variable approach as an alternative method to address the endogeneity concern (Liu & McConnell, 2013; Liu et al., 2017). El Ghoul et al. (2019) show that freedom of the press is a driver of firms' sensitivity to meeting stakeholders' demands. Thus, we include freedom of the press as our first instrumental variable. To do that, we use the Freedom of the Press Index (2020) published by Freedom House, defining *Press_Freedom* as the total number of countries in the Freedom of the Press Index minus Spain's position in the index. A higher value of the variable indicates greater freedom of the press. In addition, the media are rational agents who seek to maximize benefits by creating and disseminating information (Drake et al., 2014; Dyck et al., 2008; Houston et al., 2011). Consequently, from the perspective of economic incentives, news media coverage of firms satisfies a demand for information among their audiences and aims to maximize media revenue by increasing readership income while controlling the cost of providing information (Core et al., 2008). The media therefore select those firms for coverage who they believe their audiences will consider interesting. Baker et al. (2002) argue that the media increase their coverage of firms listed in international indexes, since the demand for information from investors and shareholders about those companies is greater. As a result, we define our second instrumental variable *FTSEEurotop100* to consider firms' attractiveness for media, measured as the percentage of capitalization of the firm over the total capitalization of the FTSE Eurotop 100 index. A higher value of the variable will positively affect media coverage.

Table 4 (Models 6 and 7) shows the results of a 2SLS instrumental variable regression designed to obtain the exogenous element from media visibility, which is then used to estimate gender diversity. Panel A of Table 4 shows the results of the first-stage regression, where *Media_Attention* and *Media_Tone* are the two alternative measures of media visibility. For brevity, we simply report the coefficients for the main variables. Both instruments, *Press_Freedom* and *FTSEEurotop100*, are statistically significant in the two models, and show a positive effect on media visibility. In addition, the reported F-statistics are high, suggesting that regressions are not weak. In this sense, the Cragg-Donald Wald F statistic rejects the null hypothesis that the instruments are weak. The last test we conduct on the validity of our instruments is the Hansen J over-identification test, which indicates that the instruments are valid since they are uncorrelated with the error term. Panel B shows the second-stage regressions, where the dependent variable is *Women_Directors*. The two regressions confirm the significant and positive effect of the media on board gender diversity. Consequently, we confirm that our results are not affected by the estimator used.

4.6 | Sensitivity analysis I. The presence of female directors

In this section, we analyze whether the presence of women directors on the board is affected by media visibility when we use a

TABLE 4 Media and board gender diversity. IV estimator

	Model 6	Model 7
	Dependent variable	
Panel A: First-stage regressions	Media_Attention	Media_Tone
<i>Press_Freedom</i> _{t-1}	0.030*** (5.99)	0.018* (1.79)
<i>FTSEEurotop100</i> _{t-1}	0.249*** (3.94)	0.210*** (3.29)
Controls	Yes	Yes
Industry effects	Yes	Yes
Year effects	Yes	Yes
F test	31.70***	27.67***
Cragg-Donald (CD) Wald F-statistic	25.03***	19.07***
J-statistic for over-identification	1.084	0.049
Panel B: Second-stage regressions	Dependent variable	
	Women_Directors	
<i>Media_Attention</i> _{t-1}	0.002*** (3.71)	
<i>Media_Tone</i> _{t-1}	1.436*** (2.60)	
ROA	6.176 (0.78)	2.073** (2.03)
Size	-3.154*** (-3.29)	-2.588** (-2.34)
Leverage	0.866 (0.41)	0.330 (0.15)
Age	0.001 (0.10)	0.370 (0.65)
QTobin	3.982*** (3.93)	3.573*** (3.50)
Voting	-0.096*** (-4.98)	-0.085*** (-4.20)
Board_size	1.842 (1.25)	0.268 (0.18)
MD_WD	0.429*** (8.46)	0.433*** (6.66)
lbex35	4.813*** (3.40)	3.979** (2.39)
Constant	2.055*** (3.46)	1.946*** (3.22)
Industry effect	Yes	Yes
Year effect	Yes	Yes
F test	16.13***	13.50***
No. of observations	1,170	1,170

Note: *****, Statistically significant at $p .01$, $p .05$, and $p .10$, respectively.

different measure for female representation on the board of directors. Specifically, we use *D_Women_Directors*, which is defined as a dummy variable taking the value 1 when at least one company director is a woman, and zero otherwise. Table 5 (Models 8 and 9) displays the results after estimating the Probit multivariate models with instrumental variables, considering the endogeneity of regressors. In this sense, Wald exogeneity tests show the presence of the endogeneity of the instrumented variables. Consequently, estimating a Probit model using instrumental variables is more appropriate than doing so without them. Results suggest that media visibility has a significant positive impact on the likelihood of a board having at least one female director.

TABLE 5 Sensitivity analysis I. Media and female director presence. IV Probit

	D_Women_Directors	
	Model 8	Model 9
Media_Attention _{t-1}	0.675*** (3.64)	
Media_Tone _{t-1}		0.901*** (8.75)
ROA	0.291 (0.32)	4.213*** (4.66)
Size	-0.351*** (-3.07)	-0.509*** (-6.43)
Leverage	0.028 (0.12)	0.639** (2.51)
Age	0.007 (0.51)	0.001 (0.89)
QTobin	0.389*** (3.66)	0.339*** (3.50)
Voting	-0.007*** (-3.37)	-0.007*** (-3.65)
Board_size	0.829*** (5.55)	0.642*** (3.85)
MD_WD	0.048*** (6.07)	0.016* (1.71)
Ibex35	0.506*** (2.94)	0.690*** (4.72)
Constant	0.113 (0.14)	1.730*** (2.84)
Industry effect	Yes	Yes
Year effect	Yes	Yes
Wald test	259***	814.26***
Log Likelihood	-2020.075	-1946.190
Wald test of exogeneity	10.84***	18.77***
No. of observations	1,170	1,170

Note: *****, Statistically significant at $p .01$, $p .05$ and $p .10$, respectively.

4.7 | Sensitivity analysis II. Changes in the dependent variable and sample. Spanish and Anglo-American media. Effect of gender content

In an effort to ensure our findings are not affected by certain biases, we re-estimate the models using different definitions of the dependent variable, changes in the sample and we use new measures of the explanatory variables. Overall, these additional tests, which are reported in Table 6, reinforce our evidence that media visibility has a positive effect on board gender diversity. Independent directors are frequently associated with greater informational transparency and a higher level of CSR information disclosures (Armstrong et al., 2014; Cuadrado-Ballesteros et al., 2015). Models 10 and 11 only consider the percentage of female independent directors as the dependent variable (*Indep_WomenDirectors*). To control for the average proportion of female directors in each company's industry, we use the variable *Exc_WomenDirectors* as the dependent variable in Models 12 and 13, which is measured as the percentage of a firm's women directors minus the industry mean value. A positive value of *Exc_WomenDirectors* implies stronger board gender diversity in a given firm relative to the industry average. In addition, we re-estimate in Models 14 and 15 by excluding companies that belong to the Ibex35 index, since they will be subject to greater market control (Odriozola & Baraibar-Diez, 2017). Results are similar to those previously reported.

Dyck et al. (2008) argue that media impact is higher the greater their diffusion and credibility. Furthermore, media judgments work when society at large shares the same set of values (Dyck & Zingales, 2002). We therefore test whether our results also hold when considering media coverage in Spain and in the Anglo-American media. The results in Table 6 (Models 16 to 19) show that Spanish and Anglo-American media positively affect board gender diversity. However, the estimated coefficients of Spanish media coverage are higher than for Anglo-American media coverage. This greater impact of Spanish media as a driver of gender diversity on the board of directors may reflect two aspects: first, greater social and institutional penalization of female under-representation on corporate boards in Spain, in particular, and in continental Europe as a whole (Terjesen et al., 2015), and second, the magnitude of the penalization may be affected by the origin of the funds which finance the company (Dyck et al., 2008). In this sense, only 7% of Spanish companies are listed in other stock markets (Bona-Sánchez et al., 2019), such that their funds are primarily national.

Finally, in Model 20, we analyze the effect of gender diversity news content on board gender diversity. We use *Gender_Content* as an explanatory variable, measured as the percentage of words related to gender diversity to the total number of words in the news. We use the words identified by Baker et al. (2020) as the most frequently used keywords in board diversity literature (gender diversity, gender, board gender diversity, women, female director, woman director, women directors, gender equality, women on board, and woman on board). The result in Model 20 reveals that the gender content of news has a significant positive impact on board gender diversity.

5 | DISCUSSION AND IMPLICATIONS

Despite legislative and institutional efforts to deal with the relative under-representation of women on corporate boards, the number of seats on boards occupied by women remains scarce. Previous evidence has pointed to the importance of contextual factors concerning board gender diversity such as legislation, corporate governance guidelines, or economic, legal, or political aspects (Brammer et al., 2007; Grosvold & Brammer, 2011; Terjesen et al., 2015). However, no previous research has considered how the media might affect board gender diversity, a gap which our work strives to fill.

This study examines the role of media visibility on board gender diversity from an agency approach. Specifically, we examine an environment in which the weakness of the legal system means that it is almost replaced by reputation as an instrument of discipline. In this context, the information disclosed by the media can alter the reputation of firms and their agents. We therefore ask ourselves whether firms with media visibility are more likely to increase female representation on the board. We find evidence consistent with our hypothesis, since media attention and the negative tone of news positively affect the presence of female members on the board, regardless of where the source of the information comes from, as revealed by a subsequent sensitivity analysis.

TABLE 6 Sensitivity analysis II. Changes in the dependent variable, the sample, and the effect of gender content. GMM estimator

	Indep_WomenDirectors		Exc_WomenDirectors		Women_Directors									
	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20			
Media_Attention _{t-1}	0.001*** (3.83)		0.001** (2.48)		0.002** (2.53)									
Media_Tone _{t-1}		0.497** (1.96)		0.467** (1.95)		0.805** (2.33)								
Spanish_M.Attention _{t-1}							0.003*** (2.80)							
Anglo_M.Attention _{t-1}								0.0006*** (3.44)						
Spanish_M.Tone _{t-1}									1.862** (2.49)					
Anglo_M.Tone _{t-1}										1.307* (1.88)				
Gender_Content _{t-1}												57.089*** (3.73)		
ROA	8.138* (1.70)	1.222 (0.34)	4.136*** (9.24)	9.877* (1.86)	3.895 (0.80)	4.994 (1.05)	2.938*** (3.91)	3.515*** (8.77)	7.545 (0.83)	2.665** (2.56)	3.298*** (2.89)			
Size	-1.664*** (-5.05)	-1.711*** (-3.07)	-1.157* (-1.83)	-2.590*** (-6.48)	-0.084 (-0.14)	0.354 (0.54)	-1.653** (-2.04)	-0.510 (-1.01)	-3.611*** (-4.41)	-0.334 (-0.88)	1.317 (1.55)			
Leverage	4.375*** (2.60)	-0.012 (-0.10)	-2.818 (-1.16)	2.610 (0.70)	6.823** (2.30)	6.079* (1.81)	-1.811 (-0.40)	3.886* (1.67)	-1.603 (-0.56)	0.865 (0.17)	-1.919 (-0.44)			
Age	-0.644 (-0.75)	-0.029 (-0.77)	-2.024** (-2.39)	-1.364 (-1.49)	1.412 (1.00)	-3.755** (-2.68)	1.222 (0.63)	-0.323 (-0.41)	-1.954 (-1.30)	0.048 (1.22)	-3.788** (-2.23)			
QTobin	1.062 (1.59)	0.219 (0.36)	4.712*** (3.17)	1.490* (1.79)	2.100** (2.05)	0.066 (0.50)	4.396*** (2.86)	4.310*** (6.95)	0.021 (0.20)	3.644*** (3.02)	2.099* (1.69)			
Voting	-0.044** (-2.04)	-0.042 (-1.42)	-0.007 (0.25)	-0.042* (-1.76)	-0.053*** (-3.80)	-0.052*** (-3.36)	-0.021 (-0.56)	-0.049** (-2.63)	-0.056** (-2.14)	-0.058** (-2.47)	0.031 (0.97)			
Board_size	4.360** (2.24)	-2.274 (-1.49)	19.845*** (5.85)	6.724*** (3.22)	-2.116 (-1.02)	5.111** (2.52)	8.549*** (3.91)	-0.648 (-0.51)	9.630*** (4.27)	-2.159 (-0.87)	-1.640 (-0.60)			
MD_WD	0.084*** (4.53)	0.050* (1.76)	0.405*** (10.46)	0.130*** (2.94)	0.327*** (5.17)	0.365*** (6.40)	0.391*** (6.56)	0.388*** (13.74)	0.187*** (4.08)	0.253*** (4.39)	0.358*** (6.65)			
Ibex35	0.439 (0.46)	-1.721 (-1.38)	8.687*** (4.25)	6.895*** (3.93)			7.633*** (3.54)	3.844** (2.60)	7.180*** (4.24)	5.326** (2.69)	4.790*** (3.03)			
Constant	-3.974 (-0.76)	-15.376** (-2.15)	-40.800*** (-3.89)	-43.980*** (-5.75)	8.730 (1.11)	1.491 (0.19)	17.714 (1.10)	1.157 (0.18)	-0.162 (-0.20)	11.259 (1.61)	14.076 (0.98)			
Industry effect	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	

(Continues)

TABLE 6 (Continued)

	Indep_WomenDirectors		Exc_WomenDirectors		Women_Directors						
	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16	Model 17	Model 18	Model 19	Model 20
m ₂	1.18	-0.22	0.25	-1.23	-0.16	0.18	-1.10	-1.02	-0.56	-0.67	-0.96
Z ₁	162.08***	48.02***	63.32***	300.22***	8.29***	15.05***	19.64***	50.46***	74.03***	4.42***	12.96***
Z ₂	60.25***	26.53***			2.31**	4.65***	4.93***	7.44***	30.19***	1.72*	1.82*
Z ₃	424.57***	219.33***	10.54***	124.51***	12.37***	7.33***	10.45***	116.57***	154.73***	12.55***	13.26***
Hansen test	67.95	72.05	42.67	64.72	40.11	43.85	57.97	63.29	61.52	60.13	66.53
F test	3666.22***	2646.09***	689.13***	831.58***	1478.39***	470.35***	7762.26***	1736.8***	2436.92***	2348.23***	2566.91***
No. of observations	1,170	1,170	1,170	1,170	766	766	1,170	1,170	1,170	1,170	1,170

Note: ***Statistically significant at *p* .01, *p* .05, and *p* .10, respectively.

Although we conducted this research in the context of Spain, its contributions and practical implications should not be underestimated, given that the under-representation of women on corporate boards is a global concern. Our study may have significant implications for other countries, especially European continental countries where the freedom of the press is high, dominant owners control board composition and where the institutional as well as social logic facilitates the media's role as evaluators or judges of firms vis-à-vis board gender diversity. This study therefore has both theoretical and practical implications.

5.1 | Theoretical contribution

This paper has major theoretical implications for prior theoretical development concerning the media's role in corporate governance. Previous literature has pointed to the positive impact of media visibility on CSR in a context of disperse ownership and efficient stakeholder protection from the legal system and corporate governance (Borghesi et al., 2014; Zyglidopoulos et al., 2012). This positive media effect on CSR indicates that greater visibility increases company vulnerability to stakeholder pressure or drives the use of CSR as a mechanism to support the professional career of directors. Nevertheless, previous literature has failed to evidence the media's effect on one specific aspect of CSR: board gender diversity. Moreover, this relation has not been explored in a setting in which ownership concentration prevails, where the legal system offers stakeholders only weak protection, and in which corporate governance lies in the hands of dominant owners. This paradigm reduces any incentive for directors to use investment in CSR as an entrenchment mechanism and weakens the pressure of stakeholders' demands on the firm (Barnea & Rubin, 2010; Cespa & Cestone, 2007; Dam & Scholtens, 2013; Ducassy & Montandru, 2015; López-Iturriaga & López-de-Foronda, 2011). In this context, our results indicate that the media are able to discipline managers and dominant owners by inflicting reputational costs (Dyck et al., 2008; Dyck & Zingales, 2002; Fama, 1980; Fama & Jensen, 1983; Gomes, 2000), thereby supporting the notion that the media encourage companies to increase board gender diversity so as to improve the public image and reputation of managers and dominant owners. This study contributes to the existing body of knowledge concerning the media's role in board composition (Ahmad et al., 2016; Bednar, 2012; Cahan et al., 2017; Core et al., 2008; Dyck & Zingales, 2002; Engelberg & Parsons, 2011; Fang & Peress, 2009; Jansson, 2013; Lauterbach & Pajuste, 2017; Liu et al., 2017). The finding that media visibility significantly influences board gender diversity provides a relevant contribution regarding what role the media play as a corporate governance driver. In particular, our study helps to extend this body of research by showing a new driver of gender diversity on boards of directors in a setting in which directors and dominant owners may have little incentive to invest in CSR and, in particular, to appoint women to boards, given that female directors may increase control over their action (Adams & Ferreira, 2009). In addition, the results suggest that the media play their role not only through coverage but also through the content of their news, thereby encouraging research into the role of the news message in gender diversity.

5.2 | Practical implications

The results have practical implications. Samara et al. (2019) point out that policymakers should take alternative measures to establishing gender quotas in order to foster female board appointments. The measures cited by the authors include carrying out awareness-raising campaigns or advertisements in social media, television, and radio. In this line, knowing that the media improve the percentage of female directors, government and policymakers should facilitate the independent labor of the media so that they can carry out their role as corporate governance instruments efficiently. Our findings suggest that information disclosed to a wide audience by the media might offer a complementary instrument to institutional factors such as laws and recommendations in codes of good governance and might help to ensure that female under-representation on boards of directors becomes a thing of the past. In addition, the results underscore the relevance of reputational costs as disciplinary mechanisms for the task of managers and dominant owners in contexts where the legal system offers weak stakeholder protection. In this sense, the government and market regulators should encourage greater transparency in board composition so as to increase the disciplining role of reputation. Results also indicate that the content of the news related to gender diversity positively encourages the appointment of women on boards of directors. The media should therefore attach greater prominence to this type of content so that it becomes a more efficient driver of board gender diversity.

5.3 | Limitations and future research

Our research has several limitations, particularly in terms of assuming women to be a homogeneous group. Previous research suggests that women are not a homogeneous group, thus motivating an analysis of the media's impact on gender diversity by considering certain characteristics of women directors such as family ties, education, or experience. Finally, our study points to certain future research avenues. It might be interesting to examine what impact the percentage of women directors has on the presence of words related to gender diversity in the news. Moreover, it would be enlightening to consider how the media impact board gender diversity dependent upon the kind of dominant owner, whether family, institutional, or state.

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PEER REVIEW

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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ENDNOTE

¹ Constitutional Act 3/2007 of March 22 for effective equality between women and men, known as the Gender Equality Act.

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APPENDIX

DEFINITIONS OF VARIABLES

Measures of diversity

Women_Directors	The percentage of women directors out of the total number of directors
D_Women_Directors	Dummy variable that takes the value of 1 when at least one of a company's directors is a woman, and zero otherwise
Indep_WomenDirectors	The percentage of independent women directors out of the total number of directors

Exc_WomenDirectors	The percentage of a firm's women directors minus the industry mean value
Measures of media	
Number of news items	The number of news items on a firm reported by <i>Expansión</i> , <i>Cinco Días</i> , <i>El Economista</i> , <i>Financial Times</i> , <i>Wall Street Journal</i> , <i>Reuters</i> , <i>Dow Jones</i> , and <i>Business Wire</i>
Number of negative words	The number of negative words in news on a firm reported by <i>Expansión</i> , <i>Cinco Días</i> , <i>El Economista</i> , <i>Financial Times</i> , <i>Wall Street Journal</i> , <i>Reuters</i> , <i>Dow Jones</i> , and <i>Business Wire</i> . We use Loughran and McDonald's (2011) dictionary to identify negative words in a financial context
Media_Attention	The number of news items on a firm reported by <i>Expansión</i> , <i>Cinco Días</i> , <i>El Economista</i> , <i>Financial Times</i> , <i>Wall Street Journal</i> , <i>Reuters</i> , <i>Dow Jones</i> , and <i>Business Wire</i>
Spanish_M.Attention	The number of news items on a firm reported by <i>Expansión</i> , <i>Cinco Días</i> and <i>El Economista</i>
Anglo_M.Attention	The number of news items on a firm reported by <i>Financial Times</i> , <i>Wall Street Journal</i> , <i>Reuters</i> , <i>Dow Jones</i> , and <i>Business Wire</i>
Media_Tone	Percentage of negative words out of total words. The dictionary of Loughran and McDonald (2011) collects words with a negative tone in the financial context and this is used to count the number of negative words in news
Spanish_M.Tone	Percentage of negative words out of total words in the Spanish media. The dictionary of Loughran and McDonald (2011) collects words with a negative tone in the financial context and this is used to count the number of negative words in news
Anglo_M.Tone	Percentage of negative words out of total words in Anglo-American media. The dictionary of Loughran and McDonald (2011) collects words with a negative tone in the financial context and this is used to count the number of negative words in news
Gender_Content	The percentage of words related to gender diversity out of the total words in the news. We use the words identified by Baker et al. (2020) as the most frequently used keywords in board diversity literature (gender diversity, gender, board gender diversity, women, female director, woman director, women directors, gender equality, women on board, and woman on board)

Control variables

ROA	Return on assets, computed as earnings before interest, taxes, depreciation, and amortization divided by total assets
Size	The natural logarithm of total assets
Leverage	The sum of short- and long-term debt divided by total assets

Age	The natural logarithm of one plus the number of years since the firm was created
QTobin	Market value of equity plus total debt, all divided by total assets
Voting	The voting rights of the largest shareholders
Board_size	The natural logarithm of the total number of directors
MD_WD	The fraction of a firm's male directors who sit on other boards with at least one female director
Ibex35	Dummy variable that takes the value 1 if the company is part of the representative index of the Spanish stock market (IBEX-35), and 0 otherwise

Instruments

Press_Freedom	The total number of countries in the Freedom of the Press Index minus Spain's position in the index. A higher value of the variable indicates greater freedom of the press. Freedom of the Press is an annual report on media independence around the world
FTSEEurotop100	The percentage of capitalization of a firm out of the total capitalization of the FTSE Eurotop 100 index