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Media Attention, ESG Performance and Firm Value: Evidence from Taiwan

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A B S T R A C T

This study examines the impact of media attention on ESG (Environmental, Social, and Governance) performance and its moderating role in the ESG-firm value relationship, based on a sample of Taiwanese publicly listed firms from 2015 to 2022. The findings show that firms receiving more media attention tend to exhibit stronger ESG performance, and media attention positively moderates the relationship between ESG performance and firm value. Specifically, for firms with limited analyst coverage and lower institutional ownership, media attention acts as a substitute for external monitoring, thereby enhancing the value-creating impact of ESG initiatives. In environmentally sensitive industries, this value impact attributed to media attention is even more pronounced. These results support the media-driven monitoring hypothesis, which suggests that increased media scrutiny encourages better corporate governance practices and heightened corporate responsibility, ultimately improving ESG performance and enhancing firm value.

Keywords: Media Attention, ESG performance, Firm Value, External Monitoring
JEL Classification: F64, G34, L82, M14

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1. Introduction

In recent years, the concept of Environmental, Social, and Governance (ESG) has risen to prominence, encapsulating a holistic approach to corporate responsibility that transcends mere financial performance. This paradigm positions a company within a broader societal context, recognizing its integral role in the community and emphasizing the importance of integrating public welfare into corporate strategies. The significance of ESG metrics lies in their utility as indicators of a corporation's commitment to sustainable development practices (Gillan, Koch& Starks, 2021). Regulatory frameworks and industrial policies play a pivotal role in shaping these practices, driving organizations to enhance their ESG performance in line with global objectives such as achieving peak carbon levels and neutrality. Shareholders, in particular, have been vocal in urging firms to weave ESG more deeply into their business operations, a trend that is increasingly evident in the nature of shareholder proposals. This shift towards sustainability reflects a growing recognition of the interplay between corporate actions and broader social and environmental outcomes.

Academic inquiry in the fields of economics and management has rigorously examined ESG criteria, significantly enhancing our comprehension of its impact within the business sector. Seminal work by researchers such as Gillan, Koch, and Starks (2021) has highlighted key dimensions of this exploration, focusing on two primary aspects. Firstly, a thorough investigation into the determinants of ESG performance has been conducted. External influences, notably industry effects, demonstrate substantial impact, as illustrated by the competitive dynamics observed within various industry environments (Fernández-Kranz & Santaló, 2010) and product markets (Siegel & Vitaliano, 2007). Furthermore, regional effects at the community level (Lee & Lounsbury, 2015) significantly shape ESG outcomes. Internal determinants also play a pivotal role, including human capital (Albinger & Freeman, 2000) and elements of corporate governance such as board characteristics (Park, Kim, & Tsang, 2023), analyst coverage (Adhikari, 2016), and managerial ability (Yuan, Tian, Lu, & Yu, 2019). Secondly, the influence of ESG on financial metrics constitutes a crucial area of study. Research has focused on how ESG integration impacts financial performance (Velte, 2017; Garcia et al., 2017), firm valuation (Aouadi & Marsat, 2018; Fatemi et al., 2018), and corporate risk profiles, as well as market behaviors such as stock returns and trading activities (Limkriangkrai et al., 2017; Takahashi & Yamada, 2021). These research efforts elucidate the tangible benefits and potential drawbacks of ESG engagement on the financial and operational stability of corporations, providing nuanced insights into the strategic value of ESG practices.

Despite extensive research in the field examining both the drivers of ESG performance and its influence on firm value, the role of media attention has been comparatively underexplored. This oversight is notable, considering the media's potential impact on stock market perception, corporate policies decision-making, and corporate reputation (Fang, & Peress, 2009; Tan, 2016; Peña-Martel, Pérez-Alemán, & Santana-Martín, 2018; Chen, Schuchard, & Stomberg, 2019; Dang, Dang, Moshirian, Nguyen, & Zhang, 2019; Chen, Cheng, Li, & Zhao, 2021; Kim, Jo, Ahn, & Yi, 2022), especially in the context of ESG practices (Jia, Tong, Viswanath, & Zhang, 2016; Xu, Zeng, Zou, & Shi, 2016; Byun, & Oh, 2018; He, Guo, & Yue, 2024). This study seeks to address this gap by investigating the influence of media attention on ESG performance and examining its moderating effects on the relationship between ESG performance and firm value.

This study delves into the influence of media attention on ESG practices, with a particular focus on firms listed on the Taiwan stock market. This focus is driven by two pivotal considerations. First, Taiwan enjoys a robust reputation for media freedom, ranked second in Asia in 2019 by Reporters Without Borders. This high ranking emphasizes the nation's commitment to a transparent and accessible media landscape. Additionally, the TWSE implemented the Market Observation Post System (MOPS) in August 2002. This system compels senior executives of listed companies to promptly disclose all significant information, thereby ensuring that the public has access to comprehensive, accurate, and timely information vital for investment decisions, including details about financial performance, risks, and other pertinent factors. MOPS is anticipated to significantly influence the governance practices of companies, particularly in the realm of ESG-related strategic

decisions. Second, considering the significant growth in responsible investment, academic research on the ESG practices of Taiwanese firms remains relatively scarce. This gap highlights a critical area for future investigation, particularly given the increasing global emphasis on sustainability and corporate responsibility. As mentioned by Kao (2023), aligning with the Sustainable Development Goals (SDGs) and the global push towards sustainable industrial development, in March 2022, the Taiwanese government announced "Taiwan's Pathway to Net-Zero Emissions in 2050." This initiative is structured around four main action strategies: energy transition, industrial transition, life transition, and social transition, all underpinned by technology research and development and climate legislation. These strategies are complemented by 12 key strategies, which are detailed action plans designed to stimulate growth in essential areas such as energy, industry, and lifestyle, aiming for a net-zero transition. Given these dynamics, the Taiwanese market offers a distinctive research venue to examine how media attention impacts ESG performance and its moderating effects on the relationship between ESG performance and firm value. This investigation is situated in an environment where media openness and forward-thinking government policies on sustainability are likely to substantially influence corporate conduct and investment decisions, providing a rich context for analyzing the interconnections between media visibility, corporate governance, and sustainable development.

The first phase of our research seeks to explore the impact of media attention on corporate ESG performance by evaluating two competing hypotheses: the monitoring hypothesis (H1) and the pressure hypothesis (H2). According to the monitoring hypothesis (H1), media coverage acts as a potent external monitoring tool that enhances corporate governance practices (Dyck & Zingales, 2002; Dyck et al., 2010; Gillan, 2006; Miller, 2006; Gao, Wang, Wang, Wu, & Dong, 2020; Chen, Cheng, Li, & Zhao, 2021; Berlinger, Keresztúri, Lublóy, & Tamásné, 2022). This, in turn, guides top management to enhance corporate accountability and stakeholder engagement (He et al., 2024; Liu & Wang, 2022; Hea & Lia, 2021; Cahan et al., 2015). Such media scrutiny helps corporations build and sustain their reputations in response to stakeholders' demands for transparency and social responsibility (Cui, Jo, & Na, 2018). Additionally, the spotlight from media can stimulate the release of information related to social responsibilities, such as environmental impacts, and promote socially responsible behaviors within corporations (Zhang & Chen, 2020; Fan, Yang, & Liu, 2020; Xue, He, Liu, Tang, & Xu, 2021). Therefore, the monitoring hypothesis (H1) posits a significantly positive relationship between the level of media attention and the quality of ESG performance, suggesting that increased media visibility correlates with enhanced governance and better ESG outcomes.

Conversely, the pressure hypothesis contends that heightened media exposure may induce performance pressure on managers in the short term. Driven by compensation and career considerations, such pressure might incentivize managers to manipulate earnings or employ aggressive accounting tactics to meet immediate expectations and preserve a favorable public image, potentially fostering a myopic management approach (Dai, Shen, & Zhang, 2021; Goldman, Martel, & Schneemeier, 2022). That is, this could foster a myopic approach to management, consistent with the shareholder theory proposed by Friedman (1970), which emphasizes immediate profit maximization. Additionally, while ESG initiatives often require a long-term commitment and are marked by uncertainties in returns, demanding substantial time to manifest tangible results (Mahoney and Thorne, 2005; Falck and Heblich, 2007; Jiang, Zalan, Tse, & Shen, 2018; Edmans, 2023), the pressure from media can lead managers to prioritize short-term achievements over long-term sustainable development such as ESG investment. Therefore, the pressure hypothesis suggests a significantly negative relationship between media exposure and ESG performance, indicating that greater media attention may prompt managers to neglect long-term strategies in favor of immediate performance boosts.

Utilizing a representative dataset of Taiwanese listed firms from 2015 to 2022, our initial empirical findings indicate that firms garnering greater media attention, quantified by the number of press-initiated news articles published about them annually, typically demonstrate enhanced ESG performance. The preliminary findings indicate that companies receiving greater media coverage, quantified by the number of press articles about the company in a given year, tend to have higher

ESG ratings. From our univariate analysis, the average ESG score for firms with substantial media attention stands at 57.58, compared to 53.21 for those with minimal media exposure, highlighting a notable difference of 4.36 points. Further bolstering our hypothesis on external monitoring (H1), subsequent panel regression analyses affirm that media attention remains a significant and positive predictor of ESG performance, even after controlling for various potential confounders. This suggests that increased scrutiny from the press may encourage better governance practices and heightened corporate responsibility, a finding that aligns with recent research by He et al. (2024) which underscores the influential role of media in shaping corporate behavior in China.

Inspired by these findings, the second phase of our research further explored whether media attention moderates the relationship between ESG performance and firm value. Extant literature, grounded in stakeholder theory, posits a positive correlation between ESG performance and firm value (Cormier & Magnan, 2007; Aerts et al., 2008). Good ESG practices are believed to enhance market performance, as stakeholders perceive companies with robust ESG credentials as capable of superior market competition (Frooman, 1997; Schuler & Cording, 2006). Moreover, ESG engagement is seen as a tool for better internal-external communication, reducing conflicts of interest between management and stakeholders (Jo & Harjoto, 2011; 2012), while fostering trust and cooperation that minimize negotiation and contracting costs (Choi & Wang, 2009; Eccles et al., 2014; Peng & Isa, 2020; Wu et al., 2022). Supporting this perspective, Cui et al. (2018) provide empirical evidence that ESG initiatives reduce information asymmetry among corporate stakeholders. Consequently, ESG activities can bolster firm value by alleviating conflicts of interest between managers and stakeholders who do not hold equity positions. This integration of stakeholder trust and reduced agency costs through ESG practices emphasizes their pivotal role in enhancing long-term corporate value.

In alignment with our monitoring hypothesis (H1), we theorize that media attention may positively impact the ESG-firm value relationship by addressing overinvestment and agency concerns, thereby enhancing resource allocation and monitoring managerial behaviors. From the lens of agency cost theory, it is posited that managers might engage in ESG practices primarily for personal benefits, complicating effective shareholder monitoring of these activities (Schuler & Cording, 2006). This role of media as a monitoring agent is supported by evidence that substantial and stable shareholdings by blockholders and dedicated long-term institutions are crucial for effective corporate governance (Gillan & Starks, 2003; Starks, 2009; Buchanan et al., 2018). Hence, media coverage is instrumental in protecting shareholder interests against value-destroying activities related to ESG engagement. Our empirical analysis further supports the monitoring hypothesis. Through regression analysis, we find that the interaction between media attention and ESG performance is significantly and positively correlated with firm value, as measured by Tobin's Q, even after controlling for other variables that may influence firm value. This finding underscores the importance of media scrutiny in promoting better governance and transparency, ultimately leading to enhanced firm value through improved ESG practices. This result aligns with previous studies, highlighting the critical role of media in reinforcing corporate accountability and stakeholder trust, which are integral to sustainable corporate success.

In the realm of corporate governance, apart from media attention, prior studies have identified several external monitoring mechanisms that effectively mitigate agency conflicts and shape corporate decision-making. These mechanisms include financial analyst coverage (Chen, Cumming, Hou, & Lee, 2016) and the presence of institutional investors (Buchanan, Cao, & Chen, 2018). Building on these insights, our research further investigates whether media attention complements or substitutes these external monitoring mechanisms, thereby influencing the ESG-firm value relationship. To conduct this empirical analysis, we incorporate two additional external monitoring variables: financial analyst coverage and institutional ownership. We categorize our dataset into two subsamples based on high and low levels of financial analyst coverage and institutional ownership, respectively. We then perform regression analyses with firm value as the main dependent variable and the interaction between media attention and ESG performance as the primary independent variable. Our findings reveal that the coefficient on the interaction between media attention and ESG

performance is more positive among firms with lower levels of financial analyst coverage and institutional ownership. This suggests that in contexts where traditional forms of external monitoring such as financial analysts and institutional investors are less prevalent, media attention serves a substitutive role in overseeing corporate behavior in terms of ESG practices. Consequently, media coverage may become a more influential driver of the ESG-firm value relationship, compensating for the reduced scrutiny from financial analysts and institutional shareholders. These results highlight the unique role that media attention can play in enhancing firm value through improved ESG practices, particularly when other forms of governance oversight are less intensive.

Recent literature highlights the varying impacts of ESG investments on firm value and financial performance, contingent on whether firms operate within environmentally sensitive industries—such as steel, rubber, glass, cement, chemicals, and transportation—versus non-environmentally sensitive industries (Lim, Wilmshurst, and Shimeld, 2010; Mohammadi et al., 2018). Studies such as Garcia et al. (2017) indicate that firms in sensitive industries often show better sustainability and socially responsible performance in emerging countries compared to those in less sensitive sectors. Conversely, Yoon et al. (2018) found that ESG strategies contribute less to value generation in environmentally sensitive industries. Although there is ongoing debate regarding the effect of environmentally sensitive industries on the value contribution of ESG initiatives, the role of media attention as an external monitoring mechanism in this context has not been thoroughly explored. Therefore, the final empirical analysis of our study examines how media attention affects the ESG-firm value relationship for firms operating in environmentally sensitive versus non-environmentally sensitive industries. Given the fact that businesses in sensitive industries face heightened pressure from stakeholders and government regulations to integrate ESG practices into their business strategies—and may struggle to establish a reputation as ESG-conscious organizations due to their environmentally unfriendly production and supply chain operations (Garcia, Mendes-Da-Silva, & Orsato, 2017; Naeem, Cankaya, & Bildik, 2022)—it is hypothesized that these firms may rely more heavily on external monitoring mechanisms like media attention to mitigate wasteful ESG investments. Building upon our monitoring hypothesis (H1), we theorize that media attention may have a more positive impact on the ESG-firm value relationship for firms operating in environmentally sensitive industries. Our regression analysis supports this assertion, revealing that the coefficient on the interaction between media attention and ESG performance is significantly more positive among firms in these sensitive sectors. This finding suggests that media scrutiny plays a critical role in enhancing the credibility and effectiveness of ESG initiatives in industries where environmental impact is a significant concern, thereby potentially boosting firm value more substantially than in less sensitive industries.

This study contributes to the scholarly discourse in two significant ways. Firstly, it enhances the literature on media attention by demonstrating its effect on managerial behaviors and long-term oriented ESG investments, thereby influencing corporate outcomes. Although previous research has explored the implications of media attention on ESG practices (Jia, Tong, Viswanath, & Zhang, 2016; Xu, Zeng, Zou, & Shi, 2016; Byun, & Oh, 2018; He, Guo, & Yue, 2024), our work provides more comprehensive empirical evidence. For instance, a recent study by He, Guo, & Yue (2024) suggests that increased scrutiny through media coverage encourages better governance practices and heightened corporate responsibility, thereby improving ESG performance for China-listed companies. Extending on He et al., (2024), we present new evidence that media attention not only enhances ESG performance but also boosts the efficiency of ESG investments and elevates corporate value. Our findings serve to fill an existing gap in the literature concerning the role of ESG performance in explaining variations in firm value (Hong, Kubik, & Scheinkman, 2012; Fatemi, Fooladi, & Tehranian, 2015; Buchanan, Cao, & Chen, 2018; Bofinger, Heyden, & Rock, 2022).

Secondly, our paper enriches the discourse that evaluates the significance of characteristics of environmentally sensitive industries to the ESG-firm value relationship. Although debates persist about the impact of environmentally sensitive industries on the value contributions of ESG initiatives (Lim, Wilmshurst, and Shimeld, 2010; Mohammadi et al., 2018; Garcia et al., 2017; Yoon et al., 2018), we expand this line of inquiry by validating the presence of media-driven governance effects

that enhance the value of ESG among environmentally sensitive industries. We view this contribution as an extension of recent scholarship that overlooks the critical role of corporate governance mechanisms.

The structure of the paper is as follows: Section 2 covers the sample, variable selection, and descriptive analysis; Section 3 presents the main results concerning the relationship between media attention and ESG performance; Section 4 supplements the findings with evidence explaining the ESG-firm value relationship; and finally, Section 5 concludes the paper.

2. Sample Collection and Variable Definition

2.1 Sample Collection

In this research, firms listed on the Taiwan Stock Exchange (TWSE) and the Taipei Exchange (TPEx) from 2015 to 2022 constitute the study sample to explore the impact of media attention on ESG performance and firm value. The selection of the sample period coincides with the expansion of the TEJ's TESG Rating coverage to encompass all firms on the TWSE/TPEx in December 2015. Exclusions were made for firms in the financial sector due to the distinct regulatory landscape that sets this sector apart from others. Additionally, firms lacking complete data on financial and corporate governance variables, such as total assets, returns on equity, board size, and board ownership, were omitted from the study. Following these exclusions, the final sample for analysis comprises 13,384 firm-year observations across 1,673 listed companies.

2.2 Measuring Media Attention

Building on the methodology introduced by Fang and Peress (2009), we employ the number of mass media articles mentioning a specific firm within a given year as an indicator of the overall media attention of that stock, denoted as *MEDIA*. To compile this data, a meticulous search was conducted within the TEJ database, targeting articles issued by major Taiwanese mass media outlets. This search included publications from five leading daily media sources in Taiwan: Commercial Times, Economic Daily News, DigiTimes, Wealth Magazine, and MoneyDJ.

2.3 Measuring ESG Performance

In this study, the ESG rating, denoted as *ESGR* and scaled from 0 to 100, is sourced from the TEJ's TESG Sustainable Development Index database and is used as the primary variable to represent corporate ESG performance. The TESG Sustainable Development Index marks the first authorized application of the Sustainable Accounting Standards Board (SASB) framework in comprehensively assessing the ESG practices of publicly listed companies in Taiwan. This index serves as a pivotal tool for evaluating how these firms meet the sustainability criteria set forth by SASB, providing a robust measure of their ESG engagement.

2.4 External Monitoring Proxies

Building on previous research, our analysis incorporates two additional proxies for external monitoring: the ownership by three primary institutional investors (*IOR*) and the number of analysts following the firm (*ANST*). These measures are widely recognized in the literature as significant indicators of external oversight and are used to evaluate their influence on corporate governance and performance outcomes. The ownership by institutional investors often signifies enhanced governance due to their ability to exercise control and exert pressure for better performance and compliance with good practices. Meanwhile, the number of analysts tracking a firm can indicate the level of public scrutiny and transparency, potentially driving improvements in corporate behavior and information disclosure. These factors are critical for understanding the dynamics of external monitoring on firm operations and strategic decision-making.

2.5 Control Variables

Consistent with established research, our methodology meticulously includes a range of firm characteristics and corporate governance variables that are likely to affect ESG performance and firm

value. The analysis integrates controls for firm characteristics such as total assets (*TA*), debt ratio (*DEBT*), return on equity (*ROE*), free cash flow (*FCF*), and research and development expenditure (*RD*).

In addition, the study also incorporates several corporate governance metrics, including board size (*BSIZE*), board independence (*BIND*), board ownership (*BOR*), board pledge (*BPLEG*), deviation between control rights and cash flow rights (*DEV*), management ownership (*MGROW*), and blockholder ownership (*BLOCK*).
For comprehensive definitions and the methodologies used to construct these variables, please refer to the Appendix. This detailed inclusion ensures a robust analysis, accounting for multiple dimensions that influence corporate performance and governance.

2.6 Descriptive Statistics

Table 1 provides a summary of the key variables used in this study. The mean (median) values of the *MEDIA* variable indicate a high frequency of Taiwanese companies appearing in major media outlets, with an average of 24.078 articles annually (21 at the median). In addition, the mean (median) ESG score of 54.343 (53.650) suggests that the ESG performance of Taiwanese firms is relatively moderate. Additionally, the significant positive correlation between *ESGR* and *MEDIA* (0.209) reveals that firms receiving greater media attention tend to achieve higher ESG performance, offering preliminary support for the monitoring hypothesis (H1), which is further explored in Section 3.

Table 1. Descriptive Statistics

Variables	Mean	Median	STD	Correlation with *MEDIA*
MEDIA	24.078	21.000	19.978	1.000
ESGR	54.343	53.650	7.898	0.209***
Q	1.364	1.010	1.494	0.019
TA (NT$ B)	23.444	3.876	128.962	0.605***
DEBT (%)	41.641	41.740	18.466	0.086***
ROE (%)	6.087	7.610	26.244	0.071***
FCF	0.017	0.030	0.135	0.030***
RD (%)	7.370	2.000	29.350	-0.004
BSIZE	8.799	9.000	2.038	0.076***
BIND	0.304	0.302	0.120	0.061***
BOR (%)	24.449	20.322	16.261	-0.104***
BPLEG (%)	6.812	0.000	14.503	0.140***
DEV	4.057	1.050	38.596	0.002
MGROW (%)	1.117	0.333	2.123	-0.058***
BLOCK (%)	23.924	21.447	12.983	-0.024***
IOR (%)	10.077	4.556	13.940	0.347***
ANST	2.703	1.000	4.195	0.515***

This table presents the descriptive statistics for the variables used in this study. The sample comprises firms listed on the Taiwan Stock Exchange (TWSE) and the Taipei Exchange (TPEx) from 2015 to 2022. There are13,384 firm-year observations included in the analysis. All data were sourced from the Taiwan Economic Journal (TEJ). We report the correlation coefficients between *MEDIA* (media attention) and other relevant variables used in the analysis. Asterisks (***), where present, denote statistical significance at the 1% level. Detailed definitions of these variables are available in the Appendix.

Correlation analysis further shows that firms receiving greater media attention typically have higher total assets (*TA*), total debt (*DEBT*), returns on equity (*ROE*), free cash flow (*FCF*), larger board size (*BSIZE*), a higher proportion of independent directors (*BIND*), and a higher equity pledge

ratio among directors and supervisors (*BPLEG*). In contrast, these firms exhibit lower board ownership (*BOR*) and reduced ownership by top managers (*MGROW*) and blockholders (*BLOCK*). Finally, *MEDIA* is positively correlated with institutional ownership (*IOR*, 0.347) and analyst coverage (*ANST*, 0.515), suggesting that companies garnering higher media attention tend to attract more institutional investors and analysts

3. Relationship between Media Attention and ESG Performance

3.1 Univariate Analysis

This subsection examines the association between media attention and ESG performance using univariate analysis. Table 2 displays the outcomes of this analysis. For each preceding year (*y-1*), sample firms were categorized into quintiles based on their level of media attention (*MEDIA*), labeled as High, Q4, Q3, Q2, and Low. Subsequently, the mean ESG score (*ESGR*) for the following year (*y*) was calculated for each *MEDIA* quintile. Additionally, difference-in-means tests were conducted to assess the disparities in *ESGR* between the High and Low *MEDIA* quintiles. As demonstrated in Table 2, there is a discernible upward trend in the mean ESG scores from firms with the least media attention (Low) to those with the most (High), representing 53.21, 53.17, 53.42, 54.36, and 57.58. Firms within the High *MEDIA* quintile reported an average *ESGR* of 57.58, compared to 53.21 for those in the Low *MEDIA* quintile. The difference-in-means test indicates a statistically significant positive difference of 4.36, with a *t*-statistic of 20.02, between the two extreme quintiles, validated at a 1% significance level. These results corroborate the hypothesis that increased media attention is positively correlated with superior ESG performance, lending empirical support to the monitoring hypothesis (H1).

Table 2. Media Attention and ESG Performance: Univariate Analysis

MEDIA Quintile	High	Q4	Q3	Q2	Low	High−Low
N	2,687	2,555	2,789	2,621	2,732	−
MEDIA	46.65	25.74	20.65	16.92	10.70	35.96
ESGR	57.58	54.36	53.42	53.17	53.21	4.36
(*t*-statistic)	(35.25)***	(31.28)***	(29.14)***	(29.02)***	(28.14)***	(20.02)***

This table presents the ESG ratings (*ESGR*) across different quintiles of media attention (*MEDIA*) for a sample of 13,384 firm-year observations from TWSE/TPEx-listed companies over the period 2015 - 2022. Firms within the financial sectors have been excluded from the analysis. Annually, firms were categorized into quintiles based on their *MEDIA*, labeled as High, Q4, Q3, Q2, and Low. For each quintile, the average *ESGR* for the subsequent year (y) was calculated. Additionally, difference-in-means tests were conducted to compare the *ESGR* between firms in the High and Low *MEDIA* quintiles. The number of firm-year observations (N) is specified for each quintile. A *t*-statistic is utilized to test the hypothesis that there is no difference in average *ESGR* between the High and Low *MEDIA* quintiles. The notation*** denotes statistical significance at the 1% level.

3.2 Regressions Analysis

To evaluate the enduring influence of media attention (*MEDIA*) on ESG performance (*ESGR*), while accounting for other potential determinants of ESG performance, we employ a panel regression model. The model is structured to estimate the following equation:

$$ESGR_{i,y} = \beta_0 + \beta_1 lnMEDIA_{i,y-1} + \sum_p \beta_p \times Control_{p,i,y-1} + \delta_j + \gamma_y + \varepsilon_{i,y} \qquad (1)$$

where $ESGR_{i,y}$ is firm i's ESG ratings in sample year y. $lnMEDIA_{i,y-1}$ is natural log of *MEDIA* in year y-1. $Control_{p,i,y-1}$ are p control variables (including *lnTA*, *Debt*, *ROE*, *FCF*, *RD*, *BSIZE*, *BIND*, *BOR*, *BPLEG*, *DEV*, *MGROW*, and *BLOCK*) for firm i in year y-1. δ_j are industry-fixed dummies. γ_y are year-fixed dummies.

In the initial model presented in Table 3 (Model (1)), our analysis explored the correlation between media attention (*MEDIA*) and ESG ratings (*ESGR*) absent any control variables. We found that *MEDIA* had a robust positive impact on *ESGR*, as evidenced by a coefficient of 2.7874 and a *t*-

statistic of 25.13, indicating statistical significance at the 1% level. Progressing to Model (2), we enhanced the robustness of our analysis by integrating control variables related to firm characteristics such as total assets (*lnTA*), debt ratio (*DEBT*), return on equity (*ROE*), free cash flow (*FCF*), and research and development spending (*RD*), alongside industry and year dummies. Despite these additions, the positive influence of *MEDIA* on *ESGR* persisted, with a coefficient of 0.3886 and a *t*-statistic of 3.39, affirming its significance at the 1% level. Further refinement in Model (3) included an extended array of controls encompassing additional firm characteristics and variables related to corporate governance such as board size (*BSIZE*), board independence (*BIND*), board ownership (*BOR*), board pledge (*BPLEG*), deviation of control rights and cash flow rights (*DEV*), management ownership (*MGROW*), and block holder ownership (*BLOCK*). The findings reaffirmed the previous models' outcomes, with *MEDIA*'s coefficient at 0.4701 and a *t*-statistic of 4.06, significant at the 1% level. This consistent result underscores the positive association between heightened media scrutiny and improved ESG performance, lending empirical support to the monitoring hypothesis (H1).

Table 3. Regression Analysis of *ESGR* by *lnMEDIA*

	(1)	(2)	(3)
Intercept	45.8219***	21.22***	0.2562
	(132.61)	(46.22)	(0.85)
lnMEDIA	2.7874***	0.3886***	0.4701***
	(25.13)	(3.39)	(4.06)
lnTA		2.2844***	2.1610***
		(41.89)	(38.03)
DEBT		-0.0307***	-0.0226***
		(-8.48)	(-6.22)
ROE		0.0119***	0.0120***
		(4.77)	(4.86)
FCF		2.5396***	2.3016***
		(5.43)	(4.96)
RD		-0.0519	-0.0249
		(-0.52)	(-0.25)
BSIZE			0.3219***
			(8.63)
BIND			6.3809***
			(9.11)
BOR			0.0048
			(1.18)
BPLEG			-0.0495***
			(-11.50)
DEV			0.0029*
			(1.85)
MGROW			0.0891**
			(2.02)
BLOCK			-0.0170***
			(-3.34)
Industry-Fixed Dummies	N	Y	Y
Year-Fixed Dummies	N	Y	Y
N	13,384	13,384	13,384
Adj. R^2	4.51%	23.04%	24.72%

This reports the results of the panel regression analysis of *ESGR* on *MEDIA* and a set of control variables by estimating the following model:

$$ESGR_{i,y} = \beta_0 + \beta_1 lnMEDIA_{i,y-1} + \sum_p \beta_p \times Control_{p,i,y-1} + \delta_j + \gamma_y + \varepsilon_{i,y} \quad (1)$$

where $ESGR_{i,y}$ is firm i's ESG ratings in year y. $lnMEDIA_{i,y-1}$ is natural log of *MEDIA* in year y-1. $Control_{p,i,y-1}$ are p control variables for firm i in year y-1. δ_j are industry-fixed dummies. γ_y are year-fixed dummies. The t-statistics based on heteroscedasticity-robust standard errors clustered by years are reported in square brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4. ESG Performance and Firm Value: The Role of MEDIA

4.1 Regression Analysis of Firm Value

Building on the primary observation that media scrutiny serves a monitoring role in enhancing ESG performance, this study delves into the impact of media attention on the interplay between ESG performance and firm value. Aligned with the monitoring hypothesis (H1), it is postulated that media scrutiny can positively influence the ESG-firm value nexus by mitigating overinvestment and agency dilemmas, thus improving both resource allocation and oversight of managerial conduct. Drawing from agency cost theory, it is argued that managerial engagement in ESG practices may often be driven by personal gains rather than shareholder benefit, thereby obfuscating effective oversight by shareholders (Schuler & Cording, 2006). Media's role as a surveillance mechanism gains further empirical backing from studies indicating that significant and enduring investments by blockholders and dedicated institutional investors are pivotal for robust corporate governance (Gillan & Starks, 2003; Starks, 2009; Buchanan et al., 2018). Consequently, media attention is deemed crucial in safeguarding shareholder interests from potentially detrimental activities associated with ESG endeavors.

To explore the pivotal research question of whether ESG performance enhances firm value, particularly in firms receiving substantial media attention, we employ panel estimations to assess the influence of the interaction between *MEDIA* and *ESGR* on firm value, measured by Tobin's Q. The analytic model applied in this investigation is structured to incorporate both the direct impacts of *MEDIA* and *ESGR* on firm value, as well as their interactive effect. Table 4 presents the estimate results of Equation (1).

In the analysis detailed in Model (1) of Table 4, our investigation assessed the impacts of media coverage (*lnMEDIA*), ESG ratings (*ESGR*), and their interaction (*lnMEDIA**ESG*) on the valuation metric Tobin's Q (*Q*), devoid of control variables. The results revealed a notably negative coefficient for *ESGR* at -0.0319, with a *t*-statistic of -3.83, suggesting that during the period from 2015 to 2022, firms in Taiwan with superior ESG performance tended to exhibit lower firm values. More crucially, the interaction term *lnMEDIA**ESG* demonstrated a significant positive effect on *Q*, evidenced by a coefficient of 0.0203 and a *t*-statistic of 7.99, substantiating its statistical significance at the 1% level. This indicates that media attention significantly enhances the positive impact of ESG initiatives on firm value. Advancing to Model (2), we augmented the robustness of the analysis by incorporating control variables that capture firm-specific characteristics, as well as industry and year fixed effects. Despite these enhancements, the beneficial effect of *lnMEDIA**ESG* on firm value remained robust, registering a coefficient of 0.0199 and a *t*-statistic of 7.69, reaffirming its significance at the 1% level. Further enhancements in Model (3) involved a broader set of controls, including additional firm characteristics and corporate governance metrics. The consistency of the results was maintained, with the coefficient for *lnMEDIA**ESG* at 0.0189 and a *t*-statistic of 7.31, significant at the 1% level. This persistent finding suggests that media attention not only boosts the visibility of ESG initiatives but also markedly enhances their impact on firm value, thereby lending robust empirical support to the monitoring hypothesis (H1).

Table 4. Regression Analysis of Tobin's Q by *lnMEDIA*ESGR*

	(1)	(2)	(3)
Intercept	2.9401***	1.4586**	1.2564*
	(6.59)	(2.25)	(1.87)
lnMEDIA*ESGR	**0.0203*** **	**0.0199*** **	**0.0189*** **
	(7.99)	**(7.69)**	**(7.31)**
lnMEDIA	-0.5104***	-0.7821***	-0.7218***
	(-3.66)	(-5.66)	(-5.22)
ESGR	-0.0319***	-0.0476***	-0.0453***
	(-3.83)	(-5.77)	(-5.50)
lnTA		-0.1591***	-0.1554***
		(-12.95)	(-12.24)
Debt		-0.0099***	-0.0099***
		(-13.52)	(-13.31)
ROE		-0.0005	-0.0007
		(-0.95)	(-1.36)
FCF		-0.5226***	-0.5012***
		(-5.53)	(-5.31)
RD		0.0692***	0.0643***
		(3.45)	(3.22)
BSIZE			0.0109
			(1.44)
BIND			-0.0604
			(-0.42)
BOR			0.0004
			(0.50)
BPLEG			-0.0004
			(-0.42)
DEV			0.0020***
			(6.29)
MGROW			0.0327***
			(5.30)
BLOCK			0.0030***
			(2.87)
Industry-Fixed Dummies	N	Y	Y
Year-Fixed Dummies	N	Y	Y
N	13,384	13,384	13,384
Adj. R^2	0.15%	12.40%	12.81%

This table presents the outcomes of the panel regression analysis for Tobin's Q, focusing on the interaction term between ESGR and MEDIA, along with a set of control variables. The estimation is based on the following model:

$$Q_{i,y} = \beta_0 + \beta_1 lnMEDIA_{i,y-1} \times ESGR_{i,y-1} + \beta_2 lnMEDIA_{i,y-1} + \beta_3 ESGR_{i,y-1} + \sum_p \beta_p \times Control_{p,i,y-1} + \delta_j + \gamma_y + \varepsilon_{i,y} \quad (2)$$

where $Q_{i,y}$ is firm *i*'s Tobin's Q in year *y*. $lnMEDIA_{i,y-1}$ is natural log of *MEDIA* in year *y*-1. $ESGR_{i,y-1}$ is firm *i*'s ESG ratings in year *y*-1. $Control_{p,i,y-1}$ are *p* control variables for firm *i* in year *y*-1. The controls are identical to those in Equation (2). δ_j are industry-fixed dummies. γ_y are year-fixed dummies. The t-statistics based on heteroscedasticity-robust standard errors clustered by years are reported in square brackets. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.2 Considering Alternative External Monitoring Effect

In the domain of corporate governance, the role of media attention in complementing or substituting traditional external monitoring mechanisms is of keen interest, particularly in relation to its impact on the ESG-firm value nexus. Building on prior research that has identified significant external mechanisms like financial analyst coverage (Chen, Cumming, Hou, & Lee, 2016) and institutional investor presence (Buchanan, Cao, & Chen, 2018) in mitigating agency conflicts, this section probes whether media attention can serve a similar or supplementary role.

For this analysis, regression methodologies are employed using Equation (2), with firm value (Tobin's Q) as the dependent variable and the interaction between *MEDIA* and *ESGR* as the primary independent variable. The dataset is bifurcated into two subsamples based on the levels of financial analyst coverage (*ANST*) and institutional ownership (*IOR*), respectively. Each subsample is then analyzed to discern the differential impact of media in contexts of high and low external monitoring.

Panel A of Table 5 focuses on financial analyst coverage (*ANST*) as an external monitoring mechanism. The results indicate that for firms with lower levels of analyst coverage, the coefficient for the interaction term *lnMEDIA*ESG* is significantly positive (0.0169 with a *t*-statistic of 3.58), whereas for firms with higher levels of analyst coverage, this interaction term appears statistically insignificant (0.0032 with a *t*-statistic of 0.73). This suggests that media attention may act as a substitute for financial analyst coverage in influencing firm value through ESG practices, especially where such coverage is sparse. Panel B of Table 5 examines the influence of institutional ownership (*IOR*). Similar to the findings in Panel A, the interaction term *lnMEDIA*ESG* shows a more substantial positive impact on firm value (0.0168 with a *t*-statistic of 3.60) in the subsample with lower levels of institutional ownership. This reinforces the notion that media coverage intensifies its role as a monitoring mechanism where traditional investor oversight is less pronounced.

Collectively, the findings from Table 5 underscore that media coverage can indeed function as a critical driver in the ESG-firm value relationship, particularly in environments where other forms of external monitoring are less prevalent. By filling the void left by reduced scrutiny from financial analysts and institutional investors, media attention potentially elevates its role as an effective substitute in overseeing corporate ESG behaviors. Thus, these insights highlight the unique and significant role of media in enhancing firm value through ESG practices, particularly under conditions of weaker traditional external governance oversight.

Table 5. Regression Analysis of Tobin's Q by *lnMEDIA*ESGR*: Considering Alternative External Monitors

Panel A: Analyst Coverage Subsamples		
	More Analyst Coverage (*ANST*>median)	Less Analyst Coverage (*ANST*≤median)
lnMEDIA*ESGR	**0.0032**	**0.0169*******
	(0.73)	**(3.58)**
lnMEDIA	0.2682	-0.2399**
	(1.06)	(-2.11)
ESGR	0.0039	-0.0157***
	(0.27)	(-3.23)
Control Variables	Y	Y
Industry-Fixed Dummies	Y	Y
Year-Fixed Dummies	Y	Y
N	6,741	6,643
Adj R^2	15.17%	16.79%

Panel B: Institutional Ownership Subsamples		
	More Institutional Ownership (IO>median)	Less Institutional Ownership (IO ≤median)
lnMEDIA*ESGR	0.0082*	0.0168***
	(1.88)	(3.60)
lnMEDIA	-0.2618	-0.6807***
	(-1.18)	(-2.87)
ESGR	-0.0215	-0.0448***
	(-1.66)	(-3.21)
Control Variables	Y	Y
Industry-Fixed Dummies	Y	Y
Year-Fixed Dummies	Y	Y
N	6,680	6,704
Adj R^2	15.88%	12.77%

This table delineates the results from a panel regression analysis evaluating the influence of the interaction term between *MEDIA* and *ESGR* on Tobin's Q, with the dataset divided into two subsamples based on levels of financial analyst coverage ($ANST$) and institutional ownership (IOR). Panel A categorizes firms into two groups based on whether they have more or less financial analyst coverage than the median $ANST$ value. Panel B follows a similar structure but divides firms based on institutional ownership, comparing groups with more and less IOR than the median IOR value. For brevity, only the coefficients on $lnMEDIA_{i,y-1} \times ESGR_{i,y-1}$, $lnMEDIA_{i,y-1}$, and $ESGR_{i,y-1}$ are presented. T-statistics are reported in square brackets and are calculated using heteroscedasticity-robust standard errors, clustered by years to account for potential autocorrelation and heteroscedasticity issues. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

4.3 Considering the Effect of Environmentally Sensitive Industries

In the latest exploration of how ESG investments influence firm value, a distinction emerges based on industry environmental sensitivity. Literature underscores varied impacts in industries such as chemicals, electronic utilities, paper and cellulose, cement, glass, mining, rubber, plastic, transportation, and steel, which face significant environmental scrutiny and regulatory pressure (Lim et al., 2010; Mohammadi et al., 2018; Miralles-Quirós, Miralles-Quirós, & Valente Gonçalves, 2018; Garcia et al., 2017; Yoon et al., 2018; Naeem et al., 2022). Given the heightened stakeholder and governmental expectations for integrating ESG practices, firms in these environmentally sensitive industries are postulated to depend more on external monitoring mechanisms, such as media attention, to enhance ESG credibility and ensure the efficacy of their ESG investments. Building on the monitoring hypothesis (H1), this section of our research hypothesizes that media attention could significantly weaken the negative impact of ESG initiatives on firm value in environmentally sensitive sectors. This theory stems from the assumption that firms in these sectors might struggle to establish a reputation as ESG-conscious entities due to the inherently environmentally unfriendly nature of their operations.

To investigate this hypothesis, we conduct panel regressions for subsamples of firms categorized by their industry's environmental sensitivity, using Tobin's Q as the dependent variable and the interaction between *MEDIA* and *ESGR* as the primary independent variable. This approach, as detailed in Equation (2), allows for a nuanced examination of how media influence might vary between environmentally sensitive and non-sensitive industries.

The findings, presented in Table 6, reveal a notably stronger positive coefficient for the interaction between *MEDIA* and *ESGR* in environmentally sensitive industries (0.0295 with a *t*-statistic of 6.68) compared to non-environmentally sensitive industries (0.0099 with a *t*-statistic of

1.91). This significant difference underscores the pivotal role of media as an external monitor, particularly in sectors where environmental concerns are paramount. Media coverage in such industries likely serves not just as a surveillance mechanism but also as a vital enhancer of transparency and credibility for ESG initiatives, potentially leading to a more pronounced increase in firm value.

This result aligns with the monitoring hypothesis and suggests that in contexts where environmental issues are critical, media attention effectively supports and amplifies the benefits of ESG practices, thereby contributing to an enhanced firm valuation more significantly than in industries less impacted by environmental considerations.

Table 6. Regression Analysis of Tobin's Q by *lnMEDIA*ESGR*: Considering Environmentally Sensitive Industries

	Environmentally Sensitive Industries	Non-environmentally Sensitive Industries
lnMEDIA*ESGR	**0.0295*** **	**0.0099***
	(6.68)	**(1.91)**
lnMEDIA	-0.7204***	-0.6458**
	(-4.60)	(-2.30)
ESGR	-0.0459***	-0.0383**
	(-4.95)	(-2.31)
Control Variables	Y	Y
Industry-Fixed Dummies	Y	Y
Year-Fixed Dummies	Y	Y
N	10,762	2,622
Adj R^2	11.54%	25.62%

This table delineates the results from a panel regression analysis evaluating the influence of the interaction term between *MEDIA* and *ESGR* on Tobin's Q, with the dataset divided into two subsamples for firms operating environmentally sensitive industries and non-environmentally sensitive industries. Environmentally sensitive industries include chemicals, electronic utilities, paper and cellulose, cement, glass, mining, rubber, plastic, transportation, and steel manufacturing. For brevity, only the coefficients on $lnMEDIA_{i,y-1} \times ESGR_{i,y-1}$, $lnMEDIA_{i,y-1}$, and $ESGR_{i,y-1}$ are presented. T-statistics are reported in square brackets and are calculated using heteroscedasticity-robust standard errors, clustered by years to account for potential autocorrelation and heteroscedasticity issues. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

5. Conclusion

This study examines the interplay between media attention, ESG performance, and firm value, with a specific focus on Taiwanese firms. Recognizing the escalating importance of ESG criteria in today's corporate governance landscape, this research emphasizes how these metrics not only represent a company's sustainability efforts but also how they are perceived in the financial markets. The theoretical frameworks underpinning this study include both the monitoring hypothesis and the pressure hypothesis to understand the dual influence of media: as a mechanism enhancing corporate governance and transparency or as a potential driver of short-term management strategies detrimental to long-term goals.

Our empirical analysis leverages a comprehensive dataset from Taiwanese listed companies, covering the period from 2015 to 2022. The initial findings suggest a positive correlation between media attention and ESG performance, with firms receiving more media attention displaying higher ESG scores. This supports the monitoring hypothesis, which posits that media scrutiny encourages firms to adopt stronger governance practices and more robust stakeholder engagement strategies, contributing to an overall enhancement in ESG performance.

Further analysis explores the moderating effect of media attention on the relationship between ESG performance and firm value. Here, our study confirms that media visibility significantly boosts the impact of ESG initiatives on firm value, particularly in contexts where traditional external governance mechanisms like financial analyst coverage and institutional ownership are less prevalent. This finding underscores the media's role as a complementary force in corporate governance, particularly effective in environments with weaker traditional oversight mechanisms.

Moreover, the research addresses the nuanced impacts of ESG strategies within different industrial contexts, noting that firms in environmentally sensitive sectors (such as chemicals, cement, and transportation) benefit more distinctly from ESG-focused media attention. This is due to the heightened scrutiny and regulatory pressures these industries face, which compels them to more stringent ESG compliance and transparency, ultimately enhancing their market valuation.

In conclusion, the study enriches the understanding of how media attention intersects with corporate governance to influence firm value through ESG practices. It extends existing literature by demonstrating the significant role of media in amplifying the benefits of ESG initiatives, particularly in contexts where other forms of governance are less impactful. This research not only contributes to the academic discourse by providing empirical evidence on the positive effects of media attention on ESG performance and firm value but also offers practical insights for policymakers and corporate managers about the strategic importance of media visibility in ESG integration. Future research could explore how the qualitative aspects of media coverage, such as sentiment, tone, and the specific content of media reports, influence ESG practices. This next step would involve sophisticated text mining techniques to decode the nuanced messages conveyed in media texts and their differential impacts on corporate ESG strategies, providing a richer understanding of the media's role in shaping corporate sustainability narratives.

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Appendix: Variable Definitions

This table details the definitions of variables used in this study.

Variables	Definition
MEDIA	Media attention, measured as the number of mass media articles about a stock in a given year, in which we focus on five influential daily mass media in Taiwan, namely the Commercial Times, Economic Daily News, DigiTimes, Wealth Magazine, and MoneyDJ.
ESGR	ESG rating developed by the TEJ's TESG Sustainable Development Index for each sample firm in a given year.
Q	Tobin's Q for each sample firm in a given year.
TA (NT$ B)	Book value of total asset for each sample firm in a given year.
DEBT	Ratio of a firm's total debt to its total assets for each sample firm in a given year.
ROE	Ratio of earnings after taxes to the book value of equity for each sample firm in a given year.
FCF	Free cash flow divided by book value of total asset for each sample firm in a given year.
RD	R&D expense divided by net sales for each sample firm in a given year.
BSIZE	Number of board members for each sample firm in a given year
BIND	Proportion of independent directors for each sample firm in a given year.
BOR	Total fraction of shares of the stock owned by the board of director for each sample firm in a given year.
BPLEG	Proportion of share pledging by the boards of directors to total number of its shares outstanding for each sample firm in a given year.
DEV	Deviation of control rights to cash flow rights in a given firm-year, as measured in La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999, 2002).
MGROW	Percentage of firm's equity owned by top managers to total number of its shares outstanding for each sample firm in a given year.
BLOCK	Total fraction of shares of the stock owned by the top 10 largest shareholders for each sample firm in a given year.
IOR	Percentage of firm's equity owned by the three primary institutional investors (QFIIs, domestic mutual funds, and security dealers) to total number of its shares outstanding for each sample firm in a given year.
ANST	Number of analysts following a firm in a given year.