Received: 19 August 2020 | Revised: 30 March 2022 | Accepted: 1 April 2022

DOI: 10.1002/ijfe.2625

RESEARCH ARTICLE

WILEY

Do corporate governance mechanisms and ESG disclosure drive CSR narrative tones?

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Abstract

This study explores the underlying drivers of the tone of corporate social responsibility (CSR) narratives by considering four corporate governance mechanisms and examining whether there is a relationship between environmental, social, and governance (ESG) disclosure and the CSR narrative tone based on a sample of UK firms from 2008 to 2017. The results show that more independent directors would lead to a less optimistic language (positive tone) and a more pessimistic language (negative tone) in the CSR report. The results also show that a higher ESG disclosure score leads to a more positive CSR narrative tone. However, gender diversity has a positive impact on the positivity of CSR tone when the ESG score is medium or high and when the board size exceeds 10 members. These findings are relevant for policymakers, investors, and firm managers. For instance, the findings inform regulators and policymakers about the relevant governance mechanisms that affect the tone of CSR reports.

KEYWORDS

audit committee, board size, CSR narrative tone, ESG disclosure, gender diversity, independent directors, textual analysis

1 | INTRODUCTION

Recently, there has been a growing demand for improved business reporting, and the focus has been on encouraging companies to provide more non-financial information (Albitar et al., 2020; Arena et al., 2015; Gerged et al., 2021; Lai et al., 2018; Mughal et al., 2020). Corporate environmental and social responsibility has become an international trend, as sustainability has become increasingly significant to economic development, and this has been accompanied by companies' lack of non-financial disclosure, especially that related to environmental and social responsibility information (Albitar et al., 2020; Chen et al., 2021; Gerged et al., 2021; Li et al., 2020; Liao et al., 2021). Narrative communication plays an increasingly important role in the accountability process of corporate social responsibility (CSR) and integrated reporting, and the key element of a narrative style is the tone (Barkemeyer et al., 2014; Fisher et al., 2019). Textual analysis has also increasingly become a new trend in accounting and finance research (El-Haj et al., 2019, 2020; Fisher et al., 2019; Lewis & Young, 2019; Loughran & McDonald, 2015).

The tone typifies the manner in which a writer can use narrative statements in a specific way (through word selection) to convey non-verbal observations about a specific subject. Thus, the tone can be used to spread progressively useful information, or it can be strategically deployed to influence readers' perceptions (Arena et al., 2015; Fisher et al., 2019; Huang et al., 2014). The tone can also be described as a 'tool for creating a unique social impression through word selection' (Hart et al., 2013). In other words, it can be used as a tool for impression management. Cho et al. (2010) conclude that worse environmental performers use language and verbal tone to bias the message presented in their financial report on environmental disclosures, and poorer environmental performances are associated with the use of a more optimistic language. However, tones can be used to facilitate the communication of incrementally useful information. Notwithstanding the extensive research on narrative tones in political science, communications, and other disciplines, it has recently attracted the attention of accounting and finance scholars (El-Haj et al., 2019, 2020; Fisher et al., 2019; Lewis & Young, 2019). In addition, each part of the annual report's narrative has a specific communication purpose and displays similar content and style (Swales, 1990). Each narrative has a unique communication purpose, and it faces systematically varying degrees of restrictions and opportunities in its production process. For example, CSR reports signal a firm's commitment to social and environmental practices.

In addition, environmental, social, and governance (ESG) disclosures help to provide greater opportunities to understand a company's business as a major part of non-financial information. Non-financial information is also essential to assist management in achieving an entity's strategic environmental goals (Albitar et al., 2020; Li et al., 2020). In addition, ESG disclosure has become an important topic in academic research and practice, as stakeholders have raised questions about managers' credentials in integrating ESG considerations (Albitar et al., 2020; Husted & Sousa-Filho, 2018). According to stakeholder and agency theories, a company must adopt a more sustainable and long-term perspective, as stakeholders focus on companies' ESG factors to determine where the firm invests and how the company conducts its business (Atan et al., 2018; Eccles et al., 2014). Governance mechanisms may also play a crucial role in controlling the CSR narrative tone (Patelli & Pedrini, 2015), and they have a significant impact on ESG disclosure (Akben-Selcuk, 2019; Albitar et al., 2020; Allegrini & Greco, 2011; Gerged et al., 2021; Husted & Sousa-Filho, 2018; Javaid Lone et al., 2016).

Tucker (2015) points out that managers have a greater impact on disclosure tone than on numeric reporting. Patelli and Pedrini (2015) recommend that the board of directors and the chief executive officer (CEO) determine the tone of the disclosure and that aggressive financial reporting correlates with resolute, complex, and non-engaging language. They believe that the tone of the CEO's speech is a basic way for directors to establish leadership. In addition, Bozzolan et al. (2015) report that the management of Fiat Group uses disclosure tone strategically to implement different disclosure methods to communicate with different stakeholders with different levels of salience and optimism. Thus, the existing literature implies that management and directors help to set the disclosure tone.

Corporate governance mechanisms could affect the CSR narrative tone and ESG disclosures because strong corporate governance can affect decision-making regarding company policies related to ESG disclosure practices (Akben-Selcuk, 2019; Albitar et al., 2020; Dam & Scholtens, 2013), and research on how corporate governance mechanisms affect the CSR narrative tone is very rare (Fisher et al., 2019). Previous research has focussed on the relationship between corporate governance mechanisms and risk disclosure (Allini et al., 2016; Elshandidy & Neri, 2015; Haj Salem et al., 2019), the connection between governance mechanisms and forward-looking disclosure (Al Lawati & Hussainey, 2021; Al Lawati et al., 2021; Wang & Hussainey, 2013), or the consequences of disclosure and its tone (Aly et al., 2018; Fisher et al., 2019; Huang et al., 2014; Price et al., 2012; Schleicher & Walker, 2010). Research on the impact of corporate governance mechanisms on the tone of disclosure is very limited, especially in studies relating to CSR disclosure tone (Marquez-Illescas et al., 2019; Martikainen et al., 2019). Therefore, from a business ethics perspective, as companies disclose information to better inform stakeholders, it is important to examine the tone of this information and what drives this type of information (Arena et al., 2015; Marquez-Illescas et al., 2019; Martikainen et al., 2019). In addition, managers may tend to increase the level of ESG disclosure to fulfil stakeholders' needs. This will reduce information asymmetry and lead to greater recognition of management efforts. Furthermore, managers may provide ESG information in a different tone, which affects stakeholders' decisions. For example, some managers will be inclined to provide optimistic information when disclosing ESG information for their interest and to enhance investors' confidence; however, others might be more inclined to disclose ESG information in a negative tone to eliminate any potential litigation costs in the future (Dong & Zhang, 2019; Houston et al., 2019).

Therefore, this study explores the underlying drivers of the CSR narrative tone by considering four corporate governance mechanisms: board size, independent directors, gender diversity, and audit committee size. We also examine whether there is any relationship between positive and/or negative CSR tone and ESG disclosure. To the best of our knowledge, this is the first study to explore the effect of corporate governance mechanisms on the tone of CSR disclosure and examine how ESG disclosure is related to CSR tone. The results show that more independent directors would lead to a less optimistic language (positive tone) and a more pessimistic language (negative tone) in the CSR report. The results also indicate that a higher ESG disclosure score leads to a more positive CSR narrative tone. However, gender diversity has a positive impact on the positivity of the CSR narrative tone when the ESG score is medium or high and when the board size exceeds 10 members.

The remainder of the paper is structured as follows: Section 2 reviews the relevant literature and develops our research hypotheses. Section 3 introduces the sample and variable measurements for empirical research. Section 4 discusses the empirical results, Section 5 provides some additional analyses, and Section 6 concludes the paper.

2 | LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 | Board size and the CSR narrative tone

Board size is a basic characteristic that affects the effectiveness and performance of the board of directors. Generally, there are controversial debates in the literature regarding the impact of board size on disclosure. Jensen (1993) believes that a large board may lead to less effective coordination and decision-making, while according to the agency theory, it is believed that a large board is conducive to better supervision. In addition, a large board of directors is more likely to have a wider range of expertise than a small board of directors, and this may increase the effectiveness of the board's oversight capabilities.

The literature opines that companies with numerous directors on their boards make more voluntary disclosures (Albitar, 2015). Many studies have empirically examined the impact of board size on risk disclosure (e.g., Allini et al., 2016; Elgammal et al., 2018; Elshandidy & Neri, 2015; Haj Salem et al., 2019) or the relationship between the size of the board and forward-looking disclosures (Wang & Hussainey, 2013). Too many directors may have a negative impact on decision-making, and the costs incurred by a larger board may exceed the benefits (Lipton & Lorsh, 1992). According to Jensen (1993), when the size of a group expands, coordination issues make it less effective. In addition, a larger board is expected to be less effective in monitoring senior management (Yermack, 1996).

Under the agency theory framework, on the one hand, we believe that a large board of directors controls the company's activities less efficiently, and this inhibits the improvement of the quality of voluntary information disclosure and somehow affects the narrative tone. On the other hand, boards with several directors might be pressured to publish more information related to CSR and have a particular type of CSR tone. According to signalling theory, managers can have a more positive tone in their CSR report to signal not only a greater ability to engage in CSR but also their company's good performance, thereby enhancing their reputation. Based on the abovementioned discussion, we propose our first hypothesis as follows:

H1. Companies with a larger board size have more a positive tone in CSR narrative reporting.

2.2 | Independent non-executive directors and the CSR narrative tone

The number of independent directors is expected to affect the effectiveness of a board of directors. This is because independent directors make the board more effective by limiting the company's opportunistic actions (Srinidhi et al., 2011). More independent directors on the board are expected to have a significant impact on the board's ability and effectiveness, such that information asymmetry decreases and disclosure increases (Allini et al., 2016). In addition, independent directors can put pressure on management to publish more information (Albitar, 2015; Gerged et al., 2021; Lopes & Rodrigues, 2007). The existing literature confirms that there is a significant and positive relationship between independent directors and disclosure (Abraham & Cox, 2007; Elshandidy et al., 2015). Previous studies lacked a view of the impact of independent non-executive directors on CSR intonation, and only one study by Fisher et al. (2019) explored the effect of independent directors on CSR tone and found that there was a negative effect. According to the agency theory, independent directors are expected to be more motivated and effective in limiting managers' opportunism because they have no monetary benefit to the company other than director fees (Abrahamson & Park, 1994).

Accordingly, based on these arguments, we argue that independent directors promote more effective decision-making and develop information-processing capabilities. They will be more motivated to limit managers' opportunism because they have no pecuniary interest in the company, aside from directors' fees. This would lead to a less positive tone in the CSR narrative, as the board of directors is responsible for maintaining public interest to ensure the protection of stakeholders as well as transparency and compliance with laws. Therefore, we suggest that:

H2. Companies with more independent non-executive directors have a less positive tone in CSR narrative reporting.

2.3 | Women on board and the CSR narrative tone

The diversity of the board of directors refers to the possible differences between board members and how this diversity affects the decision-making process (Van der Walt & Ingley, 2003), and one of these decisions is ESG disclosure practice (Albitar et al., 2020). From an agency perspective, gender does not affect the effectiveness of the board of directors. However, recent literature provides different results, considering that gender can explain differences in behaviour and skills. Some studies have shown that female directors positively influence board decisions and financial performance (Adams & Ferreira, 2009; González et al., 2020). In contrast, some studies question women's ability to contribute extra values to boards.

Female directors support informational positions rather than opportunistic positions and have a low tolerance for opportunism during the reporting process. Having female directors as board members improves reporting discipline and increases investor confidence in management communications. This is because women are believed to have a higher degree of moral maturity than men and a lower tolerance for opportunism (Srinidhi et al., 2011). According to the framework of Merkl-Davies and Brennan (2007), emphasis on good news is an opportunistic impression management strategy that supports agencies in making theoretical assumptions about their own interests. The previous accounting literature suggests that women on the board of directors are more effective in supervising managers and will need to take greater responsibility for management performance if female directors provide better accountability and complexity in management communication (Martikainen et al., 2019). Therefore, companies with more female directors are expected to have a less optimistic language in their CSR narratives.

Nonetheless, Barber and Odean (2001) suggest that in an economic context, men are usually more confident than women. Similarly, gender diversity makes directors more likely to bring various opinions, experiences, and skills to the board, thereby reducing collective thinking and further complicating the setting of a specific tone. However, some studies, such as Ntim et al. (2013) and Allini et al. (2016), find that the presence of women on the board of directors has a positive impact on risk disclosure. Bassyouny et al. (2020) conclude that the presence of more females on boards increases the negative relationship between female CEOs and positive tone. Therefore, this study submits that more women on the board of directors can improve the decision-making process, including disclosure practice decisions, and could influence the tone of CSR reporting, as more women on the board of directors may decrease impression management, as female directors disclose neutral information (Bassyouny et al., 2020; García-Sánchez et al., 2019). Thus, we hypothesise as follows:

H3. Companies with more board gender diversity have a less positive tone in CSR narrative reporting.

2.4 | Audit committee and the CSR narrative tone

The resource dependence theory holds that large-size audit committees are willing to invest more resources and power to effectively perform their duties (Allegrini & Greco, 2011). Audit committee directors are more likely to bring a variety of opinions, expertise, experience, and skills to ensure effective monitoring (Haj Salem et al., 2019; Li et al., 2012). Therefore, more audit committee members may help such committees to identify and resolve potential issues in their company's reporting process (Li et al., 2012). Audit committee scale is an important factor for audit committees to fully monitor a company's disclosure behaviour (Persons, 2009). Persons (2009) provides empirical evidence that many audit committee directors seemingly have a positive impact on the level of voluntary disclosure. Many studies have examined the impact of audit committee size on disclosure (Albitar, 2015; Barako et al., 2006). In addition, it is more likely to discover potential problems through knowledge sharing and improve the quality of internal controls which will enable the audit committee to perform its supervisory responsibilities more effectively (Barako et al., 2006). The audit committee is directly responsible for the reporting process, so the size of the audit committee is more likely to improve the integrity of the financial reporting process. However, the size of the audit committee may prevent an effective decision-making process. The benefits of monitoring gained from a large audit committee size could be reduced by the cost of slow decision-making and fewer

TABLE 1 A summary table of all variables

Variable	Description	References for definition	Calculation	Ref for calculation
CSR Net Tone (H08)	Net tone of CSR narratives (H08)	Henry (2008)	Aggregate ESG commentary − Net tone ([nr of positive words − nr of negative words]/[nr of positive words + nr of negative words])	Henry & Leone, 2016
CSR Net Tone (LM11)	Net tone of CSR narratives (LM11)	Loughran and Mcdonald (2011)	Aggregate ESG commentary − Net tone ([nr of positive words − nr of negative words]/[nr of positive words + nr of negative words])	Loughran & McDonald, 2016
BRD_SZ	Board size	Lipton & Lorsh, 1992; Jensen, 1993; Yermack, 1996; Wang & Hussainey, 2013; Albitar, 2015; Elshandidy & Neri, 2015; Allini et al., 2016; Elgammal et al., 2018; Haj Salem et al., 2019	LN (number of directors on the board)	Allegrini & Greco, 2011; Javaid Lone et al., 2016 and Husted & Sousa-Filho, 2018; Orazalin, 2019; Albitar et al., 2020
PCT_INED	Independent non-executive directors	Abrahamson & Park, 1994; Abraham & Cox, 2007; Lopes & Rodrigues, 2007; Srinidhi et al., 2011; Albitar, 2015; Elshandidy et al., 2015; Allini et al., 2016	Independent non-executive directors/ board size	Lim et al., 2007; Albitar, 2015; Samaha et al., 2015; Haj Salem et al., 2019
PCT_BRD_WOMEN	Women on board	Van der Walt & Ingley, 2003; Adams & Ferreira, 2009; Srinidhi et al., 2011; Ntim et al., 2013; Allini et al., 2016; Martikainen et al., 2019; Albitar et al., 2020; González et al., 2020	Female directors/board size	Adams & Ferreira, 2009; Giannarakis et al., 2014; and Husted & Sousa-Filho, 2018; Albitar et al., 2020
AUDCOM_SZ	Audit committee size	Barako et al., 2006; Allegrini & Greco, 2011; Li et al., 2012; Albitar, 2015; Haj Salem et al., 2019	No. of directors on the audit committee	Li et al., 2012; Haj Salem et al., 2019
ESG	ESG disclosure	Yoon et al., 2018; Aboud & Diab, 2018; Brooks & Oikonomou, 2017; Albitar et al., 2020	ESG disclosure score provided by Bloomberg is based on the available information in the annual reports, corporate social responsibility reports, and firms' websites. Further, this score ranges from 0.1 for firms that disclose a minimum amount of ESG data to 100 for those that disclose every data point collected by Bloomberg	Nollet et al., 2016 and Manita et al., 2018; Albitar et al., 2020

(Continues)

TABLE 1 (Continued)

Variable	Description	References for definition	Calculation	Ref for calculation
LN_TRNOVR	Firm size	Bernardi & Stark, 2018; Aouadi & Marsat, 2018; Kao et al., 2018; Aboud & Diab, 2018	Natural logarithm of sales revenue (turnover)	Bernardi & Stark, 2018; Aouadi & Marsat, 2018; Kao et al., 2018; Aboud & Diab, 2018
FNCL_LVRG	Financial leverage	Bernardi & Stark, 2018; Aouadi & Marsat, 2018; Kao et al., 2018; Aboud & Diab, 2018	Total debt/total equity	Bernardi & Stark, 2018; Aouadi & Marsat, 2018; Kao et al., 2018; Aboud & Diab, 2018
ROA	Return on assets	Bernardi & Stark, 2018; Aouadi & Marsat, 2018; Kao et al., 2018; Aboud & Diab, 2018	Net income/total assets	Bernardi & Stark, 2018; Aouadi & Marsat, 2018; Kao et al., 2018; Aboud & Diab, 2018

frank discussions, thus facilitating control by a dominant individual. Bassyouny et al. (2020) find that companies with a high independence level of audit committees have a less positive tone. Melloni et al. (2016) conclude that there is a negative association between audit committees and impression management in business reports. Therefore, if a larger audit committee is more effective in monitoring financial reports, annual report communication would benefit from more transparent and simpler communications. Therefore, companies with larger audit committees will seek to provide a balanced view of the company vis-à-vis the CSR narrative tone. Thus, this study hypothesises as follows:

> **H4.** Companies with a larger audit committee size have a less positive tone in CSR narrative reporting.

2.5 | ESG disclosure and the CSR narrative tone

Stakeholders, mainly investors, have demanded extensive disclosure of ESG-related issues; thus, firms in the United Kingdom have adequate incentive to engage in ESG disclosure to meet the demands of stakeholders (Albitar et al., 2020). Therefore, linking ESG disclosure with CSR tone provides stakeholders with an improved understanding of the firm and its future. Furthermore, there is a potential link between ESG disclosure and firm performance (Aboud & Diab, 2018; Brooks & Oikonomou, 2017; Yoon et al., 2018), and CSR tone may help to show it more visibly. Therefore, we argue that ESG disclosure correlates with a positive CSR tone. Thus, we hypothesise as follows:

> **H5.** Companies with higher ESG scores have a more positive tone in CSR narrative reporting.

3 | RESEARCH DESIGN

3.1 | Sample and data collection

This study employs an automated content analysis method using a computerized software developed by Lancaster University (CFIE-FRSE app).[1] Furthermore, this paper only focuses on the narrative sections related to CSR and sustainability reporting that are available in the annual reports, as each part of the annual report's narrative has a specific purpose of communication and displays similar content and style (Swales, 1990). The initial sample of this study included all firms that made up the FTSE 100 over the 2008–2017 period. We exclude

TABLE 2 Descriptive statistics

Variable	N	Median	Mean	SD	Min	Max
CSR_LM_Net_Tone	842	0.23	0.21	0.24	−1.00	1.00
CSR_H08_Net_Tone	839	0.60	0.56	0.25	−0.81	1.00
CSR_LM11_Pos_Tone	842	0.62	0.61	0.12	0.00	1.00
CSR_LM11_Neg_Tone	842	−0.38	−0.39	0.12	−1.00	0.00
BRD_SZ	1007	10.00	10.64	2.47	4.00	21.00
PCT_INED	1008	0.67	0.65	0.12	0.33	0.93
PCT_BRD_WOMEN	998	0.20	0.20	0.10	0.00	0.50
AUDCOM_SZ	998	4.00	4.24	1.90	2.00	8.00
ESG	998	0.40	0.41	0.12	0.03	0.69
ROA	1008	5.88	8.75	20.61	−21.75	236.78
FNCL_LVRG	1008	2.92	7.35	13.72	−2.37	149.60
LN_TRNOVR	992	8.76	8.59	1.83	0.89	13.06

Note: CSR_LM_Net_Tone: Ratio of net tone of CSR narratives, based on Loughran and Mcdonald (2011), CSR_H08_Net_Tone: Ratio of net tone of CSR narratives, based on Henry (2008), CSR_LM11_Pos_Tone: Ratio of positive tone of CSR narratives, based on Loughran and Mcdonald (2011), CSR_LM11_Neg_Tone: Ratio of negative tone of CSR narratives, based on Loughran and Mcdonald (2011), BRD_SZ: Board size, PCT_INED: Ratio of Independent Non-Executive Directors, PCT_BRD_WOMEN: Ratio of Women on Board, AUDCOM_SZ: Audit committee size, ESG: ESG disclosure, ROA: Return on assets, FNCL_LVRG: Financial leverage, LN_TRNOVR: Firm size.

firm-years that do not contain the data necessary for the variables used in our analysis. Furthermore, companies' reports and other related data were collected from the Bloomberg database and companies' websites. The United Kingdom was chosen because it had experienced high levels of CSR disclosure and ESG practices (Helfaya & Moussa, 2017; Michelon et al., 2015). Bloomberg ESG disclosure scores are commonly used in the academic literature (Manita et al., 2018; Nollet et al., 2016).

3.2 | Research models and variable measurement

This study adopts different regression models to test the hypotheses using CSR tone measured by wordlists, following Henry (2008) (H08) and Loughran and Mcdonald (2011) (LM11) dictionaries, as follows:

The first model examines the relationship between corporate governance and CSR net tone as a percentage based on Loughran and Mcdonald (2011), while the second model uses CSR net tone as a dummy variable (−1 if the net tone is less than −0.01, 1 if the net tone is more than +0.01, and 0 if the net tone is between −0.01 and 0.01). In the third model, we examine this relationship using the CSR net tone, based on Henry (2008). The last two models, four and five, explore the impact of corporate governance on positive and negative CSR tones, respectively (Table 1).

CSR Net Tone (LM11) = β0 + β1*Bsize + β2*IND+ β3*women% + β4*ACsize + β5*ESG-score + β6*ROA + β7*lev + β8*LogFS + $\alpha + \mu_i + \varepsilon_{it}$	Model 01—RE
CSR Net Tone (LM11) Dummy = β0 + β1*Bsize + β2*IND + β3*Women% + β4*ACsize + β5*ESG-Score + β6*ROA + β7*Lev + β8*LogFS + $\alpha + \varepsilon_{it}$	Model 02—FE
CSR Net Tone (H08) = β0 + β1*Bsize + β2*IND + β3*Women% + β4*ACsize + β5*ESG-Score + β6*ROA + β7*Lev + β8*LogFS + $\alpha + \mu_i + \varepsilon_{it}$	Model 03—RE
CSR Positive Tone (LM11) = β0 + β1*Bsize + β2*IND+ β3*Women% + β4*ACsize + β5*ESG-Score + β6*ROA + β7*Lev + β8**LN_TRNOVR* + $\alpha + \mu_i + \varepsilon_{it}$	Model 04—RE
CSR Negative Tone (LM11) = β0 + β1*Bsize + β2*IND + β3*Women% + β4*ACsize + β5*ESG-Score + β6*ROA + β7*Lev + β8* LN_TRNOVR+ $\alpha + \mu_i + \varepsilon_{it}$	Model 05—RE

4 | EMPIRICAL RESULTS

As discussed in the methodology section, several regression models were run to investigate the impact of various corporate governance variables and ESG disclosure scores

TABLE 3 Robustness tests

Robustness checks	Model 01	Model 02	Model 03	Model 04	Model 05
Multicollinearity test (VIF) * *[if VIF >10 → there is multicollinearity problem]*	Mean VIF = 1.50	Mean VIF = 1.50	Mean VIF = 1.50	Mean VIF = 1.50	Mean VIF = 1.50
Heteroskedasticity test—Using estat hottest * *[if <0.05 → there is Heteroskedasticity]*	Prob > chi2 = 0.5088	Prob > chi2 = 0.0000	Prob > chi2 = 0.0196	Prob > chi = 0.5088	Prob >chi = 0.5088
Serial correlation test * *[if <0.05 → Variables are serially correlated]*	Prob > *F* = 0.0267	Prob > *F* = 0.1182	Prob > *F* = 0.0556	Prob > *F* = 0.0267	Prob > *F* = 0.0267
Decision	vce (robust)	vce (robust)	vce (robust)	vce (robust)	vce (robust)

on different measures of CSR tone within FTSE100 companies. Table 2 provides the descriptive statistics. The table shows that the mean net CSR tones using both Loughran and Mcdonald (2011) and Henry (2008) measurements are 0.21 and 0.56, respectively. Furthermore, the mean for the positive (negative) tone according to the LM11 wordlist is 0.61 (−0.39). The mean ESG disclosure score for the sample is 41%, indicating that many firms do not provide high ESG information. In addition, the results clearly show that no company fully obtained an overall score of more than 70%, according to the ESG score from Bloomberg.

Table 3 shows the results of the robustness tests (multicollinearity, heteroscedasticity, and serial correlation) that must be carried out to identify potential endogenous issues and ensure that the proposed models are robust and appropriate for investigating the intended relationships. As reported in Table 3, the variance inflation factor (VIF) test shows that there is no multicollinearity problem because the VIF results of all the regression models are less than 10 (Wooldridge, 2002). Heteroskedasticity was also tested in this study, as it can invalidate statistical tests of significance, assuming that the modelling errors are uncorrelated and uniform and that their variances do not vary with the effects modelled by Johnston (1972). The table shows the results of the modified Wald test for group-wise heteroscedasticity, indicating that a heteroscedasticity issue exists between the second and third models. Finally, serial correlation, or autocorrelation, in linear panel data models can bias the standard errors and reduce the efficiency of the results (Drukker, 2003). Therefore, the Wooldridge test for autocorrelation in panel data was used, and it was revealed that variables were serially correlated in all regression models, except for the second and third models. Therefore, clustered standard errors were obtained for all the five regression models to adjust for both heteroscedasticity and autocorrelation (Drukker, 2003; Hoechle, 2007).

Table 4 shows the regression results for the constructed models, and, as it can be seen in the results from running Models 1 and 3, independent directors have a negative effect on the net CSR tone when the net CSR tone is measured by the wordlist of the LM11 and H08 dictionaries, which means that more independent directors promote more effective decision-making and develop information processing capabilities, and they will be more motivated to limit managers' opportunism, leading to a less positive tone in the CSR report. Women on boards do not affect the net CSR tone, regardless of how it is calculated (LM11 or H08), which is consistent with Bilimoria and Kristin Piderit (1994), who claim that female board members may lack the ability to materially influence the tone of the disclosure. Furthermore, a higher ESG score will lead to a significant and positive

TABLE 4 Regression results

Variables	(1) CSR Net Tone [LM11] RE	(2) CSR Net Tone [LM11] Dummy FE	(3) CSR Net Tone [H08] RE	(4) CSR Positive Tone [LM11] RE	(5) CSR Negative Tone [LM11] RE
BRD_SZ	−0.00490	−0.0182	−0.00836	−0.00245	−0.00671
	(0.338)	(0.417)	(0.118)	(0.338)	(0.107)
PCT_INED	−0.333***	−1.423***	−0.174*	−0.166***	0.153*
	(0.00455)	(0.00214)	(0.0854)	(0.00455)	(0.0591)
PCT_BRD_WOMEN	0.173	0.359	0.0598	0.0864	−0.165**
	(0.194)	(0.431)	(0.670)	(0.194)	(0.0396)
AUDCOM_SZ	0.00117	0.0525**	0.00377	0.000584	0.00522
	(0.828)	(0.0162)	(0.537)	(0.828)	(0.173)
ESG	0.313**	1.308*	0.343***	0.157**	−0.162
	(0.0246)	(0.0705)	(0.00609)	(0.0246)	(0.120)
ROA	−0.000402	−0.00483	−0.000466*	−0.000201	9.94e-07
	(0.237)	(0.115)	(0.0956)	(0.237)	(0.998)
FNCL_LVRG	−0.00101	0.00734**	−0.000428	−0.000503	0.00142***
	(0.302)	(0.0446)	(0.552)	(0.302)	(0.00215)
LN_TRNOVR	−0.00237	−0.157**	−0.00872	−0.00119	0.000867
	(0.807)	(0.0205)	(0.307)	(0.807)	(0.895)
Constant	0.352***	2.279***	0.678***	0.676***	0.359***
	(0.000111)	(0.00160)	(0)	(0)	(0)
Observations	829	829	826	829	829
Year effect	Yes	Yes	Yes	Yes	Yes
R-squared	0.0170	0.0314	0.0162	0.0170	0.0190

Note: Robust pval in parentheses. CSR Net Tone [LM11]: Ratio of net tone of CSR narratives, based on Loughran and Mcdonald (2011), CSR Net Tone [LM11] Dummy: Net tone of CSR narrative, based on Loughran and Mcdonald (2011), as a dummy variable [0 if between 1% and −1%, +1 if higher than 1%, and −1 if less than −1%], CSR Net Tone [H08]: Ratio of net tone of CSR narratives, based on Henry (2008), CSR Positive Tone [LM11]: Ratio of positive tone of CSR narratives, based on Loughran and Mcdonald (2011), CSR Negative Tone [LM11]: Ratio of negative tone of CSR narratives, based on Loughran and Mcdonald (2011), BRD_SZ: Board size, PCT_INED: Ratio of independent non-executive directors, PCT_BRD_WOMEN: Ratio of women on board, AUDCOM_SZ: Audit committee size, ESG: ESG disclosure, ROA: Return on assets, FNCL_LVRG: Financial leverage, LN_TRNOVR: Firm size.
$^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

impact on the way a company is involved in and disclosing CSR arrangements, regardless of how the net CSR tone is calculated. Moreover, as it can be seen from the results of Model 2, we use LM11, as a dummy variable which is equal to −1 if the net tone is less than −0.01, 1 if the net tone is more than +0.01, and 0 if the net tone is between −0.01 and 0.01. The results are the same except for audit committee size, which has a positive effect on the net CSR tone, and this is consistent with previous studies that have found that more members on audit committees would help to fully monitor the company's disclosure behaviour (Barako et al., 2006; Kalbers & Fogarty, 1993; Li et al., 2012; Persons, 2009).

Following this, we run the analysis for the positive and negative CSR tones separately measured by the LM11 dictionaries, and as it can be seen from Models 4 and 5 in Table 4, the results show that independent directors negatively affect the positive tone of CSR, as well as positively affect the negative CSR tone; this result is consistent with that of Fisher et al. (2019) that more independent directors would negatively affect CSR tone. Furthermore, the ESG score has a significant positive impact on the positivity of the CSR tone, and we also find that the coefficient of ESG disclosure score with a negative tone of CSR (−0.162) is negative but not significant. A high ESG disclosure score positively affects the positive tone of CSR, and this means that managers would have a more positive tone in their CSR report to signal a greater ability to engage in CSR as well as their company's good performance, thus enhancing their reputation to gain

TABLE 5 Additional analysis 1

Variables	(6) CSR Net Tone [LM], IF (ESG 0%–25%) RE	(7) CSR Net Tone [LM], IF (ESG 25%–50%) RE	(8) CSR Net Tone [LM], IF (ESG >50%) RE	(9) CSR Net Tone [LM], IF (BRDSZ ≤10) RE	(10) CSR Net Tone [LM], IF (BRDSZ >10) RE
BRD_SZ	−0.0332**	−0.00237	0.00288	−0.00981	−0.00254
	(0.0137)	(0.612)	(0.820)	(0.477)	(0.775)
PCT_INED	−0.339	−0.194*	−0.0750	−0.523***	−0.305**
	(0.330)	(0.0578)	(0.806)	(0.00699)	(0.0470)
PCT_BRD_WOMEN	0.0437	0.182*	0.643**	0.0338	0.430***
	(0.892)	(0.0916)	(0.0100)	(0.862)	(0.00737)
AUDCOM_SZ	0.00954***	0.00407	−0.000289	0.0174	0.00152
	(0.00784)	(0.695)	(0.984)	(0.313)	(0.741)
ESG	1.207*	0.160	−0.0280	0.222	0.425**
	(0.0800)	(0.188)	(0.958)	(0.211)	(0.0366)
ROA	−1.77e−05	−5.83e−06	−0.00601**	−0.000236	−0.00109
	(0.986)	(0.982)	(0.0121)	(0.488)	(0.653)
FNCL_LVRG	0.000509	−0.00132	−0.00316	−0.000580	−0.000710
	(0.859)	(0.120)	(0.203)	(0.537)	(0.532)
LN_TRNOVR	0.00258	−0.00716	0.00907	−0.00379	0.000169
	(0.927)	(0.385)	(0.634)	(0.834)	(0.988)
Constant	0.383	0.284***	0.119	0.520***	0.169
	(0.166)	(5.28e−05)	(0.698)	(0.00166)	(0.227)
Observations	73	679	218	443	386
Year effect	Yes	Yes	Yes	Yes	Yes
R-squared	0.0206	0.0256	0.0890	0.0108	0.0408

Note: Robust pval in parentheses. CSR Net Tone [LM]: Ratio of net tone of CSR narratives, based on Loughran and Mcdonald (2011)—IF: ESG disclosure score = 0%–25%, OR ESG = 25%–50%, OR ESG > 50%, OR IF BRDSZ (board size) < =10, OR BRDSZ >10. BRD_SZ: Board size, PCT_INED: Ratio of independent non-executive directors, PCT_BRD_WOMEN: Ratio of women on board, AUDCOM_SZ: Audit committee size, ESG: ESG disclosure, ROA: Return on assets, FNCL_LVRG: Financial leverage, LN_TRNOVR: Firm size.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

competitive advantages. Additionally, the presence of more women on the board significantly decreases the negativity of the CSR tone.

5 | ADDITIONAL ANALYSIS

In this section, we run the analysis again on sub-samples based on the ESG scores (low: 0%–25%, medium: 25%–50%, and high: 50%–100%), and then based on board size (less than or equal to 10, more than 10), to explore the impact of ESG level and/or board size on the relationship between corporate governance and CSR tone.

As shown in Table 5, we divide our sample into three sub-samples as follows: 1. Firms with a low level of ESG disclosure, including firms that have between a 0%–25% ESG score according to Bloomberg data; 2. Firms with a medium ESG score of 25%–50%; and 3. Firms with a high level of ESG disclosure score of more than 50%. The results show that, for firms with a low ESG score (less than 25%), board size and audit committee size are significantly related to the positive CSR tone. We also found the same results for board independence when the ESG score was at a medium level. Furthermore, the coefficient of women on the board is significant and positive for firms with medium and high ESG scores.

In addition, we divided our sample into firms with fewer than 10 members (average board size) as board size and more than 10. The results show that, regardless of the board size, independent directors and ESG disclosure scores are significantly related to CSR tone. Interestingly, we can also see from the results reported in Table 5 that the percentage of women on the board has a positive impact on the positivity of CSR tone when the ESG score

TABLE 6 Additional analysis 2

Variables	(11) CSR Net Tone [LM], IF (ESG < ESG_AVG) RE	(12) CSR Net Tone [LM], IF (ESG≥ESG_AVG) RE	(13) CSR Net Tone [LM], IF (Women <25%) RE	(14) CSR Net Tone [LM], IF (Women ≥25%) RE
BRD_SZ	−0.000833	−0.00414	−0.00880	−0.00425
	(0.843)	(0.356)	(0.241)	(0.568)
PCT_INED	−0.231***	−0.122	−0.339**	−0.201
	(0.00230)	(0.266)	(0.0139)	(0.222)
PCT_BRD_WOMEN	−0.00983	0.219**	0.295*	0.627**
	(0.908)	(0.0438)	(0.0952)	(0.0467)
AUDCOM_SZ	0.00165	0.0115*	0.0149	0.00169
	(0.520)	(0.0909)	(0.350)	(0.692)
ESG	0.407***	0.149	0.147	0.636***
	(0.00124)	(0.337)	(0.376)	(0.00150)
ROA	−0.000163	−0.00163	−0.000862	0.000342
	(0.416)	(0.123)	(0.254)	(0.251)
FNCL_LVRG	−0.000468	−0.000601	−0.00157	−0.000929
	(0.541)	(0.243)	(0.359)	(0.215)
LN_TRNOVR	−0.00991	−8.00e−05	−0.00506	0.00122
	(0.118)	(0.992)	(0.738)	(0.909)
Constant	0.704***	0.589***	0.430***	−0.0908
	(0)	(0)	(2.37e−05)	(0.601)
Observations	455	374	525	301
Year effect	Yes	Yes	Yes	Yes
R-squared	0.0309	0.0723	0.0187	0.0271

Note: Robust pval in parentheses. CSR Net Tone [LM]: Ratio of net tone of CSR narratives, based on Loughran and Mcdonald (2011)—IF: ESG disclosure score < ESG_AVG (Average ESG score for all sample), OR ESG ≥ ESG_AVG, OR IF WOMEN (ratio of women on board) <25%, OR WOMEN ≥25%. BRD_SZ: Board size, PCT_INED: Ratio of independent non-executive directors, PCT_BRD_WOMEN: Ratio of women on board, AUDCOM_SZ: Audit committee size, ESG: ESG disclosure, ROA: Return on assets, FNCL_LVRG: Financial leverage, LN_TRNOVR: Firm size.
*$p < 0.1$; **$p < 0.05$; ***$p < 0.01$.

is medium or high, as well as when board size is more than 10 members.

One additional analysis is to check whether any deviation from the average ESG score has any impact on the governance–CSR tone relationship; thus, we divided our sample into two sub-samples: firms with low ESG disclosure scores (less than the ESG average) and firms with high ESG disclosure scores (higher than the ESG average). As it can be seen from running Model 11 in Table 6, we find the same results for firms with low ESG disclosure scores, and the coefficient for independent directors is significantly negative (−0.231) and higher than the coefficient of the whole sample (−0.333). This means that the effect of independent directors on the positive CSR narrative tone is stronger for firms with low ESG disclosure scores. However, surprisingly, the results from running Model 12 for firms with high ESG disclosure scores show that the coefficients for both women's percentage and audit committee size are positive and significant, while the amount of impact is much higher for women percentage than for audit committee size.

Thus, we divide the sample based on the ratio of women on the board (less than 25%, equal to or higher than 25%) and find that when the percentage of women on the board is less than 25%, independent directors are significantly related to a positive CSR tone when the percentage of women on the board is less than 25%, and the ESG score is significantly related to the positive tone of CSR when the percentage of women on the board is more than 25%. The results are reported in Table 6.

6 | CONCLUSION

This study examines the impact of corporate governance mechanisms, namely, board size, independent directors, gender diversity, and audit committee size, on the tone of CSR narratives. Firm-fixed and random effects regressions were used based on panel data from FTSE 100 companies between 2008 and 2017. Two measurements, that is, LM11 and H08 dictionaries, are used to estimate the tone of the CSR narrative. The results show that independent directors have a negative effect on the net CSR tone, while more independent directors on the board would lead to a less positive tone and more negative effects in the CSR narrative report. Furthermore, the results show that a higher ESG disclosure score leads to a more positive CSR narrative tone. Moreover, the percentage of women on the board has a positive impact on the positivity of CSR tone when the ESG score is medium or high and when the board size is more than 10 members. Board size and women on board percentage do not affect the net CSR tone, regardless of how it is calculated (LM11 or H08), and audit committee size has a positive effect on the net CSR tone when using LM11 as a dummy variable. This study contributes to the literature by exploring the underlying drivers of CSR tone and considering four corporate governance mechanisms, namely, board size, independent directors, gender diversity, and audit committee size. It also adds to the disclosure literature by investigating whether firms will have a more positive CSR tone when ESG disclosure is higher and linking ESG disclosure with positive CSR tone facilitates stakeholders' understanding of the firm's disclosure practice. This study has several important implications for policymakers, investors, and corporate managers. It offers insights to decision makers and regulatory bodies regarding the current practices of the tone of CSR reports. It helps to inform regulators about the boardrooms of UK companies being aware of the need to provide more non-financial information to stakeholders' decision-making processes. It also shows that the boardrooms of UK companies that are committed to high ESG levels report more positive CSR information. This offers meaningful insights into regulators of UK non-financial disclosure practices. To avoid disclosure bias and the possibility of using impression management, policymakers must set rules and/or guidelines to control the tone of CSR reports. Policymakers must encourage companies to provide balanced disclosure that reflects both good and bad news. Policymakers must be aware of the characteristics of the board of directors that affect the tone of the CSR narrative. Thus, they can impose regulations for an appropriate corporate governance mechanism, indicating that more independent directors determine the tone of CSR narratives. This study also has several managerial implications. This offers interesting insights into the strategies they need to follow to report CSR information in the narrative sections of their annual reports. For effective CSR disclosure with shareholders, managers should prioritize improving the quality of corporate governance. Finally, this study has social implications. It shows that ESG metrics do matter for CSR disclosure practices by UK companies. This indicates that there is an important interaction between ESG and CSR disclosure that could enhance our understanding of managers' disclosure practices. One of the theoretical implications of these findings is that the determinants of CSR disclosure should not be investigated separately from ESG metrics and corporate governance mechanisms.

Our study has some limitations that provide opportunities for future research. This study was conducted in a UK context. Future studies can consider different countries to explore changes in how corporate governance, particularly ownership structure, may affect CSR narratives. Future research can also investigate how CEO education and background may affect the tone of CSR narratives. It would also be interesting to examine the impact of board interlocking and overlapping audit committee directors on the tone of the CSR narrative. Additional research could examine whether governance mechanisms have the same impact on the mandatory and voluntary content of the CSR disclosure tone. Finally, it would be interesting to study the economic consequences of the CSR disclosure tone (e.g., its impact on firm performance, firm value, cost of capital, credit rating, trade credit, cash holding, dividend policy, and corporate investment efficiency).

ACKNOWLEDGEMENTS

The authors would like to thank the anonymous referees and the editors for their constructive comments that greatly improved the manuscript.

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] CFIE is a research programme exploring accounting and financial market text using natural language processing (NLP) and corpus linguistics methods (El-Haj et al., 2019).

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How to cite this article: Albitar, K., Abdoush, T., & Hussainey, K. (2022). Do corporate governance mechanisms and ESG disclosure drive CSR narrative tones? *International Journal of Finance & Economics*, 1–15. https://doi.org/10.1002/ijfe.2625