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ORIGINAL ARTICLE

CSR signals: exploring their use in controversial industries

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Abstract
To reduce information asymmetries with stakeholders and increase stakeholder engagement, firms frequently adopt corporate social responsibility (CSR) signals in order to highlight their commitment to sustainability. The paper explores how organizations in controversial industries use CSR signals, which play a key role in sustainable marketing strategies. These organizations are more likely to be affected by the skepticism of stakeholders, however it is not clear if and how they are involved in CSR signaling. Through a content analysis of corporate websites, CSR signaling is explored at the levels of strategic management (CSR policies), and operative management (CSR reporting). Companies in controversial industries show a degree of involvement in CSR reporting, while being less active in adopting CSR policies. These findings suggest that controversial organizations should embrace a more strategical and organic approach to CSR signaling. In addition, inter-sectoral comparisons are used which show that companies operating in the most environmentally unfriendly sectors (materials, energy and utilities) are keener to engage in CSR policy signaling than companies in other controversial industries.

Keywords Controversial industries · Signaling theory · Sustainable marketing · Content analysis · CSR policies · CSR reporting

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1 Introduction

An increasing number of organizations are striving to adopt sustainable practices and concurrently to make stakeholders aware of their commitment to sustainability. However, it is uncertain whether stakeholders are aware of the actual degree of sustainability of companies, since the positive implications of sustainable practices are often not visible (Su et al., 2016). Corporate social responsibility (CSR) tools are thus used by organizations to signal their involvement in sustainability (Zerbini, 2017). In line with signaling theory (Spence, 1973; Karasek III & Bryant, 2012; Bergh et al., 2014; Saxton et al., 2019), CSR can be conceptualized as a signal sent by organizations to stakeholders in order to reduce information asymmetries (Montiel et al., 2012), thus demonstrating their own commitment to being a responsible corporate citizen (Branco & Rodrigues, 2006). The effectiveness of these CSR signals requires the implementation of sustainable marketing strategies and techniques (García-Rosell & Moisander, 2008), which help build the corporate image and reputation, by achieving a desired strategic position and limiting the risks associated with ineffective signaling.

In controversial industries, stakeholders might be particularly skeptical about the level of sustainability that is truly achievable by firms (Cai et al., 2012; Kilian & Hennigs, 2014; van Bommel, 2018). In fact, these companies' core businesses involve dangerous or morally reproachable practices or products. For instance, observers might find it difficult to believe that a company operating in the energy sector might really be environmentally friendly. The signaling incentives might therefore be different for these kinds of firms. Since there is a lack of research on CSR signaling in controversial industries, the paper explores how companies in controversial industries use CSR signals, by clarifying the amounts and types of signaling they implement.

The main categories of CSR signals are focused on, namely CSR policies (Hetze, 2016), and CSR reporting (Mahoney et al., 2013; Zerbini, 2017). These refer to the strategic and the accountability phases respectively of CSR management. They constitute the most visible aspects of CSR in the eyes of stakeholders: CSR policies signal the value orientation of the firm, while CSR reporting signals the actual implementation of sustainable initiatives. Both aim to convey company information aimed at attracting stakeholder interest in CSR, which is key in obtaining participation by stakeholders (Lane & Devin, 2017).

In order to assess the degree of signaling, we assess the presence of specific items – associated either with CSR policies or CSR reporting – within corporate websites, which probably represent the most comprehensive and up-to-date institutional communication channels used to express CSR commitment (Mann et al., 2014). By exploring how companies communicate their CSR efforts on corporate websites, we assessed the quality and level of signaling, which provide useful operational information (Etter, 2014; Morsing & Schultz, 2006).

The paper is organized as follows. We first review the literature about CSR communication within the framework of signaling theory, and about the use of CSR signaling in controversial industries. Then, we address the research hypotheses. In the methodology section, the research design of the empirical study based on a content analysis of the corporate websites is presented. The research hypotheses are then discussed in light of the key findings. The study concludes with theoretical implications and managerial implications. More specifically, the study both advances the signaling theory through an industry-specific view, and provides useful insights to communication and marketing managers about the implementation of CSR signals.

2 CSR signals: the path toward stakeholder engagement

Organizations communicate to stakeholders using corporate signals, which provide positive information on a firm and its engagement in CSR initiatives. According to signaling theory (Connelly et al., 2011; Spence, 1973; Taj, 2016), these signals influence stakeholder perceptions and their willingness to support the company's actions (Becker-Olsen et al., 2006). CSR signals are an effective way of mitigating the information asymmetry problem (i.e. stakeholders cannot really observe the true sustainability level of organizations), attracting investments, and enhancing a company's reputation (Omran & Ramdhony, 2015). Therefore, CSR signaling is the unavoidable tool to generate positive stakeholder engagement (Vollero et al., 2019), in addition to increasing firm value (Taylor et al., 2018).

In fact, one of the tenets of CSR, along with environmental and profit issues, is social sustainability (Savitz, 2013), which means respecting people and committing to meeting stakeholders' needs. The best way to fulfill social sustainability is to proactively scan the environment and systematically audit stakeholders' requests to reach public consensus. Companies need to include the participation of stakeholders in the future direction of corporate strategies and activities (Donaldson & Preston, 1995). It thus seems clear that CSR is inextricably tied to stakeholder engagement (Lim & Greenwood, 2017; Lopatta et al., 2017).

CSR signaling is essential to initiate the engagement process, since it conveys CSR information in order "to inform the public as objectively as possible about the organization, not necessarily with a persuasive intent" (Morsing & Schultz, 2006, p. 327). Informing stakeholders in a transparent way, is the first step, aimed at educating them about corporate goals and strategies (Friedman & Miles, 2006).

Within the framework of signaling theory, a signal is considered effective only if it entails higher implementation costs for low-quality companies than for high-quality companies (Connelly et al., 2011; Habib & Hasan, 2019; Spence, 1973, 2002). Since the unobservable quality of companies that we are interested in is their level of sustainability, the implementation of an effective CSR signal costs more for low-sustainability organizations than for high-sustainability organizations (Zerbini, 2017). More specifically, lower signaling costs allow high-sustainability companies to gain a higher payoff from signaling than from not signaling. In contrast, low-sustainability companies should sustain higher signaling costs, such that their payoff from signaling is lower than the payoff from not signaling. While high-sustainability companies are therefore motivated to use signals, low-sustainability companies are discouraged from signaling (i.e.

separating equilibrium; Bergh et al., 2014; Connelly et al., 2011). Only in these circumstances are observers able to distinguish between good and bad corporate citizens, based on the use of the signals. Signals that are not able to engender this separating equilibrium are not considered effective according to signaling theory.

The other essential characteristic of signals is their observability, such that stakeholders are able to distinguish them and correctly assess the sustainability level of the signalers.

Our study thus considers the most observable elements of the sustainability management process, i.e. CSR policies and reporting, which also entail continuous rather than one-time CSR costs, as they are intended to offer ongoing support for CSR practices (Weber, 2008). Although there are other elements that might – in theory – gain more visibility than CSR policies and reporting, such as CSR advertising, such elements do not typically have the other prerequisite of signals (i.e. differential costliness). In fact, the costs they involve for their adopters are independent of the actual level of sustainability of the adopters themselves: for instance, CSR advertising can be designed at roughly the same cost by sustainable and unsustainable firms. This means that an element such as CSR advertising cannot really be considered an effective signal, since its use does not result in a separating equilibrium for high- and low-sustainability companies. The opposite is true for CSR policies and CSR reporting, which, as effective signals, do entail differential costs for good and bad citizens.

In addition, CSR policies and CSR reporting cover the two critical phases of the management process. In fact, CSR policies belong to the most strategic phase of corporate planning, since they define the values that the organization is willing to commit to and thus signal to what extent stakeholders' needs are incorporated within the corporate culture. CSR reporting is placed downstream in the management process and accounts for the actual implementation of CSR initiatives, informing stakeholders about which sustainability measures and indicators are prioritized by the company (Manetti, 2011). In addition, CSR reporting enables the internal and external monitoring of CSR initiatives, and as such it feeds back into strategic decision making.

First, companies make explicit CSR-related motives, values and goals (Hetze, 2016), by defining CSR policies (Graafland & Smid, 2019; Sims, 1991; Stubbs et al., 2013). These signals are integrated into the organizational culture (Herrera, 2015) and express a company's engagement in CSR through symbolic statements regarding environmental and social issues (Rhee & Lee, 2003).

In addition, the propagation of a socially responsible culture within an organization involves the development of reporting aimed at signaling CSR commitment (Dhaliwal et al., 2011; Mahoney et al., 2013; Zerbini, 2017). CSR reports constitute transparency tools that explicitly highlight the achievements of a business in terms of sustainability (Dubbink et al., 2008), in order to gain trust and legitimation (Carroll & Einwiller, 2014). CSR reports are intended to decrease the information asymmetry that often occurs between managers and stakeholders (Pérez, 2015; Zerbini, 2017).

3 CSR signaling in controversial industries: research questions

The aim of this study was to investigate CSR signaling within the context of controversial industries. Controversial industries are typically identified as such in terms of their social and public health costs, for example, tobacco, gambling, and alcohol. These sectors are controversial because their activities or products are considered as either unethical or dangerous based on societal, cultural and scientific norms (Lindorff et al., 2012; Palazzo & Richter, 2005; Richter & Arndt, 2018).

Recent studies have also included companies involved in emerging environmental, social, or/and ethical issues in controversial industries (Cai et al., 2012; Kilian & Hennigs, 2014; van Bommel, 2018), such as pharmaceuticals (Günther & Hüske, 2015), energy (Abitbol et al., 2019; Du & Vieira, 2012), mining (Jenkins & Yakovleva, 2006; Rodrigo et al., 2016), transport (including automobiles), and food (Hao & Kang, 2019; Kilian & Hennigs, 2014).

Lastly, following the financial crisis, banks and financial services have gained a higher visibility and more extensive media coverage, and have become controversial industries (Branco & Rodrigues, 2006; Bonifácio, Neto & Branco, 2019; Hinson et al., 2010;). The erosion of the financial sector's reputation has prompted fear among stakeholders, thus bruising confidence and increasing reputational risk (Matute et al., 2011; Pérez & Del Bosque, 2012; Palazzo et al., 2020).

Organizations in these industries are particularly exposed to public scrutiny (Lindgreen et al., 2012), and stakeholders are very sensitive to the sustainability of their activities. Controversial organizations constantly face the risk of gaining a bad reputation (Aerts & Cormier). As such, compared with other kinds of industries, firms in controversial industries may be more incentivized to pursue CSR signaling, as the returns can be significant (Grougiou et al., 2016). In fact, they might be motivated to start and maintain a flow of environmental and social information directed at stakeholders (Hasseldine et al., 2005). At the same time, fostering stakeholder engagement is risky on its own, because it gives stakeholders access to delicate information and to call into question company activities (Romenti, 2010). The over-communication of CSR activities also risks increasing stakeholder skepticism (Lock & Seele, 2016). Communicating CSR thus requires a subtle equilibrium as companies cannot fully control how their CSR signals are interpreted, since some stakeholders may not be interested in being involved in a CSR dialogue unless they actively search for it (Morsing, 2003).

It is therefore unclear whether controversial industries actually employ CSR signals, since the risks associated with signaling might surpass its rewards. We therefore also aimed to explore to what extent signaling is used by controversial organizations. We thus formulated the following general research question:

3.1 RQ1 – Considering both the aim to foster stakeholder engagement and the risks associated with CSR (over)communication, to what extent are controversial organizations involved in CSR signaling?

More specifically, we are interested in examining the use CSR policies and CSR reporting by controversial organizations. As previously highlighted, these are the most visible aspects of the CSR management process, and can effectively function as signals, providing stakeholders with information on the value orientation and accountability practices of the organizations. In addition, these two elements provide different information on CSR signals, one concerning the strategic level, and the other the operative level of management.

The increased efforts made by controversial firms in CSR signaling can firstly be reflected in their CSR policies (organizational culture), as expressed by their orientation statements, which represent a real and public commitment by the organization (Schultz & Wehmeier, 2010). The "triple bottom line" model suggests that a company is sustainability-oriented if in its corporate commitment, it strikes the right balance between economic performance, the protection of environmental resources, and social progress (Savitz & Weber, 2006). The value statements of firms play a pivotal role in defining their corporate sustainability philosophies. The ongoing public scrutiny of controversial industries means they are constantly pushed to report their sustainability activities (Hao & Kang, 2019; Kilian & Hennigs, 2014). These firms are also likely to make their efforts permanent by making sustainability a strategic endpoint, thus orientating the whole management process. Therefore, the second research question is.

3.2 RQ1.1 – To what extent are controversial industries involved in signaling CSR policies?

Transparency tools may facilitate the "externalization" of organizational practices (Wuthnow et al., 1984). CSR reports are effective tools for communicating and signaling such activities (Correa-Garcia et al., 2018), and demonstrate the integration of CSR in operational planning (Richter & Arndt, 2018). Several studies have found that controversial organizations reach higher levels of CSR reporting as they are forced to limit stakeholder skepticism (Branco & Rodrigues, 2006; Hahn & Kühnen, 2013; Lock & Seele, 2016). Thus, the third research question is.

3.3 RQ1.2—To what extent are controversial industries involved in signaling CSR reporting?

We explored a sample of international controversial companies in order to provide first-hand evidence to answer the research questions.

4 Methodology

The corporate website has become the main channel through which organizations communicate with their stakeholders, since it offers a public representation of the whole organization and its formal CSR commitment (Fukukawa & Moon, 2004; Illia et al., 2017).

Relevant company names were drawn from the Dow Jones Sustainability World Index (DJSWI) 2016, which includes companies worldwide that stand out for their level of sustainability. We restricted the sample to companies belonging to controversial industries (n. 191; see Table 1).

In order to answer the research questions, we carried out a content analysis of the corporate websites, which enabled us to operationalize the relevant variables. Content analysis is the main instrument used to extract meaningful information from textual data. As such, it has been largely employed in studies about CSR communication, in particular in studying digital media, such as corporate websites (Vollero et al., 2018; Gomez & Chalmeta, 2011). For the coding scheme, we implemented both a data-driven and a theoretically-driven phase. First, we analyzed a subsample of websites, to inductively arrive at a starting list of items concerning CSR policies and CSR reporting. Recurring pieces of information contained in the websites were classified into different classes of items, capturing distinctive indicators of CSR signaling. We then deductively assessed the validity of the items on the basis of the literature on CSR signals, and also integrated the initial list with additional items (Tuckett, 2005).

Each of these items was operationalized as a binary variable, recording the presence of the feature as 1 and the absence as 0 (Table 2).

They reached an adequate level of agreement, since the inter-coder reliability score, calculated via Krippendorf's (2012) alpha, was 0.85. This content analysis procedure is common in studies analyzing corporate communication on corporate websites (Patten & Crampton, 2004; Bravo et al.,, 2012).

Finally, the two CSR policies and CSR reporting measures were calculated by adding the scores of the individual first-order dummy variables and normalizing the aggregate measures by the number of dummies constituting the measure (ranging from 0 to 1). For instance, the final measure of CSR policies included, among the first-order items, an element such as the presence of references to environmental issues within the mission statement.

Table 1 Frequency distribution by industry

Industry	n
Banks	35
Materials	27
Energy	26
Insurances	18
Transportation	15
Utilities	15
Pharmaceuticals	14
Diversified financials	12
Healthcare equipment & services	11
Food & Beverage	10
Automobiles & Components	8

Table 2 Coding scheme of the CSR signals

Indices (labels and description)		Dummy indicators
CSR POLICIES	Explicit CSR goals expressed in organization's values (Graafland & Smid, 2019; Hetze, 2016)	Environmental sustainability in the mission statement
		Social sustainability in the mission statement
		Economic sustainability in the mission statement
		Environmental sustainability in the vision statement
		Social sustainability in the vision statement
		Economic sustainability in the vision statement
CSR REPORTING	CSR transparency tools (Dhaliwal et al., 2011; Mahoney et al., 2013)	Certification (process and product)
		Sustainability index
		Green brand
		Sustainability report
		Case study, testimonials
		Commitment in sustainability section
		Performance achieved in sustainability section
		Section of transparency
		Contacts of the managers in charge of sustainability
		Annual updating of sustainability report
		Weekly updating of news in website

Table 3 Descriptive statistics of CSR policies and CSR reporting

	N	Min	Max	Mean	Std. Deviation
CSR policies	191	.00	1.00	.527	.275
CSR reporting	191	.00	1.00	.668	.153

Table 4 Paired sample t-test of the mean difference between CSR policies and CSR reporting

	Mean	SD	SE	95% confidence interval	t	df	p (2-tails)
CSR policies – CSR reporting	−.1407	−2787	.0202	[−.1805, −.1009]	−6.98	190	.000

5 Findings

First, we explored the relationship between CSR policies and CSR reporting to check for associations between the variables, which were found to be positively correlated (Pearson's $r=0.256$, p(2-tails) < 0.001). This means that the presence of CSR-oriented is likely to be associated with the development of CSR reporting.

In addition, the results showed that the controversial companies presented medium–high values (Table3). In fact, as both CSR policies and CSR reporting measures were normalized and thus ranged between a minimum of 0 and a maximum of 1, the average values observed, which fall between 0.5 and 0.7, is quite relevant. It therefore seems that controversial organizations are involved to some extent in signaling their sustainability level to stakeholders.

These organizations also seem to be more involved in CSR reporting than in formulating CSR policies (Table3).

We also checked for the statistical significance of the difference in the mean CSR policies and CSR reporting scores. It is worth noting that the two scores are comparable since they were normalized for the number of items (see the Methodology section). We thus performed the paired sample t-test, which revealed that the mean difference between CSR policies and CSR reporting (i.e. -0.1407) was significant at the 0.001 level (Table4).

In order to examine whether there are industry-specific variations in CSR signaling among controversial organizations, we ran two ANOVA models to detect statistical differences – in terms of CSR policies and in terms of CSR reporting – between the various business activities. Before applying the ANOVA, we checked the Levene test for the homogeneity of variance across industries. The test performed on the CSR policy scores was found to be not significant ($p > 0.4$), confirming the null hypothesis of the homogeneity of variance. In contrast, the homogeneity of variance in CSR reporting was not verified, since the Levene test was significant ($p < 0.01$).

Subsequently, although the homoscedasticity assumption did not hold for one of the dependent variables, we performed the ANOVA for both variables, looking for possible differences between groups. The ANOVA revealed that there was no significant difference across industries in terms of CSR reporting (Table5). The outcome of this ANOVA model could not have been reliably verified in any case, because of the heterogeneity of variance revealed by the Levene test. In terms of CSR policies, the ANOVA showed that industries vary significantly in mean scores, as captured by the F-test.

By investigating the mean differences in CSR policies across industries (Fig. 1) more closely, it seems that firms operating in the Materials sector are the most involved in CSR policies, followed by Utilities, Energy, and Pharmaceuticals. In contrast, companies belonging to the Insurance, Automobiles & Components and Transportation sectors are less prone to signal CSR policies. Other financial industries (Banks and Diversified Financials), as well as Food & Beverage and Health Care Equipment & Services sectors, presented scores that are in the middle between these two poles.

For a clearer picture of the significant differences between industries, we looked at post-hoc pairwise comparisons with the Bonferroni correction (the p-values are multiplied by the number of comparisons). The only significant mean differences found were those between Materials and Insurance (mean difference (MD) = 0.3981; SD = 0.0757; $p < 0.001$), Materials and Automobiles & Components (MD = 0.3704; SD = 0.1002; $p < 0.05$), Materials and Banks (MD = 0.237; SD = 0.0638; $p < 0.05$), Materials and Transportation (MD = 0.337; SD = 0.0802; $p < 0.01$), Utilities and Insurance (MD = 0.3722; SD = 0.087; $p < 0.01$), Utilities and Transportation (MD = 0.3111; SD = 0.0909; $p < 0.05$), and Energy and Insurance (MD = 0.3162; SD = 0.0763; $p < 0.01$). In other words, the biggest differences in CSR policies were between the least environmental-friendly industries (Materials, Utilities, and Energy) and sectors such as Financial services (i.e. banks and insurance), Automobiles & Components, and Transportation, which generally are not immediately perceived as being sensitive to sustainability issues.

6 Discussion

This research explores the dynamics of the signaling of CSR in controversial industries and provides empirical evidence of companies' involvement in CSR policies and CSR reporting.

Table 5 ANOVA Tables for CSR policies and CSR reporting

Source	Sum of Squares	df	Mean Square	F	p
DV: CSR policies					
Industries	3.234	10	.323	5.219	.000
Error	11.154	180	.062		
Total	14.388	190			
DV: CSR reporting					
Industries	.299	10	.030	1.289	.240
Error	4.174	180	.023		
Total	4.473	190			

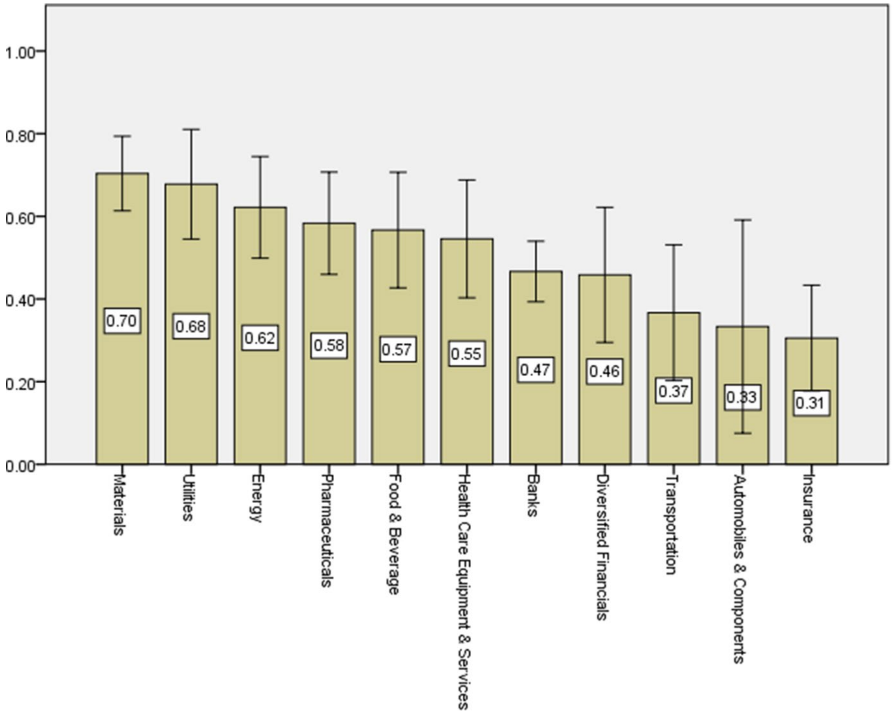

Fig. 1 CSR policies means by industry

The findings indicate that controversial companies have a medium–high engagement in signaling their CSR activities, thus confirming that signaling is a means for highlighting their CSR commitment to stakeholders (RQ1). The activities of controversial companies are, in fact, potentially detrimental to the health of the environment and the individual (Kilian & Hennigs, 2014). It is therefore not surprising that these organizations are involved in CSR signaling, since stakeholder skepticism might translate into higher reputational payoffs for truly sustainable companies that are able to overcome this skepticism (Dunham, 2011). This also means that controversial organizations put at least some effort into initiating stakeholder engagement by raising stakeholder awareness of CSR practices. This "information phase", enabled by CSR signaling, is only the first step towards higher levels of stakeholder engagement, but is an essential start.

Our results also highlighted that companies in controversial industries are more involved in CSR reporting (transparency tools) than CSR policies (explicit goals). Due to the critical nature of their products, companies in controversial industries tend to communicate in transparent ways, by adopting CSR reporting tools aimed at making CSR disclosure more reliable for stakeholders. According to signaling theory, CSR reports decrease information asymmetries, which could prevent controversial industries from gaining the payoff related to their sustainable behavior. The "costs" of voluntary CSR reporting can thus be seen as the burden that they choose to bear, in order to obtain the advantages conferred upon ''good'' corporate citizens (Mahoney et al., 2013).

The findings also demonstrate that the commitment of these companies is on average lower in signaling CSR policies than CSR reporting. This means that controversial organizations are less committed to communicating their CSR strategic orientation in mission and vision statements on corporate websites. Although these firms tend to transparently report the sustainability activities they carry out, they do not emphasize the long-term approach to sustainability within the corporate culture. This suggests that organizations give more importance to an operational and pragmatic approach to CSR signaling, compared to a strategic approach (Verboven, 2011). However to fully engage stakeholders, organizations need to focus on stakeholders' needs through systematic environmental scanning, and integrate these needs within their corporate culture. Only when these needs have been internalized within the corporate values, can they be made explicit through the mission and vision statements. Since controversial organizations seem to put less effort into signaling through CSR policies than through CSR reporting, they may pay insufficient attention to stakeholders' needs, which is the foundation of the entire stakeholder engagement process.

The difference between these two categories of signals can be explained by signaling theory. The difference is probably related to the different observability of the two signals. In fact, signaling theory posits that one of the essential attributes of a signal is that it can be clearly perceived by its receivers (Connelly et al., 2011; Spence, 1973). Only then can receivers effectively distinguish between high sustainable and low-sustainability organizations, and the senders can then reap the rewards associated with effective signaling.

The pragmatic attitude of the companies in our sample may demonstrate that companies in controversial environments are more sensitive to signaling the adoption of commonly accepted non-financial accountability systems, linked to national and international social, economic, and environmental standards (Amaladoss & Manohar, 2013; Kilian & Hennings, 2014). For example, standalone CSR reports are deemed to be a crucial signal of their higher commitment to CSR (Clarkson et al., 2008; Mahoney et al., 2013). From this perspective, controversial industries appear to be more prone to signal the most observable components of CSR rather than the least visible.

Neglecting well defined CSR policies while focusing on CSR reporting may also reveal the ambiguity of companies operating in controversial industries, casting a shadow over the authenticity of their commitment to sustainability. In fact, CSR signaling is reliable as long as it is rooted in the organizational strategy and culture (Vollero et al., 2019).

In addition, the orientation toward the most operational aspects of CSR signaling might be the result of a company's imitative conduct, which involves looking at how other organizations deal with reputational issues, and deciding to adopt the same visible techniques, without worrying about the strategical basis of the implementation (Kofford et al., 2020). In turn, imitating the signaling behavior of competitors could again strengthen the impression of the poor authenticity of these organizations, as previously noted this might happen when there are weak ties between CSR signaling and the organizational culture.

Lastly, the analysis offers a more fine-grained picture of how specific controversial industries choose to signal their CSR involvement. Controversial industries appear quite homogenous in signaling through CSR reporting. There are more accentuated differences between industries with regards to signaling through CSR policies. In particular, Materials, Energy, and Utilities are the leading sectors in CSR policy signaling, showing that organizations seem to rely on the fact that stakeholders are especially sensitive to the environmental implications of sustainable corporate behaviors and are more eager to receive relevant information on the good players in the market (Wu & Hu, 2019). The increased sensitivity of the general public toward environmental – rather than social or ethical – issues might be the result of the greater cultural pressure applied by the media, consumer associations and activists, and by the greater cohesiveness of these factions (Dey et al., 2018), who share at least a common and clear-cut opinion of harmful environmental activities. Compared with environmentalists, the groups that deal with social or ethical problems are much more fragmented and ideologized, and they often have radically opposed ideas about the same issue. It is therefore harder for organizations involved in social-ethical issues to predict which behavior will be the most helpful for highlighting and rewarding the good behavior of companies (Yoon & Lam, 2013).

7 Implications and future research

The study contributes to the knowledge on CSR issues by exploring how controversial organizations interpret and use CSR signals via corporate websites. Therefore, the study advances signaling theory by enlarging the array and the scope of sustainability signals and considering, as long as CSR reports, also CSR policies. In so doing, we extend the analysis to the strategic level of CSR signaling. In addition, CSR signaling is studied within the context of controversial industries, highlighting a possible link between CSR signaling and specific industry sectors.

With regards to practical implications, we believe that our findings can help inform the managers of controversial companies about possible weaknesses in the CSR signaling approach. In fact, these companies do not seem to give due importance to the signaling of CSR policies, demonstrating less attention to the strategic orientation of CSR, compared to the communication of CSR reporting. This could be a significant risk to these types of firms given that they are already experiencing problems connected to a higher reputational risk as they are more heavily penalized by stakeholder skepticism.

Companies in controversial industries could take advantage of CSR policies to overturn their typically negative image derived from the critical nature of their products. Although a CSR orientation involves additional costs, it also brings long-term benefits, such as reputational capital (Ghemawat, 1991). Systematically integrating explicit CSR goals within the corporate identity and organizational culture is a powerful way of boosting a company's credibility, as stakeholders will be more likely to view CSR as an inherent part of the corporate culture and to consider the

CSR engagement as authentic (Du et al., 2007). Specifying long-term sustainability-oriented goals also facilitates the implementation of sound and coherent sustainable marketing strategies, which in turn boost the perceived authenticity of CSR. This is the best way to protect the firm against the reputational risk derived from CSR signaling.

Managers of controversial companies can overcome their concerns about the signaling costs of CSR policies, by taking into account that specific stakeholders may be very receptive to this type of CSR signal. They should not look at their stakeholders as an undifferentiated group, but as different audiences, depending on their expertise in decoding CSR signaling. For instance, while suppliers may be indifferent to CSR-driven policies, other stakeholders, from consumer activists to capital lenders and investors, might be much more interested in the long-term commitment of the companies that they want to buy from or lend money to or invest in. Managers in controversial companies should therefore assess the returns and costs of CSR signals with regard to different audiences. They could thus balance the advantages and disadvantages of signaling, both in the case of CSR reports, which are most likely addressed to the general public, and CSR policies, which should instead be addressed to more specific and expert stakeholders.

The study suffers from the limitations that are typical of content analyses. In fact, grouping items into aggregate measures (i.e., CSR policies and CSR reporting) may be influenced by subjective evaluations (Beattie et al., 2004), and as such further investigations are warranted to provide additional validity to our classification. In addition, it would be interesting to examine in greater depth the signaling role of concrete assessments (through ratings and rankings) of companies' CSR performance. Future research could focus on the relationship between social/environmental performance and economic/financial outcomes. The development of CSR values also involves setting up of governance tools. A diffused CSR culture entails designing structural forms and/or processes (Lock & Seele, 2016): CSR governance systems, decision-making processes, organizational charts, and self-regulation mechanisms (such as codes of ethics or behavior). Future studies could thus examine the signaling role of CSR governance structures which, by controlling managerial actions, should improve trust in a company's actions (Brown & Caylor, 2009; Stuebs & Sun, 2015). The companies in our sample are considered as leaders in sustainability (due to the inclusion in DJSI), thus further research is therefore needed to substantiate the results including other types of companies in controversial industries that are less at the forefront in terms of sustainability. Finally, while our research has focused on an informational type of CSR signaling, other studies could analyze higher levels of engagement, by taking into-account the role of counter-signals (Taj, 2016), which can be sent by stakeholders back to the organizations.

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