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Encoding responsibility: A cognitive-linguistic approach to defining socio-environmental performance

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Corporate social responsibility (CSR) has become a crucial aspect of business activity, leading CEOs to increasingly deliver public statements on sustainability. However, the disclosed material does not always match actual CSR efforts. Based on recent research on this topic, I adopt a cognitive-linguistic approach to evaluate the consistency between corporate communications and CSR performance. Content can be easily manipulated to alter stakeholder expectations; as such, I focus on grammatical structure. Grammar constructs reflect how managers connect mental domains and are much less malleable than content itself. More precisely, I use annual CEO letters to extrapolate elements of inclusive and exclusive language, respectively associated with decoupling and implementing firms. After reviewing core notions of CSR and stakeholder theory and exploring the concepts behind managerial cognition, I perform a panel data analysis on a multi-industry dataset of 234 international public companies, measured from 2008 to 2013, controlling for firm-specific, CEO-specific, and letter-specific characteristics. While I find evidence of a positive impact of exclusive language on environmental performance, I also observe an unexpected positive relationship between inclusive language and social performance. I offer possible explanations for this finding based on the additional intrinsic qualities of inclusive reasoning and in the fuzzier nature of prosocial initiatives. Finally, potential implications for management and future research are outlined.

A responsabilidade social corporativa (RSC) tem-se tornado num aspecto crucial de qualquer actividade comercial, o que faz com que os CEOs das empresas prestem cada vez mais declarações públicas sobre sustentabilidade. No entanto, o revelado pelas empresas nem sempre está de acordo com os esforços reais de RSC. Com base em pesquisas recentes neste tópico, adoptei uma abordagem cognitivo-linguística para avaliar a consistência entre os comunicados empresariais e o desempenho RSC. O conteúdo consegue ser facilmente manipulado para alterar as expectativas dos stakeholders; tendo esta informação em conta, foco-me na estrutura gramatical. As construções gramaticais reflectem como os gestores ligam domínios mentais e são muito menos maleáveis do que o conteúdo em si. Mais precisamente, utilizo cartas anuais de CEOs para extrapolar elementos de linguagem inclusiva e exclusiva, respectivamente associados a empresas decoupling e implementing. Depois de rever noções base de RSC e de teoria de stakeholders, e ainda de explorar conceitos de cognição gerencial, realizei uma análise com dados em painel numa base de dados multi-indústria de 234 empresas públicas internacionais, adquiridos entre 2008 e 2013, controlando características específicas de empresas, CEOs e cartas. Para além de comprovar um impacto positivo no desempenho ambiental, também encontrei inesperadamente uma relação positiva entre linguagem inclusiva e desempenho social. Adicionalmente, ofereço possíveis explicações para esta descoberta baseadas nas qualidades intrínsecas adicionais de raciocínio inclusivo e na natureza bastante indefinida da iniciativas prosociais. Por fim, possíveis implicações e conclusões para futuros fins académicos e de gestão são delineados.

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This work is meant to be the culmination of a long, at times difficult, but undoubtedly rewarding journey.

I wish to thank all those individuals who made it so memorable.

Special thanks to my parents, Marzia and Carlo, whose constant support has been fundamental.

Introduction

Environmental and social issues have captured a remarkable share of public attention in the last couple of decades. More and more companies seem to be willing to tackle phenomena like poverty, global warming, and waste generation. The 2013 UN Global Compact-Accenture CEO study on sustainability confirmed this trend: 93% of 1000 CEOs, interviewed across 103 countries and 27 industries, believe that sustainability is critical to determine the future success of their companies and 67% think that business actors are not doing well enough to cope with global sustainability challenges (Hayward, Lee, Keeble, McNamara, Hall, Cruse, Gupta, & Robinson, 2013). Still, top executives must cope with shareholder pressures, often producing misleading statements (Delmas & Burbano, 2011): companies may publicly externalize CSR commitments without consistency in their internal practices (Hiatt, Grandy, & Lee, 2015) only to comply symbolically with stakeholder expectations (Westphal & Zajac, 1998).

Corporate social responsibility is a widely-discussed topic. Although its origin can be traced back to the '50s (Bowen, 1953; Davis, 1960), no unanimously accepted paradigm has been established (Van Marrewijk, 2003). Some of the obstacles came from outside, since the doctrine was seen as fundamentally trying to subvert well-rooted economic dogmas (e.g. Friedman, 1970; Levitt, 1958); counterintuitively, other difficulties arose endogenously, due to a porous conceptualization that favored the offshoot of numerous competing and at times overlapping views (Sethi, 1975). It found, however, fertile soil in both the academic and the business arenas, as more and more industry leaders and researchers understood the need to blend purely financial objectives with those of society at large. Indeed, in many instances they are deeply intertwined.

Stakeholder theory (Freeman, 1984) can be viewed as attempting to harmonize the situation. Organizations are actors within intricate relationship networks (Borgatti & Foster, 2003). By recognizing that they have obligations not only towards financiers, but to all parties that might affect or be affected by the company's activity, stakeholder theory could bridge the liminal gaps between contrasting views on the nature of the firm. In fact, it provides a good conceptual understanding of the reasons why profit-seeking entities should look after the needs of third parties other than shareholders to achieve higher results and increase the odds of survival through enhanced legitimacy (Deegan, 2002; Dowling & Pfeffer, 1975). A good deal of academic effort has been devoted to uncovering empirically a linkage between attention to and satisfaction of stakeholders' claims and superior financial performance (Griffin & Mahon, 1997). Although no clear-cut conclusion has been reached, there is profuse evidence of a

positive association (e.g. Flammer, 2015; Orlitzky, Schmidt, & Rynes, 2003; Preston & O'Bannon, 1997; Ruf, Muralidhar, Brown, Janney, & Paul, 2001).

Clearly, stakeholder criticality is not equal: managers must be able to surmise which claims are more urgent or crucial and which are not (Mitchell, Agle, & Wood, 1997). Their personal values and mindset influence considerably the way in which they grasp, metabolize, and arrange external demands (Bundy, Shropshire, & Buchholtz, 2013). As human beings, however, they are doomed to commit suboptimal choices (Simon, 1947), thus impacting their companies not only in a financial sense, but also in terms of social and environmental performance. Market attention to environmental, social, and governance (ESG) practices of enterprises has grown to such an extent that the investment community does take them into account when assessing the goodness of a business, at least since they play a substantial part in shaping idiosyncratic risk (Bebbington, Larrinaga, & Moneva, 2008; Cheng, Ioannou, & Serafeim, 2014).

CEOs are the primary decision-makers within the borders of the organization; among other things, their discretion is a function of corporate and country culture, internal routines and rules, and governance structure; in any case, their cognition is key in setting the strategic agenda of the company, including CSR-related operations (Cassells & Lewis, 2011; Waldman, Siegel, & Javidan, 2006b). Corporate social responsibility is so variegated that it encompasses conflicting dimensions, the financial-social clash probably being the most intuitive thereof (Clarkson, 1995). Competing stakeholder demands require a good deal of cognitive effort to be dealt with (Bansal, 2002). By aptly reconciling dichotomous goals, executives can design CSR-enhancing endeavors to attain better performance (Martin, 2007). However, only a tenuous light has been shed on the subject (Zietsma & Vertinsky, 1999).

This study has been inspired by concepts of human cognition to inspect how CEOs mentality shapes social and environmental performance (Sharma, 2000). From this perspective, mental space theory offers a sound background from which to extrapolate the necessary conceptualizations (Fauconnier, 1994). Mental space theory focuses on the fashion in which effortful thinking is enacted to connect and evaluate different domains, or content dimensions. They are tangibly expressed in phrasal form to build complex knowledge among individuals. Still, a fundamental aspect of mental space theory is not content itself, articulated through words endowed with lexical meaning, but rather the way in which content is conceptually integrated to build overarching metadomains, oftentimes unconsciously (Fauconnier & Sweetser, 1996). Content can be easily manipulated with the intent to bias key stakeholders' opinions and expectations (Ireland & Pennebaker, 2010); on the contrary, mental connections, reflected in

the syntactical formulae that actors use to link ideas (Hickmann, 2000), are much less flexible. This is corroborated by recent findings, according to which content is a weak prognosticator of social performance (Crilly & Ioannou, 2017), whilst perceptual structure, rather than content, guides firm-specific strategic behavior (Marcel, Barr, & Duhaime, 2011).

This dissertation has been extensively inspired by the findings of Crilly, Hansen, and Zollo (2016) and welcomes their invitation to further the research with broader samples and within different contexts. The cognitive-linguistic perspective has been hereby scrutinized through the use of inclusive and exclusive language in CEO letters; the former has been related to a decoupling behavior of the company, whereas the latter to an implementing one. In other words, firms led by managers with a more exclusive way of reasoning practice what they preach, while the opposite is held true for decouplers. Thus, a positive association is hypothesized between speech exclusiveness and socio-environmental performance; similarly, a negative association is thought to arise, should inclusive language be substantially present.

The thesis is structured as follows: firstly, the theoretical framework is presented, encompassing the main concepts of CSR, stakeholder theory, and the cognitive-linguistic perspective. Far from being conclusive, this chapter is meant however to provide the reader with the necessary tools to understand the phenomenon behind the research focus.

Secondly, I illustrate the employed data and the technique of analysis. The two language dimensions are extrapolated from 1257 manually-collected stakeholder letters signed by the CEOs of 234 corporations from 2008 to 2013. Firms are sampled internationally and span 6 industries: apparel, automotive, food and beverages, energy, healthcare, and information and communication technology (ICT). Control variables address firm-specific, CEO-specific, and letter-specific characteristics. I assess how language inclusiveness and exclusiveness predict environmental and social performance, obtained from Asset4, through a fixed effects model of panel data analysis with robust standard errors, clustered at the firm level. While I find supportive evidence for what pertains environmental performance and exclusive language, the situation overturns when social performance becomes the dependent variable, as results show a significant positive association between the social indicator and inclusive language.

Afterwards, I discuss the rationale behind my findings, disclosing potential arguments for the apparently contrasting outcome, and explain some possible limitations to the validity of the results; finally, I delineate possible managerial implications and future research directions in the field of strategic cognition linguistics and CSR practices in hopes that an organized conceptual framework might arise.

Literature Review and Theoretical Framework

Corporate Social Responsibility: A Multifaceted Landscape

Corporate social responsibility (CSR) is a concept that has enjoyed a remarkable deal of attention in the last decades from an ample spectrum of societal sectors, chiefly the academia and both the for-profit and the not-for-profit communities. Companies have been increasingly stretching their value chain activities over different realities (Porter & Millar, 1985), becoming *de facto* multinational enterprises (MNEs). As CSR gradually permeates the strategic aspects of MNE management, it is even more obvious for international and supranational organizations with regulatory power to try coordinating the issue. By codifying duties and guidelines, it is hoped that a more responsible business conduct can be achieved; consequently, companies are expected to perform better today than in the past in terms of CSR reporting, or at least devote more resources thereto (Aras & Crowther, 2009; King & Bartels, 2015).

Since the impact of corporate activities could affect many components of society, i.e. stakeholders (Freeman, 1984), the study of CSR has not been confined within academic boundaries only. Indeed, numerous policy makers or other civil society components have contributed by providing definitions on their own (Tencati, Perrini, & Pogutz, 2004). A meaningful example is the United Nations Global Compact, a voluntary initiative launched in 2000 that strives to guarantee a sustainable development worldwide thanks to the corporate application of ten principles derived, among others, from the Universal Declaration of Human Rights and the Rio Declaration on Environment and Development. The Global Compact (2014) enunciates that:

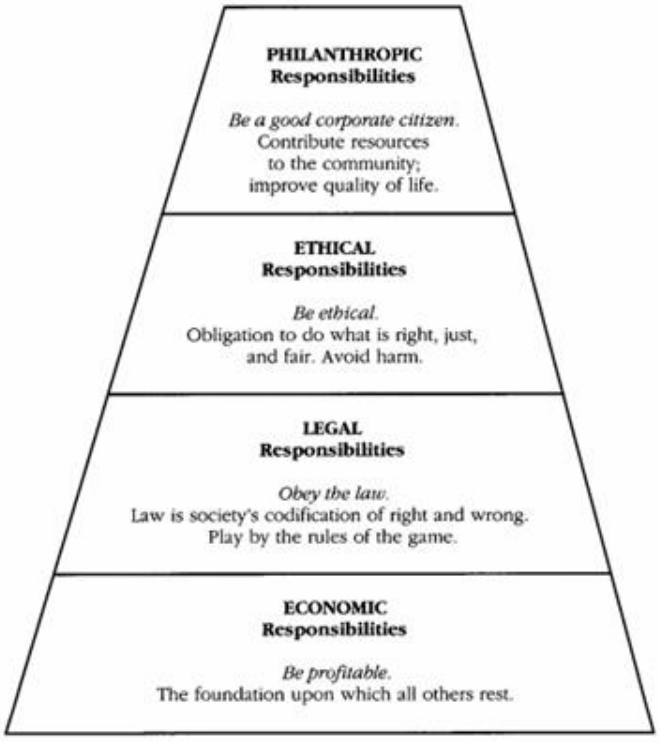
Corporate sustainability starts with a company's value system and a principled approach to doing business. This means operating in ways that, at a minimum, meet fundamental responsibilities in the areas of human rights, labour, environment and anti-corruption. Responsible businesses enact the same values and principles wherever they have a presence, and know that good practices in one area do not offset harm in another. (p. 11).

Lockett, Moon, and Visser (2006) investigated the status of CSR research applied to the management field in the decade from 1992 to 2002. By analyzing CSR-related articles published in some of the most salient journals, they came to the conclusion that much had already been done and much still has to be accomplished. The overwhelming amount of literature, both quantitative and qualitative, implies that a truly dominant paradigm is absent; in

other words, an ongoing "*state of emergence*" is pervasive even today (see for instance Malik, 2015; Wang, Dou, & Jia, 2016). The nature of CSR has been described as appraisive, meaning that it can be easily subject to evaluation; internally complex, since its rules, being seldom fixed, are generally applicable through diverse business scenarios; and open, as many concurrent theories can be summoned to shape its evolution (Crane, Matten, & Moon, 2004): this last aspect is all but propaedeutic, as it hinders the activity of both the scholarly and the executive mind (Van Marrewijk, 2003). Examples include corporate social performance (Carroll, 1979; Wartick & Cochran, 1985; Wood, 1991), corporate social responsiveness (Ackerman, 1975; Sethi, 1975), corporate citizenship (Logsdon & Wood, 2002; Matten & Crane, 2005), corporate governance (Freeman & Evan, 1990; Jones, 1980; Sacconi, 2006), corporate accountability (Zadek, Pruzan, & Evans, 1997); triple bottom line (Elkington, 1994), corporate social entrepreneurship (Austin, Stevenson, & Wei-Skillern, 2006), and corporate stakeholder responsibility (Freeman, Harrison, Wicks, Parmar, & de Colle, 2014). For more extensive reviews, see, among others, the work of Carroll (1999), Dahlsrud (2008), and Moir (2001).

For the matter at hand, my definitional reference point for CSR is Carroll's pyramid (Carroll, 1991), depicted below in Figure 1.

Figure 1: The Pyramid of CSR. Adapted from "The pyramid of corporate social responsibility. Towards the moral management of organizational stakeholders", by A.B. Carroll, 1991, *Business Horizons*, *34*(4), p. 42.



The pyramidal structure of the model is not meant to report a sequential order of activity implementation, but rather the relative importance and, indirectly, the theoretical frequency of occurrence of specific kinds of CSR initiatives. Widely accepted in the literature, this schema proposes that total CSR is achieved if and only if four kinds of social responsibilities are met: economic, legal, ethical, and philanthropic. Economic responsibilities refer to the objective of the enterprise as the basic economic unit in modern society; in other words: goods and services must be provided at a profit. Legal responsibilities are self-explaining: a business must perform its economic mission in accordance with the legal framework. Ethical responsibilities encompass those activities that are not necessarily codified, but society expects the company to abide by; naturally, they depend on the cultural context, thus forcing a MNE to vary its approach on a location-specific basis (Ghemawat, 2001). Philanthropic responsibilities are also volitional, but they transcend the societal expectation of being just good corporate citizens in the community.

There is a natural fit between CSR and stakeholder theory, as the recipients of the activities depicted in the pyramid are those agents who influence and are influenced by the organization: stakeholder theory assigns labels to them and determines the deal of attention managers should eventually devote.

A Stakeholder Approach to Corporate Performance: Envisioning the Mutual Optimum

The core of stakeholder theory lies in recognizing that companies act within an integrated multitude of actors and have responsibilities and obligations towards them (Spence, Coles, & Harris, 2001). It challenges the assumption that shareholders are the only claimants of an organization (Orts & Strudler, 2002); rather, there are several other parties whose interests must be balanced to perform effectively (Reynolds, Schultz, & Hekman, 2006). The theory reached worldwide status after the publication of Freeman's book *Strategic Management: A Stakeholder Approach* (1984), where he asserted that "*A stakeholder is any group or individual who can affect or is affected by the achievements of the organization's objectives*" (Freeman, 1984, p. 46).

Companies are social actors and, as such, they are embedded in a system of relations whose comprehension is fundamental to study the behavior of the single component (Granovetter, 1985). There is no escaping that. However, seldom is the evaluation of the importance of such relations well-defined. A good amount of subjectivity is always present and,

even when it is not, the bounded rationality of human beings comes into play. Judgments are therefore biased without the awareness of the decision maker due to hidden fallacies in our thinking routines (Hammond, Keeney, & Raiffa, 1998).

There is a need to single out those stakeholders who call for corporate attention and to specify the criteria to satisfy their claims: at the end, resources, time, attention, and patience are finite. As such, stakeholder identification has been deemed a real problem of modern management (Vos, 2003). Looking for a normative reorientation, some narrower views restrict the field to those subjects strictly depending on the survival of the firm (Bowie, 1988), engaging in exchanges with the firm (Cornell & Shapiro, 1987), or whose state is jeopardized by the risk entailed in the firm's activities (Clarkson, 1995). Stakeholders must have a claim and the ability to influence the company (Savage, Nix, Whitehead, & Blair, 1991) or they must be affected by the power of the company itself (Freeman & Reed, 1983; Langtry, 1994). The intensity of the relationships with the business has been used to further discern between primary and secondary stakeholders (Clarkson, 1995).

Managers ought to allocate their attention-span and cognitive capabilities in a constructive fashion, without incurring the risk of oversimplification. One common methodology consists in subdividing the plethora of stakeholders on the base of three attributes: power, legitimacy, and urgency (Mitchell *et al.*, 1997). Nevertheless, managerial interpretation affects how such attributes are perceived.

Albeit not a simple task, the harmonization of stakeholder relationships is crucial to attain greater performance: organizations can foster the creation of webs of interdependencies among stakeholders to cope with the systemic uncertainty of the competitive environment and foster their organizational flexibility (Harrison & St. John, 1996). In concordance with the resource-based view of the firm (Penrose, 1959; Wernerfelt, 1984), the valorization of key stakeholder relationships can help exploit external opportunities and/or neutralize external threats, while leveraging internal strengths and dampening internal weaknesses, as they are often rare and inimitable (Barney, 1991). As an example, the role of interorganizational trustworthiness plays a pivotal role in this perspective (Barney & Hansen, 1994). Increased trust is chiefly the result of responsible corporate behavior, which can foster the creation of alliances and joint ventures (Barringer & Harrison, 2000). Moreover, orchestrating the links with primary stakeholders is consistent with the dynamic capabilities approach (Eisenhardt & Martin, 2000; Teece, Pisano, & Shuen, 1997), itself a theory that draws heavily from the resource-based view (Barney, Wright, & Ketchen, 2001). Making stakeholder interests converge to the focal point of the organization increases strategic fit by reducing agency and coordination costs and

enhancing communicability and sense of belonging (Wright, McMahan, & Williams, 1994): as the degree of causal ambiguity, context specificity, and tacitness is generally remarkable, interest alignment may lead to sustainable competitive advantage (Gottschalg & Zollo, 2007).

Corporate social responsibility, which shares conspicuous similarities with stakeholder theory, can be a determinant of abnormal returns as well, especially as cospecialized assets (McWilliams & Siegel, 2011). This assumption should debilitate the little causal ambiguity that commonly characterizes CSR initiatives (Reinhardt, 1998). Within the framework of strategic CSR (Baron, 2001), these resources can be value-enhancers for other company assets: a straightforward example is CSR reputation (Roberts & Dowling, 2002), which can improve the perceived quality of a brand in the evoked set of potential consumers, especially in the case of experience goods. Excellent marketplace reputation thus leads to economic value betterment (Fischer & Reuber, 2007; Puncheva, 2008): being esteemed as good corporate citizens is a signaling mechanism to establish ties with more attractive business partners (Hosmer, 1994). Similarly, talented employees with remarkable ethical standards are drawn, establishing the basis for a self-fulfilling virtuous circle (Turban & Greening, 1997). When taken holistically, the assertions above do imply a valuable RBV-wise association between CSR and the differentiation strategy of a company.

Intuitively, there are several ways in which a higher social performance may alter the strategy of a company. Positive customer perceptions about product safety can either diminish stakeholder-relationship costs or foster sales (Waddock & Graves, 1997), whilst workplace diversity can either reduce the occurrence of phenomena like absenteeism and excessive employee turnover, or enhance the appeal of the product portfolio to an increasingly diverse and globalized consumer base (Robinson & Dechant, 1997; Thomas & Ely, 1996).

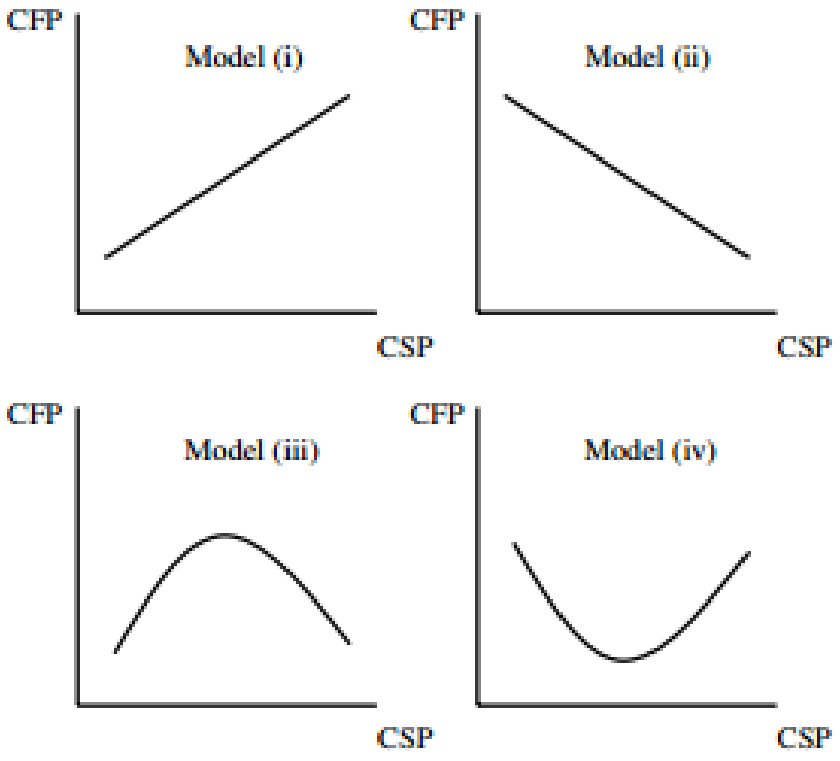
Being proactive in the safeguard of the natural environment may reduce the costs of complying with environmental regulations (Dechant & Altman, 1994), increase the willingness to pay of a consistent slice of potential buyers (Shrivastava, 1995), secure financing from socially attentive investors (Kapstein, 2001), and lower capital constraints due to reduced agency costs and information asymmetry stemming from greater transparency (Cheng *et al.*, 2014).

In addition, Porter and Kramer have argued that organizations can engage in philanthropic activities to modify the competitive context where they operate, for instance by strategically influencing factor or demand conditions (Porter & Kramer, 2002; Porter & Kramer, 2007). By supporting social causes that align the interests of both philanthropy and shareholders, firms can simultaneously unlock social and economic benefits. Consistently with

their vision, a microeconomic standpoint backed the superiority of the strategic approach to CSR *vis-à-vis* either a coercive or a purely altruistic one: while being forced into CSR leads to lower social and financial performance, the strategic integration of social concerns into a company's plan contributes to greater shareholder benefits than doing it only for its own sake (Husted & de Jesus Salazar, 2006).

Considerable effort has been exerted to comprehensively review all the findings, still the veil of uncertainty obfuscating the association between stakeholder attention or CSR and financial performance has not been completely dissipated (for some extensive reviews see Griffin & Mahon, 1997; Margolis & Walsh, 2003; Orlitzky *et al.*, 2003; Ullmann, 1985), albeit an overall positive effect can be identified (Margolis, Elfenbein, & Walsh, 2007; Walsh, Weber, & Margolis, 2003). This can be partially explained by the nature of the concept itself: CSR is a multidimensional construct encompassing many diverse corporate behaviors, in turn contingent upon resources, processes, and outputs (Carroll, 1979). Four alternative models can be used to describe the relationship between corporate social and financial performance (Brammer & Millington, 2008).

Figure 2. Alternative models of the relationship between corporate financial and social performance. Adapted from "Does it pay to be different? An analysis of the relationship between corporate social and financial performance", by S. Brammer & A. Millington, 2008, *Strategic Management Journal*, *29*(12), p. 1328.



Model (i) portrays a positive and monotonic relationship between the two dimensions. This is the relationship to expect after considering all the previous notions. Model (ii), on the contrary, is based on completely opposing premises favoring a linear negative association. It could be that socially responsive organizations are disadvantaged *vis-à-vis* their non-responsive peers as they incur higher direct costs (Aupperle, Carroll, & Hatfield., 1985); also, agency problems may arise because managers can exploit corporate resources in a suboptimal fashion to maximize their utility and not that of the firm (Navarro, 1988).

More interestingly, models (iii) and (iv) depict a nonlinear relationship. The financial repercussions of social performance strictly depend on the scope and the magnitude of implemented CSR activities. In the case of model (iii), financial payoffs are initially subject to increasing returns, which eventually tend to flat out and diminish. An optimal threshold of social engagement exists; by failing to recognize it, an organization incurs costs which bear little or no significance with its core stakeholder relations. Moreover, as owners are usually believed to be risk neutral (Wiseman & Gomez-Mejia, 1998) and managers risk averse, for their income necessarily depends on the performance of the company they work for, the latter may overinvest in safer but less remunerative projects (Williamson, 1964).

Model (iv) shows the reverse situation: financial performance is at its peak when social performance is either extremely low or extremely high. A conceptualization *à la* Porter is well suited here: in order to outperform their competitors, firms need to adhere to either low-cost or differentiation strategies (Porter, 1980). Firms making average levels of social investment find themselves stranded in the middle, unable both to save on resources and distinguish themselves in the eyes of socially conscious stakeholders, including customers (Bhattacharya & Sen, 2004). With so many plausible relationships, it is normal to interpret CSR as a dynamic context pervaded by highly ambiguous signals. It requires managers to constantly and synchronously face diverging but profoundly intertwined concerns (Bansal, 2002; Gladwin, Kennelly, & Krause, 1995). Therefore, executive decision-making is starkly influenced by the cognitive frames that top managers possess and utilize (Hahn, Preuss, Pinkse, & Figge, 2014; Hodgkinson & Johnson, 1994).

The Managerial Mindset of CSR: A Cognitive-Linguistic Approach

Decision makers as operating in turbulent environments where convoluted and oftentimes equivocal cues abound (Schwenk, 1984). In order to extrapolate the necessary information to develop a proper conduct, individuals rely deeply on cognitive heuristics (Mervis

& Rosch, 1981). Heuristic principles decrease the difficulty of limited-validity data, so that apparently intricate tasks can be performed through simple judgmental considerations. Their usefulness is indisputable, but sometimes individuals are unconsciously driven to commit systematic errors (Tversky & Kahneman, 1974). However, as a task grows in complexity, the communicability of its perception tends to diminish, thus deepening the need to assign labels. The way people develop transmittable knowledge changes accordingly: the more intricate the scenario, the greater the odds for the cognitive approach to become schema-driven rather than stimulus-driven, causing information to be enriched or tarnished by direct beliefs about categories, typologies and stereotypes (Tsoukas, 2003; Weick, 2010).

In a similar fashion, managers reduce the ambiguity of their surroundings through cognitive frames, defined as "*a mental template that individuals impose on an information environment to give it form and meaning*" (Walsh, 1995, p. 281). Cognitive frames guide the evaluation and the classification of scenarios by labeling their components on the base of observable attributes. Managerial perception is vital for the success of a company, to the extent that it can be depicted as "*the substratum that business decisions feed upon*" (Valle Santos & García, 2006, p. 752): by occupying a position of centrality within the nexus of stakeholders, managers' judgment is key to determine the salience of third parties' claims and the obtain resources (Mitchell *et al.* 1997).

Yet, the bounded rationality of human beings (Simon, 1947) makes the comprehension of strategic circumstances suboptimal and sometimes even plainly erroneous (Daft & Weick, 1984; Fiol & O'Connor, 2003). Perception is in every case both unique and imperfect, since managers filter information through their own personal values and predispositions (Maon, Lindgreen, & Swaen, 2008). The adoption of cognitive frames by managers necessarily implies a considerable degree of subjectivity in representing the environment: signals are selectively discerned, singled out, and organized (Dutton & Jackson, 1987), thus impacting corporate decision-making and subsequent implementation processes (Nadkarni & Barr, 2008).

A potential explanation is the retrospectivity of the formation of cognitive frames, since they are deeply influenced by the past learning experiences of the individual (Mervis & Rosch, 1981). Individuals, including executives, assign stereotypes on the basis of mere perceptions, with no conscious cogitation. Therefore, cognitive frames are filled with heuristics, of which the confirmatory bias, i.e. the attribution of greater relevance to those details which are in line with established assumptions, is a valid example (Palich & Bagby, 1995).

It has also been advanced that the subjectivity of managerial mental representations develops along two dimensions: attention and causal reasoning (Nadkarni & Barr, 2008). The

former focuses on the way managers allocate their psychological resources to filter the vast plethora of stimuli they are continuously exposed to, being them internal or external. The latter, causal reasoning, is the essential foundation of every decision-making process (Fiske & Taylor, 1991), therefore being profoundly associated with the way in which executives ideate, implement, and communicate corporate strategies (Barr, Stimpert, & Huff, 1992). It follows that environmental signals are not acted upon as long as accountable managers do not digest their cause-consequence nexus with the firm (Dutton, Fahey, & Narayanan, 1983). In other words, the proper application of causal reasoning affects considerably the choice of the nature, spatial context, and timing of corporate actions (Stubbart, 1989). Intuitively, the dynamicity of the environment itself has been demonstrated to frame environment-strategy causal logics (Fahey & Narayanan, 1989): in relatively stable and discernible arenas, top executives subconsciously adopt deterministic logics, believing that strategy is a consequence of scrutinizing and scanning environmental determinants, whereas in more fast-paced and tumultuous scenarios they attempt to construct their environments through their strategies rather than developing strategies in response to environments (Lyles & Schwenk, 1992), thus involving proactive logics.

Structurally speaking, cognitive frames can be seen as stretching along two main elements, namely integration and differentiation (Bartunek, Gordon, & Weathersby, 1983). Differentiation relates to the sheer number of elements within a frame; on the other hand, integration is a proxy of the interconnectedness among such elements (Walsh, 1995). When appraised jointly, the structure and the boundedly rational content of cognitive frames lead to a specific context-related interpretation followed by a phase of managerial action or inaction (Tikkanen, Lamberg, Parvinen, & Kallunki, 2005). This latter aspect acquires particular importance when managers have to operate within ambiguous contexts, imbued with contrasting but individually desirable claims, claims that can be inevitably interconnected, both at the organizational and societal level (Bansal, 2002). Corporate social responsibility is a fitting example thereof.

Environmental signals are rich in uncertainty, thus obligating decision makers to rely on their cognitive frames (Bogner & Barr, 2000). Individual beliefs and values, like self-transcendence and high moral standards, influence the propensity to engage in socially responsible behavior (Crilly, Schneider, & Zollo, 2008). For example, guilt proneness, i.e. the predisposition to experience negative feelings after personal wrongdoings, is a strong predictor of counterproductive or unethical behavior (Cohen, Panter, & Turan, 2012), together with other idiosyncratic traits of moral character (for a review, see Cohen, Panter, Turan, Morse, & Kim,

2014). The multidimensional nature of CSR, sometimes with conflicting ideals, leave often little room for compromises. For instance, executives may be compelled to accomplish necessary evils, i.e. those tasks that cause physical or emotional harm to other human beings, are pursued to achieve some speculated greater purpose, and cannot be avoided (Molinsky & Margolis, 2005).

Importantly, companies need to satisfy economic and socio-environmental demands contemporaneously (Elkington, 1994). CSR contradictions emanate from its counter-cultural nature, according to which the established economistic view of the company sees CSR as a disruption (Angus-Leppan, Benn, & Young, 2010; Schouten & Remmé, 2006). This leads potentially to the creation of unintended negative outcomes, as the implementation of solutions that simultaneously foster utility along both dimensions can be quite complex and paradoxical (Newton, 2002).

It comes as no surprise, then, to contemplate more and more pressure on the shoulders of managers for their hesitancy to adopt incisive responses to social concerns (Whiteman, Walker, & Perego, 2013). Furthermore, the concept of CSR is maximized in a multidimensional fashion, rendering the objective function of the firm even more intricate (Jensen, 2001). Numerous and heterogeneous demands from stakeholders, oftentimes conflicting and possessing diverse logics and goals, should be constantly harmonized (Hahn, Pinkse, Preuss, & Figge, 2015). In addition, one should not forget that frictions exist also in terms of intertemporal orientation: CSR normally requires long-term planning, whereas managerial decision-making is generally more short-term focused (Hahn, Figge, Pinkse, & Preuss, 2010). These considerations underscore the necessity to deepen the comprehension of CSR from a cognitive standpoint (Anderson & Bateman, 2000).

The application of a cognitive perspective to the field of CSR dates back to the ‘80s, when Boal and Peery (1985) published a study on how top executives interpret its aspects. Results suggested that three major dimensions characterize the mental process to make socially responsible decisions: they should be economically viable, i.e. worthwhile in terms of financial returns; they should avoid harm to all affected stakeholders, this way respecting the moral minimum dogma (Simon, Powers, & Gunneman, 1983); and they should foster social justice by impact positively all the involved parties. Indiscriminately ignoring or failing to implement such decisions would eventually jeopardize the legitimacy and, consequently, the social support the organization requires for its long-term survival.

Afterwards, the same investigative perspective has been adopted by several researchers. Among others, Anderson and Bateman (2000) examined how a given managerial *forma mentis*

can lead to successful environmental championing within the boundaries of corporate culture and negotiation power; Sharma, Pablo, and Vredenburg (1999) attempted to enunciate how internal organizational factors, such as managerial discretion, IT systems, and employee performance evaluation standards, combine to culminate in a specific environmental responsiveness strategy; Branzei, Ursacki-Bryant, Vertinsky, and Zhang (2004) emphasized the perceptive side of cognition and proposed a model of the importance of feedback interpretation in developing sustainability strategies; interestingly, Bundy *et al.* (2013) explained how the salience of stakeholder issues resonates with managerial cognitive faculties, and the way in which they are subsequently satisfied, either substantially or symbolically.

Sharma (2000) wrote a seminal paper on how management interpretation of environmental issues influences the corporate selection of an *ad hoc* environmental strategy. Accordingly, managers can perceive environmental issues as either opportunities or threats (Sharma *et al.*, 1999). Since coping with such issues often involves the introduction of novel technologies or practices into the existing corporate scenario (Russo & Fouts, 1997), risk averse managers will be more reluctant to pursue new CSR strategies, as they worry more about loss minimization than profit maximization (Kahneman & Tversky, 1979). Their company will tend to show more conformance than voluntariness in trying to reduce negative environmental externalities of their actions. On the other hand, if the unpredictability proper of the search and implementation of innovative solutions is cognitively categorized as an opportunity-creating mechanism, a more advantageous outcome is likely to arise. First, the odds of a dominant coalition to be formed are greater: the core concepts of managerial interpretation are diffused more easily, via social processes and formal interactions (Dutton & Jackson, 1987; Hambrick & Mason, 1984). Second, categorizing environmental issues as opportunities results in a more open and, therefore, fruitful search for solutions (Nutt, 1984). Third, the aforementioned issues acquire a shared meaning across the organization's members thanks to greater social pressures, thus promoting internal communicability and becoming embedded in the *modus operandi* of the firm (Dutton & Jackson, 1987; Weick, 1985). An interconnected stream of literature explores how firms cope with stakeholder demands related to the social sphere (Pache & Santos, 2010). There is evidence that stewardship commitment to the natural environment is a function of the perception of the relevance of different types of stakeholders.

Although much has been already done in the area of managerial cognition, there still is room for development. As a matter of fact, the majority of the studies in this area has been either conceptual or related to the content of cognition, instead of addressing its structure (Crilly & Ioannou, 2017). Mental space theory (Fauconnier, 1994), however, provides a good starting

point to develop a stream of research bridging the two properties of cognitive frameworks, structure and context. Therefore, mental space theory could be viewed as a valid tool to investigate how managers infer and represent conflicting frames embedded in the CSR domain.

Mental space theory focuses on the psychological steps that individuals accomplish to construct meaning out of a context. By that, it is meant "*the high-level, complex mental operations that apply within and across domains when we think, act, or communicate*" (Fauconnier 1997, p. 1). Mental spaces are defined as "*constructs distinct from linguistic structures but built up in any discourse according to guidelines provided by the linguistic expressions*" (Fauconnier, 1994, p. 16). When two or more interlocutors communicate via a reciprocally intelligible language, they mentally assemble the aforementioned domains on the base of the linguistic information and the situational circumstances they find themselves in. In this way, they are able to actualize mutual communication (Fauconnier & Turner, 2008).

One of the pillars of mental space theory is the idea of conceptual integration or blending (Fauconnier & Turner, 1998). It refers to the amalgamation of units of content from different domains to generate complex knowledge. The term "*domain*" describes a distinct object theme, therefore embodying the content side of cognitive frameworks. Still, the contemplation of content alone would leave the picture incomplete. Since mental space theory posits that distinct domains can undergo juxtaposition processes, hence creating overarching metadomains, it is apparent that also the structure of language formulation plays a central role (Fauconnier & Sweetser, 1996). A further clarification should be made here: conceptual integration can be a purely automatic process, meaning that it occurs at the subconscious level (Hodgkinson & Healey, 2011). Putting it differently, individuals are able to manipulate the words they use pretty straightforwardly, whereas changing their expression style is much harder. Intentionally altering the way in which units of content are connected, i.e. the structure, is more laborious and effortful than modifying content itself (Ireland & Pennebaker, 2010). Extrapolating psychometrics from articulated expressions in order to categorize the author, also known as linguistic fingerprinting, is thus a valid procedure to see how complex and multidimensional domains like CSR are approached by the decision maker.

To corroborate such a position, it has been shown that linguistic styles are an independent and meaningful method to explore personality: *modi* of expression are reliable over time and across domains, thus implying that the effects of the individual person on language use are unavoidable (Pennebaker & King, 1999). Language gives away how information is selected, absorbed, and interpreted by human beings to comprehend their environment. Essentially, the cognitive perspective of language maintains that mental representations are

mirrored by the grammar elements through which ideas are codified (Langacker, 2008). Exactly because an identical item, being it tangible or abstract, can be described with the most disparate vocabulary, grammar becomes intrinsically significant as it reflects the viewpoint of the speaker (Hart, 2014). In addition, grammar is more useful than discrete label categories to determine how units of content are conceptualized into broader and more complicated interpretations (Langacker, 2001). This is consistent with the linguistic relativity principle, known also as the Sapir-Whorf hypothesis, which argues that linguistic structure influences the worldview of the interlocutors (Hill & Mannheim, 1992).

Two specific categories of words are crucial from this perspective: inclusive words and exclusive words. By gluing together detached elements of content, they are a good proxy of the depth of thinking of the individual (Tausczik & Pennebaker, 2010) and provide clues to mental models (Johnson-Laird, 1980; Johnson-Laird, 1983). Moreover, they capture the cognitive complexity of the discourse, i.e. the extent to which multiple competing solutions are differentiated and integrated (Tetlock, 1981).

Inclusive words, such as "*and*", "*both*", "*all*", "*while*", "*also*", and "*additionally*", join thoughts together and are fundamental to develop a consistent narration (Graesser, McNamara, Louwerse, & Cai, 2004). However, they have been associated with the language used by top executives of decoupling firms (Crilly *et al.*, 2016). Decoupling, defined as the "*gaps between (organizations') formal structures and their ongoing activities*" (Meyer & Rowan, 1977: 341), implies abstinence from practicing what is preached. Companies may pursue this demeanor as a pure impression management mechanism (Leary & Kowalski, 1990), with the aim of securing valuable resources by altering stakeholder perceptions (Fiss & Zajac, 2006) or shifting in their favor the negotiation balance of some stakeholder relationships (Graffin, Carpenter, & Boivie, 2011). Analogously, by publicly disclosing socially beneficial assertions and adopting relevant standards, some businesses try to lessen monitoring from third parties (King & Lenox, 2000). These and related endeavors may contribute to the so-called greenwashing (Lyon & Maxwell, 2011), of which the content of sustainability reports is sometimes an instrument, being them a one-way communication media channel (Lyon & Montgomery, 2013). Inclusive language is oftentimes paired with broad and honeyed commitments with little specification on how to prioritize stakeholder claims or implement a sound sustainability strategy (Crilly *et al.*, 2016). Deceivers are also more likely to state exaggerated and embellished claims (Bond & DePaulo, 2006). A plausible explanation is given by cognitive complexity: deceptive statements tend to consistently burden our mental capacities (Newman, Pennebaker, Berry, & Richards, 2003); lying is usually more difficult than truth telling, thus obligating deceivers to lighten the

psychological load by relying on simpler expressions (DePaulo, Lindsay, Malone, Muhlenbruck, Charlton, & Cooper, 2003). Indeed, by doing so the simultaneous effort to maintain an apocryphal story and try to convince the interlocutors of its veracity is contained.

On the other hand, exclusive language is linked to the terminological repertoire of implementors, i.e. those companies which adopt sustainability policies and carry out sustainability practices (Crilly *et al.*, 2016). Exclusive words, like "*but*", "*not*", "*only*", "*rather*", "*versus*", and "*without*", are helpful to perform distinctions, especially between cognitive constructs belonging to different mental spaces or categories. Not surprisingly, exclusive language is more frequently used by sincere individuals (Newman *et al.*, 2003). Furthermore, this cognitive form has been shown to be related to nuanced and analytical thinking (Pennebaker, 2011; Slatcher, Chung, Pennebaker, & Stone, 2007), more attentive information metabolizing, and a more thorough representation of the issues to be faced (Ülkümen, Chakravarti, & Morwitz, 2010). Interdependencies and discrepancies are communicated more directly, leaving little room for equivocating, thus signaling a more complex way of thinking (Conway, Thoemmes, Allison, Hands, Towgood, Wagner, Davey, Salcido, Stovall, Dodds, Bongard, & Conway, 2008).

All things considered, it would be logically appropriate to anticipate a positive association between the proportion of inclusive language contained in CEO letters and the socio-environmental performance of the company. Coherently, the opposite is expected from the presence of inclusive language items. Therefore, the following hypotheses are advanced:

Hypothesis 1: There is a positive relationship between exclusive language and a firm's environmental and social performance.

Hypothesis 2: There is a negative relationship between inclusive language and a firm's environmental and social performance.

Data and Methodology

The theoretical framework of the dissertation is tested within a context of social performance measurement in an international, multi-industry, and multi-year sample. To this end, I employ panel data analysis with a fixed effects model and control for characteristics of the companies, their CEOs, and the reports containing the shareholder/stakeholder letters.

The two main regressors are obtained via word-pattern analysis, a linguistic identification method implemented to **"***mathematically detect bottom-up how words covary*

across large samples of text" (Pennebaker, Mehl, & Niederhoffer, 2003, p. 549). Put differently, the usefulness of the technique lies in identifying specific grammar elements, content dimensions, and syntactical structures by inspecting text-based documents (Landauer, Foltz, & Laham, 1998).

Sample

I extracted the sample from the companies analyzed by the GOLDEN Observatory within the ICRIOS (Invernizzi Center for Research on Innovation, Organization, Strategy and Entrepreneurship) research center at Bocconi University as of May 2016.

The Global Organizational Learning and Development Network (GOLDEN) for Sustainability, born in 2010, is an international independent research network involving more than 120 scholars from over 50 academic institutions; its interdisciplinary area of focus addresses the development of the sustainable enterprise concept. More specifically, its Global Observatory on the Evolution of the Sustainable Enterprise at Bocconi University collects data on the historical sustainability paths of a broad plethora of public companies from six different industries: apparel, automotive, energy, food and beverages, healthcare, and ICT. Organizations are assigned to their respective industry *lato sensu,* meaning that features like the occupied position within the value chain, the composition of their core activities or offerings, and the business relationships among them can vary considerably. For instance, the energy sector contains companies dealing in fossil fuels and renewable energies; food and beverages companies can be distributors and producers of finished goods, raw materials, or additives; automotive refers to vehicles and spare parts manufacturers, which in turn may engage themselves in related fields like heavy equipment or aerospace; and the apparel label spans enterprises from haute couture fashion houses to sportswear producers.

In addition, firms were selected from the Thomson Reuters Asset4 database to ensure research intelligibility and reliability, as it has been extensively adopted for academic investigation purposes (Semenova & Hassel, 2014). Given the growing salience of issues like climate change, ecosystem safeguard, and labor rights in the business sector, Asset4 provides systematic environmental, social, and governance (ESG) information based on more than 250 key performance indicators, in turn emanating from 900+ evaluation points per firm.

Initially, 50 firms were randomly sampled from each industry category except for the apparel sector, from which only 23 were extracted, as it was not yet studied comprehensively by the Observatory at the time data were retrieved. After a preliminary exploration, however,

the sample was reduced. The focus of the dissertation at hand revolves around the linguistic analysis of CEO letters: hence, I discarded those companies for which letters were systematically unavailable. Also, I ignored companies publishing their letters in languages other than English, in order to have a common ground for comparison and limit the contamination from different semantic constructs.

The final sample consists of 234 firms whose data have been collected from 2008 to 2013, the years included in the GOLDEN Observatory database, retrieval time. Some missing data occur, however: a few companies went public after 2008, this way having less extensive reporting requirements for the years when they were privately held. This impacted slightly the collection of cognitive variables, as well as those controlling for company characteristics and report typology. Moreover, in a few cases it was impossible to gather clear and objective information on the personal features of CEOs, such as age, tenure, and education level. Still, confidence in data completeness is solid: the definitive panel dataset is strongly balanced and includes 1257 observations, thus averaging 5.4 observations per entity.

Firms are distributed as follows: 20 from the apparel, 41 from the automotive, 42 from the energy, 44 from the food and beverages, 46 from the healthcare, and 41 from the ICT industry. Geographically speaking, companies can be divided into macrogeographical sub-regions following the United Nations Statistics Division nomenclature: 76 from North America, 45 from Western Europe, 38 from Northern Europe, 26 from Eastern Asia, 22 from Southern Europe, 10 from Australia and New Zealand, 5 from Southeastern Asia, 4 from Southern Asia, 3 from both South America and Eastern Europe, and 2 from Western Asia.

The sample obtained may appear to be biased towards the most economically developed countries, partially because European and North American businesses were prioritized by the Observatory for research-interest reasons. Also, the global coverage of Asset4 is more pervasive within developed markets (Ribando & Bonne, 2010). Nonetheless, this heterogeneity could still prove beneficial, since it can guarantee comprehensive insights with little influence from particular case-specific situations. Furthermore, as previously mentioned, linguistic style is consistent across contexts, whereas content can be manipulated less arduously (Ireland & Pennebaker, 2010): this corroborates the theoretical base of the analysis, since the potential impact of unique industry jargon is conceivably dampened.

Variables

Dependent variables. The two dependent variables are environmental performance and social performance, measured by a score ranging from 0 to 100. They have been obtained for all firms, thus having a maximum of twelve scores per organization, i.e. six per regressand.

Asset4 provides four key ESG scores (plus an integrated rating) for over 3200 different companies in order to measure the four core pillars of corporate responsibility: economic, governance, environmental, and social. Such ratings are based exclusively on publicly available objective sources like stock exchange filings, annual and CSR reports, NGO documentation, and press releases. The appropriateness of these data for research purposes has been validated by previous studies (among others, see Cheng *et al.*, 2014; Eccles, Ioannou, & Serafeim, 2012).

Following the case of Cheng *et al.* (2014), only annual environmental and social performance have been included, since their components appear to be more related to a narrow view of CSR. In fact, whilst the governance and economic scores encompass items such as board structure, compensation policy, client loyalty, and financial results, the social and environmental metrics arguably embrace more conservative elements. Indeed, the latter comprises information on resource consumption, emission reduction, recycling, sustainable product innovation, and pollution controversies; similarly, the social score includes, among other things, workforce diversity, employee turnover, training hours, equal gender representation, injury rates, human rights observance, and local community engagement.

Independent variables. The main regressors are exclusive language and inclusive language. Due to their usefulness in capturing the cognition of top managers, their effect has been already studied in connection to the extent to which companies practice what they preach. In other words, exclusive language has been juxtaposed to implementors, whereas inclusive language to decouplers (Crilly *et al.*, 2016). Coherently, I hypothesize that the socio-environmental scores feature a positive relationship with exclusive language and a negative association with inclusive language.

The two variables have been obtained with the 2007 version of the Linguistic Inquiry and World Count (LIWC) software (Pennebaker, Chung, Ireland, Gonzales, & Booth, 2007). LIWC's internal reliability and external validity for academic research has been consistently established throughout the years (Tausczik & Pennebaker, 2010). Also, by providing an automated text analysis solution, LIWC virtually eliminates the conceptual biases, typical of human coding, that could distort the grouping of words into separate classes (Pennebaker *et al*., 2007). The default dictionary of the program recognizes around 4500 words and word stems,

each of which captured by one or more categories or subdictionaries describing both content- and cognition-related domains. For example, the word "*cried*" will be simultaneously classified in the verb, past tense verb, sadness, negative emotions, and overall affect categories. Every time the word appears, the count in each category increases by one. LIWC expresses the output in percentage terms, thus taking into account the overall length of the texts, measured by the number of words. In the case of inclusive and exclusive language categories, LIWC respectively identifies 18 and 17 words or word stems.

The texts from which the core explanatory variables have been extracted are CEO letters to stakeholders, which have been individually collected from corporate websites and then processed through LIWC. These letters are deemed particularly well suited to longitudinal studies, as many companies produce them around the same time of the year and they become promptly and easily available for third party consultation (Barr, 1998); also, letter style is a meaningful and distinctive feature across chronological and organizational boundaries (Eggers & Kaplan, 2009). The chief purpose of the letters is to convey strategic information about past performance together with certain and probable future endeavors, in a manner that addresses the concerns of the most relevant stakeholders.

However, important information can be withheld intentionally to conceal negative business results (Abrahamson & Park, 1994). For this reason, letters are instruments to influence the expectations of external agents and can be seen as an established impression management tool (Salancik & Meindl, 1984; Westphal, Park, McDonald, & Hayward, 2012). Another probable bias to be found in shareholder letters may derive from the tendency, sometimes not truthfully candid, to devote more and more lines in favor of social and environmental issues. This may lead to the homogenization of the topics covered, in line with the sociological doctrine of isomorphism (DiMaggio & Powell, 1983). Nevertheless, I focus on how authors structurally and verbally connect specific cognitive domains and not how they report the content of such domains. As stated above, domain linkages are much less malleable than content (Ireland & Pennebaker, 2010). Inclusive language and exclusive language are mainly composed of adverbs and conjunctions, this way defining how CEOs link mental constructs and perceive mutual interdependencies: as such, they are not affected by eventual greenwashing purposes.

As a further remark, the literature is not unanimous on whether shareholder letters should be viewed as the output of a single individual or the top management team (for examples of the two stances, see respectively Eggers & Kaplan, 2009, and Cho & Hambrick, 2006).

However, Crilly *et al.* (2016) have found consistency in exclusive-inclusive language patterns between letters to stakeholders and personal interviews with CEOs.

Control variables. Controls can be divided into three areas: firm-level, CEO-level, and letter-level variables.

Firm-level controls. Firm-level controls follow the common literature indications about potential influencers of CSR performance. Firm age and Fortune Global 500 inclusion have been built manually, whereas the other variables have been obtained from Thomson Reuters Datastream. In addition, the number of employees and the debt-to-equity ratio have been transformed logarithmically to counter distribution skewness.

Firm age. In general, firm age is viewed as a control for organizational life cycle effects (Jawahar & McLaughlin, 2001) and the impact of idiosyncratic company risk (Luo & Bhattacharya, 2009). Age, here measured in years, can be also a proxy for assets' age. Firms with older assets are more likely to score lower in matters of corporate social performance (CSP) (Cochran & Wood, 1984). Older companies may have acquired their facilities when the legal environment was less attentive towards sustainable practices and may afterwards encounter high upgrading costs. Also, they may face greater managerial inertia to adapt to recent social changes and tend to attract managers with different mindsets than younger firms (Sturdivant & Ginter, 1977).

Fortune Global 500. Inclusion in the Fortune Global 500 list, here coded as 1 when contemplated in the panel and 0 otherwise, is a measure of company visibility and size: accordingly, it should have a positive effect on CSP, as large companies can more easily achieve economies of scale and scope in CSR provision (McWilliams & Siegel, 2001) and capture the attention of overseeing entities, like news agencies, NGOs, and governments (Ioannou & Serafeim, 2010).

ROIC. Return on invested capital (ROIC) pinpoints how well the company extracts profits from employed resources: a higher value usually amplifies the faculty to invest in socio-environmental projects, both in terms of quantity and quality, also because companies can devote more slack thereto (McGuire, Schneeweis, & Branch, 1990).

Debt-to-equity ratio. Firm's indebtedness is a measure of idiosyncratic risk and risk-taking propensity (John, Litov, & Yeung, 2008). In theory, risk tolerance can elicit savings, alter the weight of future versus present costs, and determine whether to enter or abandon a market on the base of its perceived environmental friendliness (Waddock & Graves, 1997). An enterprise owing a lot to external financiers may have little room for maneuver; still, it can engage in socially responsible behaviors exactly with the aim to lower risk via the betterment

of relationships key stakeholders; however, it is empirically more probable to observe companies scoring high in terms of CSP and low in terms of indebtedness (McGuire, Sundgren, & Schneeweis, 1988).

Employees. The number of employees is a measure of company size; moreover, it is also a determinant factor eliciting closer surveillance from external constituents, like governments and labor unions (Burke, Logsdon, Mitchell, Reiner, & Vogel, 1986).

CEO-level controls. The second control set is centered on the figure of the CEO. I have manually collected demographic data through long and thorough scanning of reports, news releases, online databases, corporate websites, and other sources. CEOs are the key decision-makers in the corporation, capable to formulate or starkly influence strategic CSR initiatives (Battisti & Perry, 2011; Waldman & Siegel, 2008). Their personal attributes exert a shaping impact on the conduction of CSR practices (Quazi, 2003; Waldman, de Luque, Washburn, & House, 2006a; Waldman *et al.*, 2006b). The influence of management psychological characteristics on the prosocial behavior of companies (Brief & Motowidlo, 1986) has been a topic of considerable debate among strategist and social psychologists alike (e.g. Bamberg & Möser, 2007; Banerjee, 2008; Jager, Janssen, De Vries, De Greef, & Vlek, 2000; Steg & Vlek, 2009). The practice of environmental championing (Anderson & Bateman, 2000) is strongly dependent on how environmental values affect the interpretative frameworks of managers (Egri & Herman, 2000), which establish both the magnitude of and the responsiveness to socio-environmental concerns (Bansal & Roth, 2000). Although a more reasoning-oriented view was accepted in the past, in recent times it has been confuted: managers' rationality in moral decision making is often imbued with intuitions, affects, and social influence effects (Haidt, 2001; Kahneman, 2003; Strack & Deutsch, 2004). Such items contribute to the development and consolidation of managers' personal values, which consequently carve the leadership style and the social performance of the company (Hemingway & Maclagan, 2004; Swanson, 1995). In consonance with upper echelons theory (Hambrick & Mason, 1984), the demographics of top-level decision-makers are mirrored in the cognitive interpretation of the elements within their field of vision (Cannella, Park, & Lee, 2008; Hambrick, 2007; Walsh, 1988). Wiersema and Bantel (1992) found that several demographic variables affect strategy, including age, tenure, and educational level.

CEO gender. The gender dummy equals 1 when the CEO is a woman, 0 otherwise. Intuitively, femininity is related to values such as empathy, modesty, sympathy for the weak, societal and environmental care, cooperation, and reciprocal help (Hofstede, 2011). Women are apparently more ethical than men in their decision-making processes (Arlow, 1991; Ruegger &

King, 1992) and analyze ethical issues more critically (Tsalikis & Ortiz-Buonafina, 1990). Not surprisingly, some research finds that female board members increase organizational social performance and reputation (Bear, Rahman, & Post, 2010; Brammer, Millington, & Pavelin, 2009). They have been linked to more benign working environments (Johnson & Greening, 1999), greater corporate philanthropy (Wang & Coffey, 1992), and higher environmental ratings (Post, Rahman, & Rubow, 2011). Burton and Hegarty (1999) assessed the degree of CSR orientation to be vigorously greater in female rather than in male CEOs. Furthermore, this variable should capture gender-specific cognitive discrepancies: even though it has been argued that virtually no gender difference exists in terms of verbal abilities (Hyde & Linn, 1988), men and women differ in the psychosocial development of their perception determinants (Bussey & Bandura, 1999).

CEO age. Age is generally seen as negatively related to R&D spending (Barker III & Mueller, 2002) and the capacity to digest new information (Taylor, 1975), to adapt one's own behavior according to novel societal trends (Chown, 1960), and to undertake risky procedures (Carlsson & Karlsson, 1970). *Ceteris paribus*, older individuals are more committed to the current state of affairs (Alutto & Hrebiniak, 1975), arguably because they might possess lower amounts of stamina to cope with innovation-based change (Child, 1974). Also, the perception of ethical concerns varies with age (Dashpande, 1997).

CEO foreignness. CEO foreignness indicates whether the nationality of the CEO and that of the firm correspond. It is set to 1 when the chief executive comes from a country other than that of the corporate headquarters, 0 otherwise. The rationale behind it holds that national culture biases the manner in which single individuals cogitate and interpret reality, therefore assuming that cultural dissonance in the corporate environment can cause incomprehension. National cultures, in fact, diverge along a multitude of aspects; some milestone studies can be traced in Hofstede's cultural dimensions (Hofstede, Hofstede, & Minkov, 2010), the GLOBE project (House, Hanges, Javidan, Dorfman, & Gupta, 2004), and Trompenaars' model of national culture differences (Trompenaars & Hampden-Turner, 2011). The appropriateness of these frameworks in describing CSR and CSP in an international setting has been validated by existing research, e.g. Ringov and Zollo (2007), Ho, Wang, and Vitell (2012), and Waldman *et al.* (2006a).

CEO succession. CEO succession takes value 1 when the CEO has been hired from the outside within one year from the formal appointment. Internal CEOs may possess an *ex ante* advantage concerning power, information availability, and discretion (Kotter, 1982), hence having more opportunities to implement socially responsible practices. Still, outsiders may be

less dedicated to the *status quo* and more willing to alter the strategic profile of the company, as they bring fresh cognitive loads (Helmich, 1975; Kesner & Sebora, 1994).

CEO tenure. Organizational tenure, here expressed in years, is generally associated with concepts similar to those captured by age: a longer tenure usually implies adherence to established paradigms (Staw & Ross, 1980), lower capacity to match dynamic environmental demands (Miller, 1991) and explore new strategies (Katz, 1982), and a harder time in modifying firm procedures (Kanter, 1987). These effects vary according to the phases in which CEO tenure can be partitioned (Hambrick & Fukutomi, 1991). Moreover, a higher tenure is connected to a greater conformity to industry standards (Finkelstein & Hambrick, 1990).

CEO education. CEO education has been codified in a quasi-Likert manner with no differentiation among specialization fields: a value of 1 means that the CEO has not received any formal certification besides a high school diploma, 2 signifies an undergraduate degree, 3 refers to second-cycle academic degrees, such as MBA, M.Sc. and M.A., and 4 stands for doctoral degrees, including *honoris causa* titles. Higher educational levels are associated with greater ambiguity tolerance and boundary spanning (Dollinger, 1984), more acute stimuli-discrimination skills (Driver & Streufert, 1969), and innovation responsiveness (Kimberly & Evanisko, 1981). Also, courses on CSR and business ethics have started being introduced into the *curricola* of many master level degrees, especially in business schools, thus potentially infusing managers' attitude with socially responsible notions (Cornelius, Wallace, & Tassabehji, 2007).

Letter-level controls. The final set of controls comprises two dichotomous variables, both constructed by visually inspecting the documents.

Report type. Report type is set to 1 when the letter is embedded in a sustainability report (also called with other names, like global citizenship report, shared value report, or corporate responsibility report) and 0 otherwise. Format differences of annual and sustainability reports across companies are limited (Gray, Kouhy, & Lavers, 1995), thus making it a proper means to cross-analyze firms (Milne & Adler, 1999). Needless to say, one would expect a higher CSR attention, in turn translated into a greater performance, from an organization devoting time and resources to an additional report on its social and environmental endeavors than from a similar one that does not do that.

Co-authorship. I coded this dummy as 1 if the letter is written by the CEO together with at least another individual, usually executive figures like the CFO, the COO, or the CSO, and as 0 if the CEO is the sole explicit author of the letter. This is clearly done to check for the

possible influence of cognitive frames other than that of the CEO. Supposedly, the value of this regressor is as good as the veracity in disclosing who the real author of the letter is.

Method

Due to the nature of the sample, the method employed is panel analysis. By examining the data, it appears natural that companies present time-independent effects that can be correlated with the pooled estimators; a certain degree of unobserved heterogeneity has to be accounted for. This consideration would imply a preference for a fixed effects model over a random effects model. Fixed effects models partial out the influence of time-invariant characteristics, thus facilitating the inspection of the net effect of the explanatory variables on the outcome variable. To confirm the decision, I performed the Durbin-Wu-Hausman test (Hausman specification test) on the models: in both cases the null option, i.e. support for the random effects specification, is rejected ($p = 0.0003$ and $X^2 = 49.02$ for the environmental score regression; $p = 0.0036$ and $X^2 = 41.16$ for the social score regression).

The analysis is run with heteroscedasticity-consistent standard errors, also known as Huber-White estimators. Indeed, prior research suggests to utilize them when performing fixed effects estimations (Bertrand, Duflo, & Mullainathan, 2004). Robust standard errors, however, call for another method to identify which model is more suitable. To dispel any doubt, I conduct the Sargan-Hansen test, a test of over-identifying restrictions: differently from the Hausman specification test, it naturally extends to heteroskedastic-robust analysis (Arellano & Bond, 1991). Like before, rejection of the null hypothesis signifies a preference for the fixed effects model *vis-à-vis* the random effects model. Again, the results lead me to dismiss the null hypothesis ($p = 0.000$ and $J = 62.371$ for the environmental score regression; $p = 0.000$ and $J = 80.860$ for the social score regression). There is, therefore, decisively strong evidence in favor of a fixed effects model.

In conclusion, the technique chosen is a fixed effects model of panel data analysis with robust standard errors, clustered at the firm level.

Results

The following tables illustrate the descriptive statistics and the correlations between the considered variables, displaying the significance alongside with the p-values between parentheses.

Table 1. Descriptive statistics

	Mean	S.D.	Min	Max
Environmental score	72.386	25.708	8.67	95.01
Social score	72.219	25.397	5	97.87
Inclusive language	7.446	1.641	2.12	15.75
Exclusive language	0.528	0.441	0	3.47
Firm age	65.968	47.433	0	221
Fortune Global 500	0.267	0.443	0	1
ROIC	9.479	12.718	-166.79	95.85
Debt-to-equity ratio	4.059	1.443	-4.605	9.189
Employees	9.867	1.63	1.609	13.241
CEO gender	0.046	0.209	0	1
CEO age	55.778	7.448	32	92
CEO foreignness	0.158	0.365	0	1
CEO succession	0.275	0.447	0	1
CEO tenure	6.003	6.51	0	52
CEO education	2.674	0.736	1	4
Report type	0.486	0.5	0	1
Co-authorship	0.206	0.405	0	1

Table 2. Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Environmental score	1																
Social score	0.751***	1															
	(0.000)																
Inclusive language	0.149***	0.169***	1														
	(0.000)	(0.000)															
Exclusive language	0.094***	0.082***	-0.078***	1													
	(0.000)	(0.002)	(0.003)														
Firm age	0.143***	0.085***	0.048*	0.08***	1												
	(0.000)	(0.001)	(0.066)	(0.002)													
Fortune Global 500	0.323***	0.282***	0.141***	0.09***	0.124***	1											
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)												
ROIC	0.109***	0.161***	0.007	-0.002	0.113***	0.02	1										
	(0.000)	(0.000)	(0.787)	(0.940)	(0.000)	(0.445)											
Debt-to-equity ratio	0.199***	0.146***	0.043	0.014	0.035	0.181***	-0.145***	1									
	(0.000)	(0.000)	(0.105)	(0.608)	(0.187)	(0.000)	(0.000)										
Employees	0.376***	0.388***	0.156***	0.076***	0.201***	0.634***	0.249***	0.226***	1								
	(0.000)	(0.000)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)	(0.000)									
CEO gender	-0.12***	-0.088***	0.077***	0.021	0.028	0.006	0.03	-0.077***	-0.061**	1							
	(0.000)	(0.001)	(0.003)	(0.434)	(0.275)	(0.821)	(0.260)	(0.004)	(0.021)								
CEO age	0.013	-0.052*	-0.022	-0.042	0.118***	0.067**	-0.009	-0.059**	0.062**	0.009	1						
	(0.639)	(0.051)	(0.397)	(0.112)	(0.000)	(0.011)	(0.743)	(0.028)	(0.020)	(0.737)							
CEO foreignness	0.078***	0.055**	0.047*	0.029	0.012	0.144***	-0.033	-0.01	0.058**	-0.024	-0.122***	1					
	(0.003)	(0.040)	(0.070)	(0.265)	(0.637)	(0.000)	(0.213)	(0.706)	(0.030)	(0.364)	(0.000)						
CEO succession	-0.058**	-0.034	-0.025	-0.036	-0.079***	-0.041	-0.044*	0.125***	-0.121***	0.067**	-0.064**	0.055**	1				
	(0.030)	(0.200)	(0.341)	(0.175)	(0.002)	(0.113)	(0.094)	(0.000)	(0.000)	(0.010)	(0.014)	(0.036)					
CEO tenure	-0.184***	-0.165***	-0.029	-0.024	0.014	-0.052**	0.015	-0.126***	0.01	-0.077***	0.397***	-0.143***	-0.176***	1			
	(0.000)	(0.000)	(0.264)	(0.353)	(0.603)	(0.046)	(0.561)	(0.000)	(0.711)	(0.003)	(0.000)	(0.000)	(0.000)				
CEO education	0.012	0.054**	-0.047*	0.068**	-0.019	0.02	-0.123***	0.013	-0.069**	0.018	-0.077***	0.096***	0.168***	-0.117***	1		
	(0.669)	(0.043)	(0.078)	(0.011)	(0.478)	(0.454)	(0.000)	(0.619)	(0.010)	(0.484)	(0.004)	(0.000)	(0.000)	(0.000)			
Report type	0.435***	0.461***	0.298***	0.065**	0.08***	0.254***	0.032	0.143***	0.309***	-0.072***	0.089***	-0.044*	-0.06**	-0.114***	-0.022	1	
	(0.000)	(0.000)	(0.000)	(0.013)	(0.002)	(0.000)	(0.230)	(0.000)	(0.000)	(0.006)	(0.001)	(0.095)	(0.022)	(0.000)	(0.406)		
Co-authorship	-0.036	-0.062**	-0.07***	-0.011	-0.058**	-0.028	-0.116***	-0.063**	-0.105***	-0.016	0.036	-0.035	-0.083***	-0.005	0.02	-0.079***	1
	(0.177)	(0.020)	(0.008)	(0.681)	(0.028)	(0.279)	(0.000)	(0.018)	(0.000)	(0.536)	(0.169)	(0.177)	(0.001)	(0.845)	(0.444)	(0.002)	

Inclusive and exclusive language show a strongly significant negative relationship, albeit weak in its intensity. Interestingly, there seems to be a moderately positive significant correlation between report type and the two socio-environmental indicators, thus acknowledging the need to control for its effects. Although less intensely, the same happens with respect to Fortune Global 500 and Employees; this is in line with an assumed homogenization trend in sustainability reporting practices amid the largest business players worldwide (Kolk, 2008; Reid & Toffel, 2009).

The presence of multicollinearity has been quantified by determining the variance inflation factors (VIF); two commonly accepted critical levels are 5 and 10 (Kutner, Nachtsheim, & Neter, 2004). With a mean VIF of 1.37 and a maximum of 1.96, such thresholds are not violated, ideally implying a lack of multicollinearity-related issues.

The regression output is shown below. Tables 3 and 4 portray respectively the results on the environmental and social scores. In both cases, the dependent variables have been at first regressed on the controls only, to isolate the impact of firm, CEO, and letter characteristics (Model 1); thereafter, in Model 2, the measures of managerial cognition are incorporated into the analysis.

Table 3. Managerial cognition and environmental performance

Dependent variable = **Environmental score**	(1)	(2)
Inclusive language		0.294
		(0.251)
Exclusive language		1.176*
		(0.616)
2009	4.338***	4.327***
	(0.908)	(0.900)
2010	8.0371***	8.091***
	(1.279)	(1.268)
2011	9.101***	9.221***
	(1.549)	(1.511)
2012	11.060***	11.101***
	(1.873)	(1.813)
2013	11.500***	11.459***
	(2.159)	(2.086)
Firm age	-0.816**	-0.809**
	(0.384)	(0.365)
Fortune Global 500	-0.718	-0.586
	(1.765)	(1.733)
ROIC	0.020	0.020
	(0.037)	(0.037)
Debt-to-equity ratio	0.207	0.186
	(0.462)	(0.465)
Employees	2.375*	2.534*
	(1.414)	(1.399)
CEO gender	4.803	4.632
	(3.820)	(3.779)
CEO age	0.086	0.099
	(0.085)	(0.084)
CEO foreignness	-0.987	-1.412
	(1.885)	(1.886)
CEO succession	-0.240	-0.060
	(1.266)	(1.282)
CEO tenure	0.106	0.086
	(0.140)	(0.139)
CEO education	0.104	0.007
	(0.839)	(0.842)
Report type	3.257**	2.890*
	(1.460)	(1.520)
Co-authorship	0.148	0.115
	(1.324)	(1.343)
Constant	89.414***	84.540***
	(31.479)	(30.882)
Observations	1,263	1,257
Number of companies	234	234
R-squared	0.161	0.165

Robust standard errors in parentheses: *** p < 0.01, ** p <0 .05, * p < 0.1

Chronological progression discloses a positive and arguably increasing trend ($p < 0.01$) in environmental performance. Employee numbers displays a positive relationship as well ($p < 0.1$). Intuitively, company age shows a negative relationship ($p < 0.05$), while those firms including a CEO letter inside their sustainability reports, to substitute or complement their annual reports, score higher on average ($p < 0.05$ without the cognition-specific regressors, $p < 0.1$ by adding them). CEO demographics, together with most firm-related predictors and the potential intervention of a co-author, do not externalize a meaningful impact.

Consistently with the theorizing, the output shows statistical support for Hypothesis 1, according to which the environmental performance of the enterprise and the cognition of its chief executive, as expressed by exclusive language, share a positive association. However, with a p-value lower than 0.1, ($p = 0.057$), this relationship is only marginally significant, although promising. On the contrary, there is no evidence validating Hypothesis 2, which anticipated a negative coefficient on the interaction term between environmental score and inclusive reasoning.

Table 4. Managerial cognition and social performance

Dependent variable = **Social score**	(1)	(2)
Inclusive language		0.495**
		(0.237)
Exclusive language		0.705
		(0.821)
2009	0.277	0.289
	(1.104)	(1.102)
2010	-1.255	-1.304
	(1.944)	(1.934)
2011	-3.398	-3.369
	(2.799)	(2.770)
2012	-4.686	-4.609
	(3.723)	(3.693)
2013	-6.694	-6.807
	(4.552)	(4.508)
Firm age	1.990**	1.988**
	(0.888)	(0.879)
Fortune Global 500	0.715	0.981
	(2.239)	(2.256)
ROIC	0.0295	0.0273
	(0.042)	(0.042)
Debt-to-equity ratio	-0.529	-0.540
	(0.561)	(0.561)
Employees	1.443	1.659
	(1.224)	(1.193)
CEO gender	4.000	3.837
	(4.178)	(4.107)
CEO age	-0.003	0.008
	(0.107)	(0.106)
CEO foreignness	0.903	0.509
	(1.985)	(1.980)
CEO succession	-0.902	-0.992
	(1.470)	(1.504)
CEO tenure	0.101	0.084
	(0.183)	(0.181)
CEO education	0.442	0.373
	(1.038)	(1.042)
Report type	4.895***	4.224**
	(1.688)	(1.702)
Co-authorship	0.218	0.250
	(1.781)	(1.806)
Constant	-74.549	-80.481
	(59.252)	(58.833)
Observations	1,263	1,257
Number of companies	234	234
R-squared	0.066	0.071

Robust standard errors in parentheses: *** p < 0.01, ** p < 0.05, * p < 0.1

By regressing social score on the control variables, we can notice similar patterns. Indeed, the biographical peculiarities of the CEO do not seem to exert a statistically significant impact on the dependent variables, in this case the social indicator. Similarly, letter co-authorship, profitability, indebtedness, and size follow the same suit. However, differently from the case with environmental score, here both the number of employees and the constant term lose meaningfulness. Furthermore, the eye fails to appreciate the same intertemporal trend captured in Table 3, as the p-values of the year variables are all greater than 0.1. Some diversity occurs, however: firm age remains significant ($p < 0.05$), although now the coefficient manifests a positive sign. Notably, report type is still positively associated with the CSP index ($p < 0.01$ with controls only, $p < 0.05$ by including also the cognitive-linguistic regressors).

By considering the exclusive and inclusive dimensions of managerial cognition, the result is all but resonant with the theoretical argumentations explicated in the previous sections. In fact, not only it is possible to observe that the exclusive language predictor drops its significance (it does retain, however, its positive sign), but also that inclusive language shows a positive association with social performance ($p = 0.038$). Such an outcome contravenes to the line of reasoning of both hypotheses, particularly that of Hypothesis 2.

Discussion and Conclusion

Discussion

Consistently with the theorizing, the analysis unravels a positive association between exclusive language and environmental performance, in line with the idea of a linkage between its pervasiveness and a deeper comprehension of operational surroundings (Zerubavel, 1993). However, another primary finding indicates a positive relationship between inclusive language and social performance, whereas exclusive language fails to be statistically significant in this case. This second discovery can be befuddling, since inclusive wording has been connected to deceitful statements and reduced cognitive elaboration.

A potential explanation lies both in the nature of the dependent variable and the additional implications stemming from the peculiarities of inclusive reasoning. The social dimension is arguably harder to quantify than the environmental dimension. It entails a plethora of items whose measurability can be deemed fuzzy. The true efficacy of social programs is often blurred: inputs can be identified straightforwardly, whereas outputs are harder to attribute or are assessed only at a later point in time. Additionally, social initiatives, more than environmental ones, share rather permeable boundaries with the commercial sphere of a

company: it suffices to think of the provision of free samples to expand the user base in a specific market before the competition, the creation of novel jobs in destitute areas to streamline the access to low-cost labor pools, or the financing of community-advantageous projects to ingratiate local authorities. In addition, philanthropy can be used to strengthen organizational legitimacy (Kamens, 1985). Along the same line of thought, it has been advanced that firms may contribute more in the social domain in order to compensate for subpar performance concerning environmental safeguard (Chen, Patten, & Roberts, 2008). Thus, the social contour delineation may not be as dispassionate or, better, as impartial as its environmental counterpart.

Examining now the inherent features of language, the effortless amalgamation of distinct domains, as reflected by inclusive words, is one possible way in which knowledge can be generated (Mitchell, De Houwer, & Lovibond, 2009). This so-called associative learning is often an effortless form of cognition (Hodgkinson & Healey, 2011), whereby individuals automatically accumulate information on diverging mental representations and bridge them subconsciously (Baeyens, Eelen, & Bergh, 1990; Fulcher & Hammerl, 2001). Inclusive reasoning, therefore, entails the comprehension of mutual interdependencies between two or more favorable domains (Zadeh, 1973). Logics are applied intuitively and heterogeneous clues can be managed concurrently (Hauser, Toubia, Evgeniou, Befurt, & Dzyabura, 2010): it follows that inclusive language may be a psychographic proxy for constructive tension capabilities, thus allowing for improved decision-making (Martin, 2007). Consequently, inclusive reasoning may be propaedeutic to appreciate the interrelationships within a diversified network of stakeholders (Mahoney, McGahan, & Pitelis, 2009), hence letting companies contemplate more adequately the objectives of the triple bottom line framework (Elkington, 1998).

Limitations

The typology of the employed data entails some limitations. For instance, a time window of six years might not be sufficiently ample to check for long-term effects; moreover, the years from 2008 to 2013 are peculiar, being profoundly affected by the aftermath of the 2007-2008 financial crisis. A relevant CEO turnover rate can be indeed observed (Erkens, Hung, & Matos, 2012), obfuscating the association between the syntactical phrasing of the letters and the concrete attribution of socio-environmental initiatives.

Furthermore, this investigation assumes that signatures reflect faithfully the identity of the composer of the letter: a less-than-genuine authorship declaration can adulterate the associations; still, there is no clear way to ascertain this factor.

Additionally, one should consider potential translation effects: although it is true that all letters are in English, there could be imperceptible syntactic contaminations due to either a human input of the translators or the forcible transposition of foreign constructs lacking English adaptations of equal meaning.

The origin of the executives has been coded dichotomously. Intermediate situations can arise: the implications of an Australian director leading a US corporation are believably different if the same individual oversaw a French firm, behaviorally speaking. Pertinently, the influence thereof would be partially dampened by the degree of internationality of the organization, which could be tentatively deduced from the percentage of foreign workforce or foreign sales to the company's total.

Because of the structure of the database, selected firms are all publicly listed and the majority are of considerable size; thus, the predictive value of the analysis may not suit smaller entities. Likewise, the same concept applies to businesses from those areas of the world which could not make up a considerable portion of the panel used, such as Eastern Europe, South America, and the Asian continent excluding its eastern countries.

Further caution should be exercised: as incoming CEOs assume the direction of the organization at various times of the years, the extent of their CSR involvement before signing their first letter may vary. Rating agencies might as well be imperfectly responsive to time lags between management changes before taking full account thereof (Huang, 2013).

Lastly, this analysis has been performed on a multi-industry scale. Industry effects, in this case time-invariant, have been parceled out using a fixed effects specification model. Albeit not a problem *per se*, it has been argued that CSR investigations should incorporate industry-specific realities (Cottrill, 1990), because the obtainment of high corporate performance differs from sector to sector, among other things. Nonetheless, some research posits that CSR issues are so varicolored that a one-industry focus would be insufficient for practicality sake, in this manner supporting the simultaneous inclusion of multiple sectors (Sweeney & Coughlan, 2008).

Implications and Conclusion

Managers' perception determines how they interpret their environment and create opinions on which to develop corporate strategy. As posited by mental space theory, perception is better mirrored in the expressions used to connect concepts, not the way in which such concepts are verbally described. According to former research, inclusive and exclusive words

seem to fit well this role: inclusive language has been related to decoupling intentions, whereas exclusive to implementing ones. I have then computed the proportions of inclusive and exclusive language in 1257 CEO letters belonging to 234 international public companies from 6 industries; with these percentages as my main regressors, I have analyzed their relationship with social and environmental score, from 2008 to 2013. The method chosen is panel data analysis with fixed effects model and robust standard errors, controlling for the characteristics of the firms, the CEOs, and the letters.

While I was expecting socio-environmental performance to show a positive association with exclusive language and a negative one with inclusive language, results point to a positive relationship between exclusive wording and environmental score and between inclusive wording and social score. Accordingly, I advance some tentative rationales to explain why my outcome partially differs from previous findings, mainly by considering the nature of social initiatives and inclusive reasoning. Also, the type of inspected text may be of influence.

This study provides fresh insight in the vast literature on managerial cognition. Corporate strategy involves the continuous pondering and selection of complementarities and substitutes in order to gain a sustainable advantage over the competition, a competition that engages in CSR initiatives. Since CEOs are believably the most powerful individual actors inside the organization, their mental faculties are key to define how companies interpret meaning and act correspondingly. Precious cognitive information is revealed by the way in which CEOs link domains in their principal means of stakeholder communication, i.e. the report letter, and not by the content of the domains *per se*.

Although far from being conclusive, this work may prove helpful to those parties interested in establishing relationships with an organization by judging the authenticity of its claims, especially in the field of CSR. Ideally, this encompasses rating and auditing agencies, other providers of financial and sustainability data, consumer organizations, and governmental supervisors. In this way, stakeholder pressure is built on those companies trying to masquerade their real CSR efforts with barrages of honeyed words. As transparency is fostered, firms are pushed to invest in purposeful programs to orientate their CEOs' approach towards sustainability. More forward-looking enterprises could direct similar programs to prominent employees with good chances to achieve executive status one day, or to implement cognitive-scanning procedures before hiring managers from outside their organizational perimeter. The main objective, here, is to develop a corporate culture whose exponents genuinely share a common yet individually-entrenched social and environmental propensity. As the novel culture settles, talented individuals with similar mindsets are naturally attracted to the business, in this

way giving rise to a self-fulfilling virtuous circle and increasing the efficiency of social investments. Merely thinking on the next short-term CSR initiative or, worse, attempting to formulate sustainability reports in a more convincing fashion are not particularly advantageous resolutions, as nuances in language can reveal incongruences between assertion and implementation.

A cautionary word must be spent here, though: the collected evidence does not point to a causal relation between phrasing and particular behavioral implications; rather, it supports a language-form matching of mental symbols used by individuals to illustrate reality. This, in turn, shape their decision-making attitudes and inherent behavioral models.

Given that the obtained results seem to contradict previous findings, I invite future research to keep investigating the links between CSR performance and managerial cognition, as reflected in grammar connections, both to validate existing categorizations or develop new ones. Furthermore, it could be beneficial replicate the analysis with a larger sample, both in terms of industry inclusion and timespan; in this perspective, the exploration of cognitive diversity in managerial decision-making across cultural and institutional setting would likely provide valuable insights.

The impact of CEO demographics may be considered more exhaustively to have a more conservative outcome. A few variables, like civil status, parenthood, and social background, have not been examined, therefore leaving their influence on managerial values subject to future inquiries. The same discourse applies to the role of eventual co-authors: in other words, whether their field of specialization or depth of involvement in the social activities of the enterprise may affect the obtained results.

I also invite to perform further robustness checks between the cognitive-linguistic structure of stakeholder letters and that of other forms of executive announcements, e.g. interviews, to see if similar results can be replicated and to what extent the modality of expression exerts an influence.

The potential of cognitive-linguistic applications is presumably enormous, given the multiple points of interaction between management, economics, psychology, linguistics, and neuroscience. This exploration furthers recent efforts in the relatively novel circle of linguistic and mental models and their strategic implications (Cornelissen & Durand, 2012; Liang, Marquis, Renneboog, & Sun, 2014). A personal suggestion would be to explore how the cognitive elements of language could be integrated by analysts in the evaluation of companies, either from a risk or an ethical standpoint. Like many previous studies, this dissertation has taken up the challenge of contributing a little, but nonetheless purposeful extension to a

burgeoning and novel stream of research, with the hope that more academic efforts will follow with the purpose of crystallizing an extensive overarching framework.

Appendix

Sample letter taken from the 2010 CSR report of NRG Energy and written by David Crane, President and CEO. Inclusive language has been highlighted in blue, whereas exclusive language in green. Respectively, inclusive and exclusive words constitute 6.25% and 2.51% of the letter's total.

"We are in the midst of a great energy revolution in America. Although we do not know exactly what path we will walk to get there, we do know where we want it to end - in a world where humanity ensures that the energy we use does not, in fact, degrade our lives in the future.

Sustainable energy, to be sure, means clean, zero-emission energy from an inexhaustible or practically inexhaustible source. But clean must be more than just green. Sustainable energy must also be safe, affordable and reliable. When you put it all together - safe, reliable, affordable and clean - you have what we like to call "smart energy."

Americans are not yet clamoring for smart energy, but we are anticipating that they will be soon enough. Once Americans absorb the full implications of climate change, political instability in the Middle East, the disaster at the Fukushima nuclear complex in Japan, mountaintop removal mining and coal mining fatalities, and the Deepwater Horizon oil spill, they will be increasingly mindful of the consequences of our current patterns of energy use. I believe they will also be receptive to alternative energy solutions so long as those solutions do not compromise or increase the cost of the American way of life. At NRG, we are working tirelessly to provide Americans with those kinds of smart energy solutions.

The key enabling factor is customer choice, a concept that historically has been quite common in most sectors of our consumer society - except energy. It is because of this absence of choice that Americans who are focused on leading a sustainable lifestyle have had to channel their efforts outside of the energy area to organic food, recycling, paperless offices and picking up towels off hotel room floors. When it came to energy consumption, the absence of choice limited our options to conservation and a more constrained and uncomfortable lifestyle than we would otherwise have if we just looked the other way as to where our energy came from.

Thankfully, all of that is changing. As a result of technological innovation and American entrepreneurial initiative, new clean energy technologies are ready for commercial deployment that will go a long way toward allowing Americans to pursue a fully sustainable lifestyle without sacrificing the home comfort or the personal mobility that are such a

fundamental part of the American Dream. An ever-increasing percentage of the American public now has **either** the right to choose who they buy their electricity from **or** the right to opt to purchase power generated solely from renewable resources. It is this growing portion of the American population that NRG is moving aggressively to serve **with** smart energy solutions, as well as generating increasing amounts of clean energy that is sold in **both** retail **and** wholesale electricity markets.

To give **just** a few illustrations of our initiatives in this area:

- Reliant Energy offers e-Sense™ smart energy solutions, which enable customers to make informed decisions about how they use electricity at home **and** eliminate inefficient consumption;
- Green Mountain Energy Company offers retail customers **and** businesses in Texas **and** several other states the opportunity to purchase all renewable power **and** is in the process of expanding its clean energy offerings; NRG owns **and** operates 450 megawatts (MW) of wind generation spread across four sites in west **and** central Texas;
- NRG owns **and** operates 25 MW of solar photovoltaic projects, has 1,972 MW under construction **or** in development **and** has begun offering distributed solar packages to commercial establishments **and** homeowners in select states that encourage distributed solar projects **and**;
- NRG, together **with** General Electric **and** ConocoPhilips, has formed Energy Technology Ventures - a fund created by the three partners to collectively invest an initial $300 million in potentially revolutionary clean energy technologies.

Beyond these smart energy choices that sustainably oriented customers can enjoy in their homes **and** in their places of work, NRG is working aggressively to be part of the coming electric vehicle revolution. In 2011, for the first time, American consumers will have a credible choice to reduce dramatically **or** even eliminate **both** their tailpipe emissions **and** their personal dependence on foreign oil by buying any one of a number of plug-in hybrid **or** pure electric vehicles being brought to market by a wide range of auto manufacturers.

In November 2010, NRG launched eVgoSM in Houston, the first privately funded electric vehicle charging ecosystem in America. Today, the eVgo network has expanded **into** the Dallas/Ft. Worth Metroplex, **and we** have great hopes it will expand much further. The eVgo package, which I like to characterize as a "miles" contract similar to the "minutes" contract on your mobile phone, consists of the purchase **and** installation of a charging station at the EV owner's home, free access to the network of fast chargers that **we** are installing **around** the

Houston and Dallas/Ft. Worth areas, and unlimited electricity to fuel the EV itself. Most importantly, eVgo will convert the range anxiety that is currently associated with electric car ownership into range certainty.

At NRG, we believe that electricity should be used even more comprehensively across our society, not only to light and climate control our homes but also to fuel our cars, our businesses and our factories. This is the role that electricity should play in 21st century America, not only because it is the most flexible of energy sources, but because electricity itself is inherently fuel diverse, comes from domestic sources, and has immense potential to be generated in a manner that does not despoil the air we breathe or the water we drink.

As we work to build an energy industry for the 21st century, the questions surrounding nuclear and coal ensure that our industry will build a lot of natural gas-fueled plants, and that is a good thing. Natural gas is a highly flexible, very efficient, reassuringly domestic and relatively clean fuel by fossil fuel standards. But natural gas always has been, and will likely continue to be, a highly cyclical commodity with very significant price volatility over the business cycle. An American power industry that relied exclusively on natural gas for its baseload generation would consume an enormous amount of this finite resource and would sacrifice the inherent fuel diversity that is our industry's biggest competitive advantage. Furthermore, simple math tells me that if we have an accepted goal to reduce greenhouse gas emissions 80% by 2050 then we won't get there by cutting our emissions in half, which is the advantage that gas-fueled plants have over coal. So while we support and intend to participate in the trend toward more natural gas-fueled generation, we believe as a matter of prudent public policy and industry practice that trend should not become total dependence on natural gas.

We believe America's energy future—built on a foundation of clean baseload power, renewables backed by fast-start gas plants, the smart grid and electric vehicles—is indeed bright. And NRG is making visible progress toward a leadership role and first mover advantage in all of these areas. The transformation of NRG is now well under way as we continue to move clean energy forward.

Sincerely yours,

David Crane"

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