

TENSIONS AND OUTCOMES IN CORPORATE SUSTAINABILITY: THE MODERATING ROLE OF PARADOXICAL FRAME

Abstract

Tensions are an unavoidable experience for companies dealing with social and environmental issues because of their inherent complexity and diversity. Paradox and sustainability literature are proposing the crucial role of cognitive frames in effectively manage sustainability tensions. Indeed, denying and suppressing them can spur vicious downward spirals that paralyze actions, reduce their effectiveness, or lead to unintended consequences. On the contrary, recognizing the interrelation and the persistence of opposing sustainability elements and accepting their inherent conflicts can generate virtuous cycles, where the potential of these tensions is released and superior outcomes achieved. Existing literature is providing the first qualitative empirical evidence regarding the potential of a paradoxical cognitive frame for corporate sustainability. However, research on the role of paradox as organizational cognitive frame in fostering sustainability outcomes is still underdeveloped, and moreover, quantitative research to make such evidence more generalizable is missing. Therefore, this study aims at quantitatively investigating whether organizations embracing paradox as collective frame – i.e. accepting contradictions by accommodating competing yet interrelated elements simultaneously, and continuously integrating them – to address sustainability tensions are able to improve their sustainability outcomes – i.e., going beyond compliance in limiting their impact on social and natural systems and preventing social and environmental crises. Based on original survey data regarding how firms perceived the experience of sustainability tensions, how they frame such tensions, and how they perceived their social, environmental, and financial outcomes, results reveal that framing sustainability tensions as paradoxes fosters firms' social and environmental outcomes; however, they also highlight the limitations of this approach. Indeed, a paradoxical organizational cognitive frame supports companies in achieving higher social and environmental outcomes, but not economic ones. Thus, this research contributes to paradox literature by providing a better understanding of the role and the nature of paradox as potential organizational frame to cope with sustainability complexity.

Keywords: Paradox Theory, Paradoxical Frame, Corporate sustainability Tensions

1. Introduction

‘The problem is not the problem. The problem is your attitude about the problem’¹

Achieving environmental integrity, social equity, and economic prosperity at once – i.e., truly obtaining sustainable development (Bansal, 2005) – is a complex issue for companies. It requires them to address heterogeneous concerns, demands, and objectives simultaneously (Haffar & Searcy, 2017; Hahn et al., 2010, 2014; Reinecke & Ansari, 2016) which often times can be in contraposition (Hahn et al., 2018). Indeed, tensions – i.e., “elements that seem logical individually but inconsistent and even absurd when juxtaposed” (Smith & Lewis, 2011, p. 382) – are an unavoidable experience for organizations who seriously deal with sustainability (Haffar & Searcy, 2017; Hahn et al., 2010). Interestingly, tensions are not inherently bad or good for firms. Take the case of the businesses and NGOs described in Sharma & Bansal (2017), all dealing with the same tensions between economic and social goals: some actors ended up with failing the projects, while others learned to master both social and economic logics and goals. It is how actors approach them – in the case described by Sharma & Bansal, flexibly in dealing with contradictions among different goals and logics vs. suppressing them – that will determine if they enhance or hinder organizations’ outcomes (Smith & Lewis, 2011; Miron-Spektor et al., 2018)

The way business actors – either individuals or organizations – makes sense of tensions and address them can be described as *cognitive frames* (Andriopoulos et al., 2018; Hahn et al., 2014; Van der Byl & Slawinski, 2015) – i.e., schemata of interpretation and actions (Goffman, 1974). The paradoxical cognitive frame – which entails approaching tensions by cognitively juxtaposing conflicting elements, recognizing the profound interrelation and persistence of two poles – has been suggested to be particularly influential in understanding how sustainability

¹ Bruckheimer, J. (Producer), & Verbinski, G. (Director). (2003). *Pirates of the Caribbean: The curse of the Black Pearl*. Burbank, CA: Walt Disney Home Entertainment.

tensions can be addressed to ensure positive results. This cognitive effort consists in the acceptance of contradictory elements, by considering social, environmental, and economic elements not only as opposing but also as deeply interrelated (Lewis, 2000; Schad et al., 2016), embracing tensions instead of avoiding and suppressing them. Paradoxical cognitive frame is suggested to provide “superior business contributions to sustainable development” (Hahn et al., 2018, p. 237), as it generates virtuous cycles, able to foster creative and integrative solutions which can provide long term sustainability (Andriopoulos et al., 2018; Sharma & Bansal, 2017; Smith & Lewis, 2011).

While the potential of paradox as cognitive frame, as respect to other cognitive frames (e.g. the business case), is based on such an assumption of generating higher performance, little evidence have been provided to support it, if not via few qualitative studies (e.g., Sharma & Bansal, 2017; Slawinski et al., 2019; Smith & Besharov, 2019). While studies focusing on the nature and the management of such tensions have burgeoned (e.g., Benkert, 2021; Bianchi & Testa, 2022), little is known about if and how a paradoxical cognitive frame can foster sustainability outcomes (Carmine & De Marchi, 2022; Preuss et al., 2021).

In their seminal work, Miron-Spektor et al. (2018), studied how a paradoxical cognitive frame moderate the impact of tensions on employees’ job performance. Building on their work and on recent work on paradoxical cognitive frames in sustainability (Benkert, 2021; Bianchi & Testa, 2022; Hahn et al., 2014; Sharma & Bansal, 2017; Slawinski et al., 2019), in this study we aim at providing empirical quantitative support to the theoretical assumption that a paradoxical organizational cognitive frame – i.e., the dominant, collective, cognition about the firm's strategy and goals (Grewatsch & Kleindienst, 2018) – can provide superior social, environmental, and economic outcomes when dealing with sustainability tensions². By the mean of original survey data, we investigate how the paradoxical organizational cognitive

² Please note that we limit the analysis to tensions that can arise at the organizational level.

frame moderates the relationship between the perceived experience of sustainability tensions and (social, environmental, and economic) outcomes. Our regression analyses provide empirical support to the thesis that a paradoxical cognitive frame can support firms in effectively coping with sustainability tensions by moderating their impact on sustainability performance.

We contribute to the literature on paradox in the context of sustainability by providing quantitative evidence to the foundational argument that organizations adopting a paradoxical cognitive frame can manage tensions effectively, improving their contribution to sustainable development (Hahn et al., 2018). By disentangling by type of outcomes – environmental, social, and economic, the three involving heterogeneous elements (Hahn et al., 2018) – we contribute a more nuanced view on the potential of paradoxical cognitive frame. Indeed our regressions suggest paradox as cognitive frame mediates the impact of tensions just when it comes to social and environmental outcomes, but not economic ones, suggesting a ‘socio-ecological case’ for paradox cognitive framing, i.e. prioritizing such elements over the economic ones in the short term (Ergene et al., 2020; Halme et al., 2020).

2. Theoretical background

2.1 Tensions and outcomes in corporate sustainability

Tensions – i.e., “elements that seem logical individually but inconsistent and even absurd when juxtaposed” (Smith & Lewis, 2011, p. 382) – are inherent in any form of organizing (Putnam et al., 2016), but they are particular recurrent in the case of companies addressing corporate sustainability (Haffar & Searcy, 2017; Hahn et al., 2010). Indeed, tensions are an unavoidable experience for firms who deal seriously with sustainability (Hahn et al., 2010), because economic, social or environmental dimensions – which need to be integrated in order to have a truly sustainable development (Bansal, 2005) – “reside at different levels, require to change

processes or operate in conflicting temporal and spatial frames” (Hahn et al., 2015, p. 301). These tensions have their roots in the fundamental conflict between the creation of (companies-wide) economic value and of (society-wide) social and environmental value (Haffar & Searcy, 2017).

A key evidence emerging from paradox literature is that tensions are not positive or negative *per se*: they can either enhance or hinder organizations’ outcomes depending on actors’ approach and actions (Smith & Lewis, 2011; Miron-Spektor et al., 2018). On one side, organizations can see tensions among social, environmental, and economic concerns as threats that challenge their efforts and so leading to defensive responses that reject the existence of contradictions by suppressing or trading-off them (Iivonen, 2018; Jarzabkowski et al., 2013; Pinkse et al., 2019; Sharma & Bansal, 2017). Such cases in which tensions are denied and suppressed can spur vicious downward spirals that paralyze organizations sustainability actions, reduce their effectiveness, or lead to unintended consequences. On the contrary, organizations can consider conflicting social, environmental, and economic elements as intrinsically interconnected, and so accepting the existence of tensions (Sharma & Bansal, 2017; Slawinski et al., 2019). These are the cases where, by juxtaposing conflicting elements, sustainability tensions fuel virtuous cycles and organizations are able to unleash their potential through creative and innovative responses, and so achieving better social, environmental, and/or economic impact – i.e., limiting impact on social and natural systems beyond-compliance and preventing or solving social and environmental crises (Slawinski et al., 2019; Joseph et al., 2020).

2.2 (Organizational) Cognitive frames in corporate sustainability

Cognitive frames – i.e., the sum of beliefs, perceptions, values which define schemata of interpretation to make sense of the information gathered from the environment and design

actions accordingly (Goffman, 1974) – influence how actors interpret contradictions and how they respond to them, leading to different coping strategies, and so, to different outcomes (Maitlis & Christianson, 2014). Cognitive frames have been largely defined and studied as individual-level concept (Grewatsch & Kleindienst, 2018). However, when individuals are embedded in an organization, they tend to refer – through a process of interaction – to a common, shared, cognitive frame, because vision, values, and experiences are common to all members of the organization (Bartunek, 1984; Bianchi & Testa, 2022; Grewatsch & Kleindienst, 2018; Kaplan, 2008). Therefore, the cognitive frames of organizational members tend to align with a collective schema of interpretation and action (Bartunek, 1984; Kaplan, 2008), that is “a set of shared assumptions, values, and frames of references that give meaning to everyday activities and guide how organizational members think and act” (Rerup & Feldman, 2011, p. 578). This frame becomes the dominant collective cognition about the firm's strategy and goals, creating the underlying cognitive reference that all members of the organization use to filter and interpret information and to shape their actions (Bartunek, 1984; Grewatsch & Kleindienst, 2018; Rerup & Feldman, 2011).

Previous research has showed how the development of such collective cognitive frame, shared among the members of an organization, is heavily influenced by top managers (Bansal & Song, 2017; Bianchi & Testa, 2022; Kaplan, 2008). Indeed, due to the legitimate power leading company's actors – CEOs, top managers, or companies' owners – have in shaping firms' culture, strategies, and objectives, they are the primarily responsible for influencing the collective cognitive frame of the organizations (Benkert, 2021; Bianchi & Testa, 2022; Poon & Law, 2022; Weick & Roberts, 1993). In sum, organizational cognitive frames allow organizations' members to make sense of information they receive and shape their actions according to these common schema of interpretation. Such collective frames are particularly useful in context of great changes and uncertainty (Bartunek, 1984; Kaplan, 2008). Therefore, in a complex context such as corporate sustainability, where companies simultaneously receive

multiple and conflicting demands or must pursue heterogeneous and opposing goals, an organizational cognitive frame is crucial to support members in making sense of the tensions that arise when it comes to sustainability and shaping their coping strategies accordingly (Hahn et al., 2014; Joseph et al., 2020; Sharma & Bansal, 2017; Sharma & Jaiswal, 2018).

2.3 Paradoxical organizational cognitive frame and sustainability outcomes

In the corporate sustainability realm, two ideal types of cognitive frames have been identified, based on the relevant role they assign to economic or social and environmental issues (Hahn et al., 2014; Van der Byl & Slawinski, 2015): the ‘business case frame’ (when tensions are framed as trade-offs and dilemmas) and the ‘paradoxical frame’ (when tensions are framed as paradoxes), to be understood as two ideal poles of a continuum. Core characteristics of the two cognitive frames are summarized in Table 1.

Insert Table 1 about here

The business case frame is a cognitive schema with a primary focus on economic attributes; social and environmental issues are considered only where they can be aligned with the economic outcomes. Social and environmental elements do not have value *per se*, but they become just means to achieve economic benefits (Hahn et al., 2018; Johnsen, 2021). Therefore, business actors make sense of tensions by simplifying the complexity of sustainability through the emphasis of the economic pole. By adopting a business case frame, the implicit goal remains always the improvement of the companies’ financial performance, and so tensions are perceived as not sustainable over time requiring trade-offs. Thus, the strategy is to eliminate tensions by focusing on the economic pole, aligning social and environmental issues with it

(Hahn et al., 2014). However, denying and eliminating contradictions can generate vicious circles - where the tensions return in the long run affecting companies' outcomes - because organizations adopting defensive or suppressing responses reduce the effectiveness of their actions or generate unintended consequences (see Sharma & Bansal, 2017, Joseph et al., 2020). Indeed, failing to accept sustainability tensions reduces organizations' ability to make significant contributions in terms of social and environmental outcomes because (defensive) actions implemented are not able to address core concerns, remaining at the surface of social and environmental problems or providing minimal improvements (see Iivonen, 2018).

On the contrary, a paradoxical frame is a cognitive schema that juxtaposes contradictory elements, allowing actors to recognize their profound interrelation and leading them to accept the existence of such opposition (Andriopoulos et al., 2018). Therefore, by cognitively juxtaposing multiple and heterogeneous social, environmental, and economic elements business actor are able to recognize their inextricably interconnections and so to accept the existence and the perseverance of tensions in sustainability. This, cognitive effort support the development of a 'both/and' approach in managing the recognized conflicts, and so tensions are effectively embraced, valuing instead that denying their complexity (Smith & Tushman, 2005). Social and environmental elements are not just aligned to financial goals, but they are recognized in their own value. In fact, a paradoxical frame "regards environmental and social concerns as an end in themselves, not just as a means to the end of profit maximization" (Hahn et al., 2018). Indeed, framing corporate sustainability tensions as paradoxes³ — i.e., conflicting yet interrelated elements which coexists and persist over time (Smith & Lewis, 2011) – allows

³ Paradox has been considered by scholars as inherent in organizational systems (Lewis, 2000; Smith & Berg, 1987), as socially constructed (Poole & van de Ven, 1989), or both (Hahn & Knight, 2019). In this study, we acknowledge these possible interpretations of paradox's ontology and, following the distinction proposed by Schad and Bansal (2018), we focus on the epistemological realm (actors' perception of tensions) of paradoxes that is, how tensions are framed by organizations. Therefore, the assumption of this research is that paradoxes can potentially be inherent and socially constructed (Hahn & Knight, 2019); however, here we consider only the perception side in order to investigate whether framing contradictions in sustainability as paradoxes can influence companies' initiatives, and so their sustainability outcomes.

business actors to accept them and proactively address all the competing elements involved through integrative responses which can then generate virtuous cycles (Hahn et al., 2014, 2018). In sum, adopting a paradoxical cognitive frame means being aware of the multiple and conflicting social, environmental, and economic aspects of sustainability and so accepting them as intrinsically interrelated, implementing actions and strategies that integrate competing elements. Building on this, accepting tensions has the potential to foster organizations' social and environmental outcomes, because this cognitive frame creates rooms for innovative and creative solutions where opposing elements, logics, goals can combine and integrate. In doing so companies are able to address even the most crucial social and environmental challenges, achieving the proposed results in terms of better social and environmental impact (see Sharma & Bansal, 2017; Slawinski et al., 2019).

Scholars proposed that a paradoxical cognitive frame can characterize organizations, becoming a collective and shared understanding – i.e., how all members of the organization think about tensions – which can support coping with tensions (Andriopoulos et al., 2018; Bianchi & Testa, 2022). Indeed, the acceptance of tensions, as stated by Andriopoulos and colleagues (2018), is socially constructed (Lüscher & Lewis, 2008). The specific sustainability *cognitive frames* adopted by the organization will determine how tensions are managed and their impact on firm's performance (Benkert, 2021; Hahn et al., 2014). Therefore, paradox as a collective cognitive frame provides organizations with a common understanding of tensions and coordinated actions to cope with them (Randhawa et al., 2021). Conflicting social, environmental, and economic elements are cognitively juxtaposed, and so understood as interrelated and persist; firm's coping strategies are shaped accordingly with a both/and approach, where conflicting sustainability poles are pursued simultaneously (Andriopoulos et al., 2018; Miron-Spektor et al., 2018; Sharma & Bansal, 2017). Therefore, a paradoxical cognitive frame is essential for generating both/and responses in organizations coping with sustainability tensions (Randhawa et al., 2021; Sharma & Bansal, 2017). For example, in the

context of tensions emerging in business-NGOs partnership, Sharma & Bansal (2017) suggest that, confronted with the same type of tensions, some projects finally were bound to fail while other succeeds depending on their willingness to accept and work with such tensions. On a similar line, Slawinski, and colleagues (2019) shows that accepting to address place-related sustainability tensions fueled the discovery of solutions for the regeneration of socio-environmental systems able to solve a local social and environmental crisis. Members in an organization align their actions with the shared understanding of tensions. Therefore, when companies collectively consider opposing social, environmental, and economic elements as deeply interrelated, and accept the existence of tensions, they should be able to develop a both/and approach in structuring their response and strategy to manage the conflicts.

The paradox literature is providing empirical evidence regarding the superiority of such a collective approach in dealing with tensions (Andriopoulos et al., 2018; Joseph et al., 2020; Sharma & Bansal, 2017; Sharma & Jaiswal, 2018). For example Andriopoulos and colleagues has showed how a shared understanding of tensions in terms of paradox is able to foster more quickly and effective responses to changing demands, by facilitating coping mechanisms and providing better innovation outcomes (see also Miron-Spektor et al., 2011, 2018). These results are valid also for the sustainability context, where tensions emerge among social, environmental, and economic concerns. For example, Sharma and Bansal in their qualitative analysis of the commercial-social paradox investigate the organizational cognition adopted by companies and NGOs involved in the same Bottom of the Pyramid projects, and how it positive (or negatively) impacts over the success of the projects themselves. Fluidity in the organizational cognition (that is both organizations hold a paradoxical cognitive frame) leads to project success. They look at the collective cognitive categories owned by the two organizations - not just at the cognition of the single managers. Indeed, as showed in the first paragraph, individual frames tend to be influenced by a collective frame, as well-established cognitive categories (Kaplan 2008). Thus, companies with a greater fluidity in their cognitive

categories (i.e., paradoxical frame) are the ones able to achieve both social and economic success of the projects.

Current literature provides sufficient qualitative evidence - on the positive support a paradoxical cognitive frame can provide to organizations in dealing with sustainability tensions - to propose that paradox as collective cognitive frame in organizations moderates the relationship between sustainability tensions perceived by companies and their sustainability outcomes, allowing organizations to truly engage with tensions and find a way (both/and) to address and solve the conflicts.

Building also on the study already conducted on the individual paradoxical cognitive frame (Miron-Spektor et al., 2018), we propose that when experiencing tensions in their sustainability effort, firms that have an organizational paradoxical cognitive frame are more likely to accept them, considering social and environmental issues in their own value, even if conflicting with the economic ones, creating rooms for more comprehensive responses able to provide superior social and environmental outcomes. In contrast, companies lacking a paradoxical organizational cognitive frame deny and suppress tensions among social, environmental, and economic concerns, generating fewer effective solutions in terms of social and environmental outcomes. Hypothesis 1 follows.

H1. A paradoxical organizational cognitive frame moderates the relationship between experiencing corporate sustainability tensions and social and environmental outcomes. For companies with a higher paradoxical cognitive frame, the experience of tensions fosters social and environmental outcomes; for companies lacking it, experiencing tensions hinders these outcomes.

A peculiar aspect of a paradoxical cognitive frame in sustainability is that – opposite to the business case frame – it “enables [organizations] to address multiple environmental and social concerns, even in the absence of immediate business benefits” (Hahn et al., 2018). The idea is

that such a frame do lead to address simultaneously the three sustainability aspects, by taking one pole (the creation of social and environmental value) with respect to the other (the creation of economic value). However, through this frame companies may not necessarily achieve both outcomes simultaneously in the short term (Slawinski & Bansal, 2015). Therefore, building on what we have proposed above, we suggest that the emphasis a paradoxical organizational cognitive frame places on social and environmental elements, in the short run, may lead organizations to fostering social and environmental outcomes, but not financial ones. Thus, our second hypothesis is the following:

H2. A paradoxical organizational cognitive frame negatively moderates the relationship between experiencing corporate sustainability tensions and financial outcomes.

3. Methods

Our research aims at testing existing theoretical understanding of the role of paradoxical organizational cognitive frame (Crane et al., 2016), as moderating the relationship between sustainability tensions and outcomes, in line with qualitative evidence (e.g. Sharma & Bansal, 2017; Slawinski et al., 2019; Joseph et al., 2020).

Given that no quantitative data are available, in order to capture the issues under scrutiny, we opted to collect original survey data regarding how firms perceived the experience of sustainability tensions, how they frame such tensions and how they perceived their social, environmental, and financial outcomes. Collecting survey data administering a questionnaire to key informants is an established method in the understanding of perceived cognitive frames toward sustainability of organizations (e.g., Grewatsch & Kleindienst, 2018).

3.1 Sample and data collection

The empirical setting chose are firms specialized in industries where environmental and social issues are salient and that are based in the North of Italy. First, following the study of Slawinski and Bansal (2015), we focused the analysis on a specific and narrow geographical setting and industry specialization. This ensure to focus on a homogeneous group of firms as for the regulatory environment they are embedded, the pressures they face and the environmental and social issues they experience. Accordingly, we narrowed down our universe to firms located in the North of Italy – sharing the same regulatory environment, industry structure, formal and informal institution – and specialized in a narrow set of industries. Following van Bommel (2018) and Slawinski and Bansal (2015), we selected industries wherein sustainability tensions are supposed to be the most salient and widespread within the industry. In particular, we selected firms belonging to ‘controversial’ manufacturing sectors—sectors in which there are “inherent tensions between the nature of the organization's core business and (some) principles of sustainability” (van Bommel, 2018). They are: metal products, food & beverage, textile, chemical, plastic & rubber, basic metals, wearing apparel, non-metallic mineral products, paper, leather, wood (see also Christmann, 2000; Daddi et al., 2019; van Bommel, 2018). Finally, following Battilana et al. (2015), we excluded from the analysis micro companies (i.e., with less than 10 employees), to ensure focusing on organizations that can rely on enough resources and time to collect and provide accurate and reliable data. However, following Bianchi & Testa (2022), we focused just on small and medium enterprises (between 10 and 250 employees) where CEOs, top managers or companies’ owners are key actors in shaping and defining organizations’ cognitive frames (Bianchi & Testa, 2022; Kaplan, 2008).

According to the AIDA Bureau Van Dijk databased – which report economic and financial information on public listed Italian firms – 12,210 firms correspond to these characteristics. We addressed a randomly sample of those firms with a questionnaire designed to measure their perceived experience of tensions, the presence of a paradoxical frame in addressing sustainability tensions, and their perceived environmental, economic, and social outcomes.

Coherently with the theoretical framework developed above, we measure the perception of sustainability tensions and the organizational cognitive approach by inquiring the perspective of actors having a pivotal role in influencing the collective understanding of sustainability tensions, company's strategic decision-making and firm-behavior - especially in small and medium companies (Bianchi & Testa, 2022): CSR/sustainability managers, or CEOs in the case in which such a figure was missing – a well-established practice in management studies (see e.g., Chen & Nadkarni, 2016; Grewatsch & Kleindienst, 2018; Tang, Nadkarni, Wei, & Zhang, 2021). Such a methodological choice is driven by the assumptions (which represents the boundary conditions of this study) – empirically supported by Knight and Paroutis (2017), among others (Bartunek, 1984; Bianchi & Testa, 2022; Grewatsch & Kleindienst, 2018; Kaplan, 2008) – that:

- CEO/sustainability manager is the key actor in defining the cognitive approach of the organization to tensions his/her company is experiencing among social, environment, and economic goals and demands
- S/he is the best one to understand the perceived companies' outcomes respect to the other companies of the industry
- His/her frame and activities of lead members have far-reaching effects within the organization, and their interpretative schemata shape also the collective one (Bianchi & Testa, 2022)

The questionnaire has been structured into three sections: in the first part, managers were asked to report the extent to which their company experienced conflicts in the sustainability domain and how their organization frames such tensions; the second section includes a scale to capture the firm's perceived social, environmental, and financial outcomes; then, in the third part, managers were asked to give general information regarding the company (size, sector and role of the respondent). To ensure the understanding, reliability, and content validity of the

questionnaire, we conducted a preliminary test of the questionnaire by conducting a focus group with five local part-time MBA students familiar with the topic of corporate sustainability and by consulting with five senior fellow researchers from our university. Based on responses from both parties, we adjusted the wording of the questionnaire and, where necessary, reordered the questions.

After collecting email addresses, between October 2019 and February 2020 we targeted respondents by mail, further soliciting responses with up to three reminders⁴. We collected 690 responses out of 12,210 companies contacted (6% of response rate), however, considering missing data, only 253 companies could be used in this analysis. Descriptive statistics of the sample and the universe are reported in Table 2. Companies in the sample are largely small organizations – the median is 25 employees. The majority of the firms are either small (having between 10 to 24 employees, 49% of the sample or between 25 to 50, 25% of the sample), and only 26% medium-sized (between 50 to 249) – a configuration that accurately account for the composition of the underlining universe. Firms involved in the analysis work mostly in metal products industry (27%), textile (20%), and chemical (15%). The descriptive statistics and correlations are presented in Table 3.

Insert Table 2 about here

Insert Table 3 about here

⁴ We had initially planned to keep the survey open until the end of March 2020, but data collection was interrupted in February 2020 by the outbreak of COVID-19 in Italy. This event would have made it difficult to compare data on the tensions experienced by companies before and after the outbreak of the pandemic.

3.2 Measures

Outcomes. This study aims at understanding the role of a paradoxical organizational cognitive frame on social, environmental, and economic outcomes. Therefore, our dependent variable aims at capturing these three dimensions of corporate sustainability (Bansal & Bansal, 2005). However, no objective data regarding environmental and social outcomes were available for the selected sample of companies, as not all firms have sustainability reports nor are all employing the same measures in their reports. Accordingly, we adopted self-assessed measures of outcomes, a diffused approach in the literature on sustainability outcomes measures when objective measures are not available (Judge & Douglas, 1998; Lisi, 2018).

We used existing and validated scales to collect self-reported data on economic, social, and environmental outcomes, asking respondents to evaluate their companies' outcomes—compared to their main and direct competitors. Based on Judge and Douglas (1998) we captured financial/economic outcomes (FINANCIAL) in terms of: i) return on investments, ii) earnings growth, iii) sales growth and iv) market share change, and environmental outcomes (ENVIRONMENTAL)—i.e. i) complying with environmental regulations, ii) limiting environmental impact beyond compliance, iii) preventing and mitigating environmental crises and iv) educating employees and the public about the environment. Based on Lisi (2018), we captured social outcomes (SOCIAL) in terms of: i) complying with social regulations, ii) limiting social impact beyond compliance, iii) preventing and mitigating social crises and iv) educating employees and the public about social issues. All of the three outcome measures refer to the last fiscal year available at the time of the survey (2018). Details on the scales are reported in the Appendix.

Tensions and paradoxical organizational cognitive frame in sustainability. In the existing literature, qualitative analyses investigated the experience of tensions mainly at the individual

level. Recently has been developed an instrument to capture this concept in a quantitative way by Miron-Spektor et al. (2018). The scale developed by Miron-Spektor et al. (2018) ask respondents to report on perceived tensions experience (via seven items) and paradoxical cognitive frame (via nine items). In line with our theoretical reasoning, and to be consistent with the compatibility principle (Ajzen, 2005), our analysis is meant to detect the role of paradox as organizational cognitive frame – i.e. share collective frame in the organizations; thus we have operationalized our predictors (and controls) at the same strategic level of analysis of our depend variable (Whitman et al., 2010), realizing minor adaptations on the scale developed by Miron-Spektor (2018). These minor changes on the scale allow us the detect the perceived organizational cognitive frame in making sense of sustainability tensions.

In our modified scale we adopted the same items yet asking the key respondent about the perceived tensions and organizational frame. The first set of items asks respondents to report (on a 1-7 Likert scale) if, in their view, their companies experienced contradictory sustainability goals, if their companies' sustainability actions clash and the like. The second set asks respondent to evaluate, from 1 to 7, if their firm is used and conformable in working with competing sustainability demands, goals, tasks, etc. In the Appendix are reported all the items.

Controls. Following Etzion (2007) review of the research on organizations and the natural environment, we included in the analysis three controls that could affect sustainability performance: two contingent attributes at the firm level (size and resource slack) and one at industry level⁵.

Size is included as control variable in most academic studies on environmentally related issues (Bowen, 2000). Studies suggests that largest companies are more likely to have higher performance because of an higher availability of knowledge and competences (Galani et al.,

⁵ Etzion (2007) also includes two additional contingent factors (R&D investments and multinational scope) on which unfortunately we do not have data.

2012; Gallo & Christensen, 2011). Also, being more visible, they might be subject to more pressures from external stakeholders, again therefore being more likely to prioritize social and environmental goals (Etzion, 2007). Following a common approach (see e.g., Gao and Bansal, 2013; Gallo & Christensen, 2011), we measure size (SIZE) as the natural logarithm of the employees in 2018. Data regarding the number of employees were available in the AIDA database for 290 companies.

Resources slack is the excess of resources required to produce organizations' output. Slack resources theory suggests the higher the financial, managerial or technical resources available to firms, the higher their ability to respond to stakeholder pressures (Perez-Batres et al., 2012; Seifert et al., 2004) and to introduce environmental (or social) innovations which might in turn provide higher performance (Adomako & Nguyen, 2020). On the contrary, experiencing scarcity of slack can be detrimental for social and environmental outcomes, as managers prioritize other objectives (Etzion, 2007). Adopting a standard measure in management studies (see the review by Daniel, Lohrke, Fornaciari, & Turner, 2004), we measured resource slack as the average of the current ratio (ROA) of companies in the two years before the survey (SLACK). Data regarding companies' current ratio (ROA) were available in the AIDA database for 267 companies.

Third, we control for the industry *sector*, for which regulatory pressures, consumers' demands, and competitive dynamics can vary importantly, heavily affecting sustainability opportunities (Etzion, 2007). Furthermore, tensions might vary and have different salencies across industries; the salience of tensions being among the aspects that impact companies' reactions to tensions (Joseph et al., 2018). We controlled for the sectors including 10 dummies, one for each of the industry included in the sample (see Table 1), which assumes value 1 if the companies belong to the industry, and 0 otherwise.

3.3 Assessing quality

Two actions were implemented in order to assure the quality of the data collection. First, after the data collection, we controlled for potential nonresponse bias. The survey was administered in two rounds, thus we compared, through a series of t-tests, early (responses to the first round of the survey) with late (responses to second round) respondents in terms of key constructs (Armstrong & Overton, 1977); no significant differences emerged between the two groups in terms of their size (number of employees) and profitability (Ebidta/sales), which suggest non-response bias is not an issue among the data collected. Second, to control for potential common method bias, by following Podsakoff et al. (2003), who suggest introducing a common latent factor (CLF) capturing the common variance among all the observed variables. Comparing the loadings of the models with and without the CLF, no relevant difference were found for all the items (below 0.15 in absolute value) except for three FINANCIAL's items. Thus, we cannot exclude the presence of a common method bias, but we have controlled for it following an established procedure (Choi et al., 2018; Kim & Seock, 2019). We retained the CLF and computed factor scores to obtain common method bias adjusted composites to run our regression analyses.

To ensure the quality and the validity of the measures for perceived organizational tensions and paradoxical organizational cognitive frame, following the procedures used by Jansen et al. (2005), we first modified the subject of the items – from the individual to the perception on the organization, then we submitted these minor changes on the items to two experts: an author of the original scale, and another leading scholar in the paradox field, and we made some changes based on their feedback. Third, we conducted a pilot test to evaluate items' comprehensibility with four practitioners with expertise in sustainability topics (managers and consultants), and we made other small changes based on their comments (Dangelico, 2017). Finally, we empirically tested the validity of the scale through a confirmation factor analysis (CFA), and

the results ensure that they are distinct. In order to further establish the validity of the answers provided by the managers, following Lisi et al. (2018), we compared the weighted factors of each respondent with an objective measure: the presence of an environmental or social certification (a data collected via the survey and further verified) for social and environmental outcomes. The correlation coefficient between the presence of social or environmental certification and environmental outcomes (ENVIRONMENTAL) (.25, $p < .01$) or social outcomes (SOCIAL) (.20, $p < .01$) is positive and highly significant, showing that certified firms are those that reported higher social and environmental results. Such results support the reliability of the social and environmental outcomes measures adopted.

Following the approach of Farrell (2010) and Farth et al. (2007), given that many of the latent concepts we measured through the survey were conceptually related, we first assessed through CFAs the constructs' distinctiveness (Farh et al., 2007). First, we verified the validity of the modified scales regarding experience of tensions and paradoxical organizational cognitive frame in sustainability. Each item for the two constructs was allowed to load the factor for which the indicator was proposed. The CFA, with Satorra-Bentler estimators for non-normality, revealed that a two-factors model, experiencing sustainability tensions and paradoxical cognitive frame, fits best after comparison ($\chi^2 = 213.9$, CFI= .93, RMSEA=.08, TLI=.92, SRMR= .07, $\alpha = .89$). Items loadings were as proposed and were significant ($p < .01$), providing evidence of convergent validity. Moreover, we compared the fit of a two-factors model with the fit of a one-factor model⁶. The two-factors model fits the data better. This result leads us to reject unambiguously the hypothesis that the two latent concepts converge in one factor, showing that the two factors are distinct and support the modified scale's validity.

Then, to investigate their distinctiveness we tested the model including all detected latent variables: experiencing sustainability tensions, paradox organizational cognitive frame in

⁶ $\chi^2 = 773.6$, CFI= .63, RMSEA=.18, TLI=.32, SRMR= .15

corporate sustainability and social, environmental, and economic outcomes. A CFA, with Satorra-Bentler estimators for non-normality, of this five-factors model revealed that it fits the data in an acceptable range ($\chi^2= 874.4$, CFI=.919, RMSEA=.059, TLI=.915; SRMR=.061, $\alpha=.9$) (Fabrigar et al., 1999). Considering some potential overlaps between the sustainability outcome constructs, we compared the previous model with two alternative hypotheses: first, a model in which the social and environmental outcomes were combined together (four-factors), and second, another model with the three outcome measures combined in one factor (three-factors). The CFA showed that a five-factor model, where the three-outcomes measure (social, environmental, and economic) loaded to the proposed construct, fits the data better than the four-factors model⁷ and the three-factors model.⁸ These results provide evidence of the distinctiveness of the variables considered in this study. Then, we computed predicted factor scores for each variable in the model to run regression analyses.

4. Results

4.1 Regression analyses

Descriptive analyses of the sample (means and standard deviation of each variable and correlations among them) are presented in Table 3. Table 4 reports the results of the regressions testing our hypotheses concerning the moderation effect of paradoxical organizational cognitive frame in the relationship between the perceived experience of sustainability tensions and the perceived social, environmental, and economic outcomes of companies. We tested our hypotheses in different models using as the dependent variables each outcomes measure—social (SOCIAL), environmental (ENVIRONMENTAL) and financial (FINANCIAL) — to investigate if a paradoxical organizational cognitive frame (PARADOX) moderates the

⁷ $\chi^2= 1084.3$, CFI= .885, RMSEA=.078, TLI=.881, SRMR= .064

⁸ $\chi^2= 1410.3$, CFI= .735, RMSEA=.117, TLI=.731, SRMR= .101

relationship between experiencing tensions (TENSIONS) and all three perceived outcomes. First, we tested the interaction between paradoxical organizational cognitive frame on these outcomes, then we tested the interaction between the perceived experience of tensions and paradoxical organizational cognitive frame on the outcomes. Finally, we tested our moderation hypotheses (TENSIONS*PARADOX).⁹

Insert Table 4 about here

Supporting hypothesis 1, a paradoxical organizational cognitive frame moderated the relationship between the perceived experience of sustainability tensions and the perceived companies' social and environmental outcomes. When sustainability tensions are strongly perceived, organizations with a greater paradoxical cognitive frame perceived a lower reduction of their environmental outcomes ($\beta=.203$, $p < .05$) and an increase in their social outcomes ($\beta=.227$, $p < .05$). To further interpret the moderation effect of paradoxical cognitive frame in organizations, we plotted the simple slopes for the relationship between experiencing sustainability tensions and environmental outcomes at one standard deviation above and below the mean of paradoxical cognitive frame (Aiken et al., 1991) (see Fig. 1). The graph shows that for companies with a lower paradoxical organizational cognitive frame, perceiving higher tensions is associated with much worst perceived environmental outcomes, while the contrary holds for with a greater paradoxical frame, which perceived a smaller reduction in their perceived environmental outcomes. Instead plotting the simple slopes for the relationship between the perceived experience of sustainability tensions and social outcomes we observed that companies with higher paradoxical organizational cognitive frame perceived an

⁹ Please note that all the models presented passed the VIF test, ensuring against multicollinearity (in the mail models – 2, 5, 8 – VIF=4.33, well beyond the 10 threshold).

improvement in their social outcomes when tensions are higher, compared to those with less paradoxical organizational cognitive frame (see Fig. 2).

Insert Fig. 1 about here

Insert Fig. 2 about here

Considering financial outcomes, our results support hypothesis 2. In fact, companies with higher paradoxical organizational cognitive frame have a negative moderation effect on the relationship between the perceived experience of sustainability tensions and the perceived financial outcomes, worsening the financial performance of companies when tensions are higher ($\beta = -.058, p < .05$). Instead, as showed by the graph companies with a lower level of paradoxical organizational cognitive frame perceived better economic outcomes while experiencing higher sustainability tensions (see Fig. 3). Moreover, the size of the companies appears to be positively related to the perception of higher financial outcomes.

Insert Fig. 3 about here

4.2 Robustness analysis

To examine the robustness of the empirical results, alternative models were tested. Due to the study's cross-sectional nature, it is possible that the dependent variables investigated in the proposed models (SOCIAL, ENVIRONMENTAL, FINANCIAL) affect the perceived

experience of tensions, creating a feedback loop. Indeed, companies that have better social, environmental, and financial outcomes may experience fewer tensions because they have already developed resources or skills to manage competing goals and demands, creating problems of reverse causality. Following the approach by Miron-Spektor, *et al* (2018) we tested for the potential reverse causality issue by implementing a regression in which we have inverted the dependent and the independent variables, i.e. TENSIONS as dependent variable and outcomes as independent variables. The results of the regression analyses show no direct effect of social, environmental, and financial outcomes on experiencing sustainability tensions, therefore reassuring against reverse causality (see Table A1).

5. Discussion

This analysis is an explorative, empirical, and quantitative attempt to investigate whether paradox as organizational cognitive frame may support companies in effectively deal with sustainability tensions, as proposed by Hahn et al. (2014, 2018), and therefore achieving better sustainability outcomes. Our findings reveal that paradox, as organizational cognitive frame, has a positive moderation role in the relationship between the perceived experience of tensions in the organizations and their perceived social and environmental outcomes. This means that when tensions are perceived as more salient by companies – as for the perception of top management – having a higher paradoxical cognitive frame shared in the organization allow them to have (perceived) higher environmental and social outcomes. However, this is not the case when it comes to achieving better economic and financial results.

5.1 Theoretical and empirical contributions

The current work advances the literature on paradox in the context of sustainability both theoretically and methodologically. First, it offers quantitative evidence of the positive role a paradoxical organizational cognitive frame plays in framing sustainability tensions, proving

the superiority of paradox theorized by Hahn and co-authors (2014, 2018). In particular, we provide support to the idea that framing tensions as paradoxes in sustainability allows companies to achieve better perceived outcomes in the social and environmental realm. Failing to frame corporate sustainability conflicts as paradoxes can be very problematic, weakening the effectiveness of companies' responses and thereby undermining their social and environmental outcomes. Accordingly, our results extend previous qualitative evidence on the role of paradox in fostering sustainability outcomes (Sharma & Bansal, 2017; Slawinski et al., 2019) by proving such a positive effect holds across a variety of industries and firms. Also they further support the importance of the organizational cognitive frame in shaping their actions and outcomes as it comes to sustainability (see Grewatsch & Kleindienst, 2018).

Second, this study provides a nuanced understanding of the role of a paradoxical organizational cognitive frame. Indeed, while it is assumed that paradox support the ability to achieve social, environmental, and economic objectives simultaneously (Hahn et al., 2018; Walker et al., 2020) our results suggests that when tensions are high, higher organizational paradoxical cognitive frame is correlated with higher social and environmental outcomes, but not financial outcomes. On the contrary, in the case of financial outcomes the moderation effect of the paradoxical cognitive frame is negative: companies with higher paradoxical cognitive frame perceive to worsen their economic outcomes when tensions increase. This could be explained through the fact that a paradoxical cognitive frame, as proposed by Hahn et al. (2018) emphasizes social and environmental aspects irrespectively to the immediate business benefits. Accordingly, results point to the fact that framing tensions paradoxically might create what was called a 'socio-ecological case' perspective for corporate sustainability (Ergene et al., 2020; Halme et al., 2020) that is, prioritizing improvements in environmental and social outcomes even to the disadvantage of economic benefits (Hahn et al., 2018), at least in the short run. Thus, firms may still be required to decide whether to pursue sustainability in the face of conflicts where the economic benefits are unclear, posing them ethical questions.

Therefore, this paper contributes to the field of paradox and sustainability by bringing greater awareness regarding the nature of the paradoxical organizational cognitive frame in sustainability, an appropriate approach for those companies that want to improve their social and environmental outcomes first.

5.2 Practical implications

Corporate sustainability is a complex phenomenon by its own nature, involving three aspects—environmental integrity, social equity, and economic prosperity—which have different competing, yet interrelated interests, demands and objectives. Moreover, such complexity is exacerbated by external circumstances such as increasingly stringent regulations in some economic areas (EU), US-China trade war, the Ukraine war, or the COVID-19 outbreaks (Carmine et al., 2021; Sharma et al., 2021). This study highlights that framing sustainability tensions as paradoxes—i.e. avoiding focusing just on one element of the tension at once—can aid firms in achieving higher social and environmental outcomes. On the contrary, when tensions are denied and suppressed this can worsen companies' outcomes, because if they end in aligning social and environmental issues just to economic ends, they remain at the surface of environmental and social problems, limiting the contribution they can generate to social and environmental systems.

Moreover, this study shows that a paradoxical organizational cognitive frame has a significant and positive effect on social and environmental outcomes, but not in the economic dimension. Little is known about what companies can do to ensure that they actually achieve high social and environmental outcomes, as opposed to what is known about increasing financial performance (for example, expanding market share, improving cash flow, etc.). A paradoxical cognitive frame offers a potential alternative frame to managers and organizations regarding how to approach and manage more effectively sustainability issues and achieve better social

and environmental outcomes, but they have to be aware that such a cognitive frame may not necessarily also lead to a maximization of economic benefits. Managers will therefore have to be prepared to make clear choices that might lead to sacrificing short-term profitability and/or to gaining a full understanding of what the motivations are behind the company's sustainability initiatives.

6. Conclusion

This paper quantitatively investigate the role of a paradoxical organizational cognitive frame in supporting companies social and environmental outcomes, when tensions are high – testing a key assumption in paradox and sustainability literature (Hahn et al., 2018) so far supported just by case studies evidence (see for example, Sharma & Bansal, 2017; Slawinski et al., 2019).

Our results shows that a paradoxical organizational cognitive frame helps companies in dealing with sustainability tensions and lead companies to achieve higher (perceived) social and environmental outcomes, while it weakens financial ones. These findings contribute to paradox and sustainability literature offering the first quantitative evidence regarding the role of paradox as collective cognitive frame in dealing with sustainability tensions, and shedding lights on its different moderating role respect to social, environmental, and economic outcomes.

Results emerging from the analysis should be interpreted in lines of several boundary conditions, mostly related to the nature of the empirical analysis performed. First, we assume that there is homogeneity within the organization regarding how tensions are experienced and approached and that the top manager perception corresponds to the organizational cognitive frame. This is assumption is theoretically backed up by existing theoretical and empirical studies (see e.g., Chen & Nadkarni, 2016; Grewatsch & Kleindienst, 2018; Tang, Nadkarni, Wei, & Zhang, 2021) and by the empirical decision to focus on small and medium sized firms. Second, we assume that self-reported, perception data of economic, social, and environmental

outcomes do effectively capture the sustainability performance of organizations, a limitation imposed by data availability which is partially controlled by the use of objective measures such as the presence of social or environmental certifications. Third, we assume differences in tension saliency do not impact the moderating role of the paradox approach (Miron-Spektor et al., 2018). Forth, we assume that the moderating impact of paradoxical cognitive frame do impact performance already in the short run, a limitation driven by the cross-sectional nature of our data (Miron-Spektor et al., 2018). Such a limitation does not allow to disentangle between short term and long term impacts nor to establish causality between the variables, which would require the use of longitudinal data. Finally, we assume that the moderating role of the paradoxical organizational cognitive frame is invariant to the mechanisms through which such an approach substantiate; research suggest that it might take place via the adoption of innovative strategies, products, or processes (Smith & Lewis, 2011).

Building on these limitations future research could be developed in three main directions. First, more detailed information on the nature of the tension and its saliency should be collected, to provide further support to the proposed superiority of a paradoxical cognitive frame to deal with tensions in corporate sustainability. Second, from a methodological perspective, longitudinal data, and the use of objective measures for companies' social, environmental, and economic outcomes could validate the evidence of this study. Third, research needs to provide better insights on the mechanisms through which a paradoxical cognitive frame is able to unleash the potential of tensions, even in sustainability domain – e.g., the role of innovation. Concluding, with this study we have provided a first attempt to investigate quantitatively the potential role of a paradoxical cognitive frame in sustainability and we hope it fuels future research on this promising approach for sustainability.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

- Adomako, S., & Nguyen, N. P. (2020). Human resource slack, sustainable innovation, and environmental performance of small and medium-sized enterprises in sub-Saharan Africa. *Business Strategy and the Environment*, 29(8), 2984–2994.
- Aiken, L. S., West, S. G., & Reno, R. R. (1991). *Multiple regression: Testing and interpreting interactions*. Sage.
- Ajzen, I. (2005). *Attitudes, personality, and behavior*. McGraw-Hill Education (UK).
- Andriopoulos, C., Gotsi, M., Lewis, M. W., & Ingram, A. E. (2018). Turning the Sword: How NPD Teams Cope with Front-End Tensions. *Journal of Product Innovation Management*, 35(3), 427–445. <https://doi.org/10.1111/jpim.12423>
- Armstrong, J. S., & Overton, T. S. (1977). Estimating nonresponse bias in mail surveys. *Journal of Marketing Research*, 14(3), 396–402.
- Bansal, P. (2005). Evolving sustainably: A longitudinal study of corporate sustainable development. *Strategic Management Journal*, 26(3), 197–218. <https://doi.org/10.1002/smj.441>
- Bansal, P., & Bansal, T. (2005). Evolving sustainably: A longitudinal study of corporate sustainable development. *Strategic Management Journal*, 26(3), 197–218. <https://doi.org/10.1002/smj.441>
- Bansal, P., & Song, H. C. (2017). Similar but not the same: Differentiating corporate sustainability from corporate responsibility. *Academy of Management Annals*, 11(1), 105–149. <https://doi.org/10.5465/annals.2015.0095>
- Bartunek, J. M. (1984). Changing Interpretive Schemes and Organizational Restructuring : The Example of a Religious Order. *Administrative Science Quarterly*, 29(3), 355–372.
- Battilana, J., Sengul, M., Pache, A. C., & Model, J. (2015). Harnessing productive tensions in hybrid organizations: The case of work integration social enterprises. *Academy of Management Journal*, 58(6), 1658–1685. <https://doi.org/10.5465/amj.2013.0903>
- Benkert, J. (2021). *Reframing Business Sustainability Decision - Making with Value - Focussed Thinking*. 441–456.
- Bianchi, G., & Testa, F. (2022). How can SMEs effectively embed environmental sustainability? Evidence on the relationships between cognitive frames, life cycle management and organizational learning process. *Business Ethics, Environment and Responsibility*, 31(3), 634–648. <https://doi.org/10.1111/beer.12432>
- Bowen, F. E. (2000). Environmental visibility: a trigger of green organizational response? *Business Strategy and the Environment*, 9(2), 92–107.
- Carmine, S., Andriopoulos, C., Gotsi, M., Härtel, C. E. J., Krzeminska, A., Mafico, N., Pradies, C., Raza, H., Raza-Ullah, T., & Schrage, S. (2021). A Paradox Approach to Organizational Tensions During the Pandemic Crisis. *Journal of Management Inquiry*, 1056492620986863.
- Carmine, S., & De Marchi, V. (2022). Reviewing Paradox Theory in Corporate Sustainability Toward a Systems Perspective. *Journal of Business Ethics*, 0123456789. <https://doi.org/10.1007/s10551-022-05112-2>
- Chen, J., & Nadkarni, S. (2016). It's about Time! CEOs' Temporal Dispositions, Temporal Leadership, and Corporate Entrepreneurship:

- Choi, Y., Thoenig, A., & Kroff, M. W. (2018). Brand Actions on Social Media: Direct Effects on Electronic Word of Mouth (eWOM) and Moderating Effects of Brand Loyalty and Social Media Usage Intensity. *Journal of Relationship Marketing*, 17(1), 52–70. <https://doi.org/10.1080/15332667.2018.1440140>
- Christmann, P. (2000). Effects of “best practices” of environmental management on cost advantage: The role of complementary assets. *Academy of Management Journal*, 43(4), 663–680. <https://doi.org/10.2307/1556360>
- Crane, A., Henriques, I., Husted, B. W., & Matten, D. (2016). What Constitutes a Theoretical Contribution in the Business and Society Field? *Business and Society*, 55(6), 783–791. <https://doi.org/10.1177/0007650316651343>
- Daddi, T., Ceglia, D., Bianchi, G., & de Barcellos, M. D. (2019). Paradoxical tensions and corporate sustainability: A focus on circular economy business cases. *Corporate Social Responsibility and Environmental Management*, 26(4), 770–780. <https://doi.org/10.1002/csr.1719>
- Dangelico, R. M. (2017). What Drives Green Product Development and How do Different Antecedents Affect Market Performance? A Survey of Italian Companies with Eco-Labels. *Business Strategy and the Environment*, 26(8), 1144–1161. <https://doi.org/10.1002/bse.1975>
- Daniel, F., Lohrke, F. T., Fornaciari, C. J., & Turner, R. A. (2004). Slack resources and firm performance: A meta-analysis. *Journal of Business Research*, 57(6), 565–574. [https://doi.org/10.1016/S0148-2963\(02\)00439-3](https://doi.org/10.1016/S0148-2963(02)00439-3)
- Ergene, S., Banerjee, S. B., & Hoffman, A. J. (2020). (Un)Sustainability and Organization Studies: Towards a Radical Engagement. *Organization Studies*. <https://doi.org/10.1177/0170840620937892>
- Fabrigar, L. R., Wegener, D. T., MacCallum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. *Psychological Methods*, 4(3), 272.
- Farh, J. L., Hackett, R. D., & Liang, J. (2007). Individual-level cultural values as moderators of perceived organizational support-employee outcome relationships in China: Comparing the effects of power distance and traditionalism. *Academy of Management Journal*, 50(3), 715–729. <https://doi.org/10.5465/amj.2007.25530866>
- Farrell, A. M. (2010). Insufficient discriminant validity: A comment on Bove, Pervan, Beatty, and Shiu (2009). *Journal of Business Research*, 63(3), 324–327.
- Galani, D., Gravas, E., & Stavropoulos, A. (2012). Company Characteristics and Environmental Policy. *Business Strategy and the Environment*, 21(4), 236–247. <https://doi.org/10.1002/bse.731>
- Gallo, P. J., & Christensen, L. J. (2011). Firm size matters: An empirical investigation of organizational size and ownership on sustainability-related behaviors. *Business and Society*, 50(2), 315–349. <https://doi.org/10.1177/0007650311398784>
- Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Harvard University Press.
- Grewatsch, S., & Kleindienst, I. (2018). How organizational cognitive frames affect organizational capabilities: The context of corporate sustainability. *Long Range Planning*,

51(4), 607–624. <https://doi.org/10.1016/j.lrp.2017.03.004>

- Haffar, M., & Searcy, C. (2017). Classification of Trade-offs Encountered in the Practice of Corporate Sustainability. *Journal of Business Ethics*, 140(3), 495–522. <https://doi.org/10.1007/s10551-015-2678-1>
- Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2010). Editorial Trade-Offs in Corporate Sustainability: You Can't Have Your Cake and Eat It. *Business Strategy and the Environment*, 19(4), 217–229. <https://doi.org/10.1002/bse.674>
- Hahn, T., Figge, F., Pinkse, J., & Preuss, L. (2018). A Paradox Perspective on Corporate Sustainability: Descriptive, Instrumental, and Normative Aspects. *Journal of Business Ethics*, 148(2), 235–248. <https://doi.org/10.1007/s10551-017-3587-2>
- Hahn, T., & Knight, E. (2019). The Ontology of Organizational Paradox: A Quantum Approach. *Academy of Management Review*, ja. <https://doi.org/10.5465/amr.2018.0408>
- Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in Corporate Sustainability: Towards an Integrative Framework. *Journal of Business Ethics*, 127(2), 297–316. <https://doi.org/10.1007/s10551-014-2047-5>
- Hahn, T., Preuss, L., Pinkse, J., & Figge, F. (2014). Cognitive frames in corporate sustainability: Managerial sensemaking with paradoxical and business case frames. *Academy of Management Review*, 39(4), 463–487. <https://doi.org/10.5465/amr.2012.0341>
- Halme, M., Rintamäki, J., Knudsen, J. S., Lankoski, L., & Kuisma, M. (2020). When Is There a Sustainability Case for CSR? Pathways to Environmental and Social Performance Improvements. *Business and Society*, 59(6), 1181–1227. <https://doi.org/10.1177/0007650318755648>
- Iivonen, K. (2018). Defensive Responses to Strategic Sustainability Paradoxes: Have Your Coke and Drink It Too! *Journal of Business Ethics*, 148(2), 309–327. <https://doi.org/10.1007/s10551-017-3580-9>
- Jansen, J. J. P., Van Den Bosch, F. A. J., & Volberda, H. W. (2005). Managing potential and realized absorptive capacity: How do organizational antecedents matter? *Academy of Management Journal*, 48(6), 999–1015. <https://doi.org/10.5465/AMJ.2005.19573106>
- Jarzabkowski, P., Lê, J. K., & Van de Ven, A. H. (2013). Responding to competing strategic demands: How organizing, belonging, and performing paradoxes coevolve. *Strategic Organization*, 11(3), 245–280. <https://doi.org/10.1177/1476127013481016>
- Johnsen, C. G. (2021). Sustainability Beyond Instrumentality: Towards an Immanent Ethics of Organizational Environmentalism. *Journal of Business Ethics*, 172(1), 1–14. <https://doi.org/10.1007/s10551-019-04411-5>
- Joseph, J., Borland, H., Orlitzky, M., & Lindgreen, A. (2020, November). Seeing Versus Doing: How Businesses Manage Tensions in Pursuit of Sustainability. *Journal of Business Ethics*, 164(2), 349–370. <https://doi.org/10.1007/s10551-018-4065-1>
- Judge, W. Q., & Douglas, T. J. (1998). Performance implications of incorporating natural environmental issues into the strategic planning process: An empirical assessment. *Journal of Management Studies*, 35(2), 241–262. <https://doi.org/10.1111/1467-6486.00092>
- Kaplan, S. (2008). Framing contests: Strategy making under uncertainty. *Organization Science*, 19(5), 729–752. <https://doi.org/10.1287/orsc.1070.0340>
- Kim, S. H., & Seock, Y. K. (2019). The roles of values and social norm on personal norms and pro-environmentally friendly apparel product purchasing behavior: The mediating role of

- personal norms. *Journal of Retailing and Consumer Services*, 51(October 2018), 83–90. <https://doi.org/10.1016/j.jretconser.2019.05.023>
- Knight, E., & Paroutis, S. (2017). Becoming Salient: The TMT Leader's Role in Shaping the Interpretive Context of Paradoxical Tensions. *Organization Studies*, 38(3–4), 403–432. <https://doi.org/10.1177/0170840616640844>
- Lewis, M. W. (2000). Exploring paradox: Toward a more comprehensive guide. In *Academy of Management Review* (Vol. 25, Issue 4, pp. 760–776). <https://doi.org/10.5465/AMR.2000.3707712>
- Lisi, I. E. (2018). Determinants and Performance Effects of Social Performance Measurement Systems. *Journal of Business Ethics*, 152(1), 225–251. <https://doi.org/10.1007/s10551-016-3287-3>
- Lüscher, L. S., & Lewis, M. W. (2008). Organizational change and managerial sensemaking: Working through paradox. *Academy of Management Journal*, 51(2), 221–240. <https://doi.org/10.5465/AMJ.2008.31767217>
- Maitlis, S., & Christianson, M. (2014). Sensemaking in Organizations: Taking Stock and Moving Forward. *Academy of Management Annals*, 8(1), 57–125. <https://doi.org/10.1080/19416520.2014.873177>
- Miron-Spektor, E., Gino, F., & Argote, L. (2011). Paradoxical frames and creative sparks: Enhancing individual creativity through conflict and integration. *Organizational Behavior and Human Decision Processes*, 116(2), 229–240. <https://doi.org/10.1016/j.obhdp.2011.03.006>
- Miron-Spektor, E., Ingram, A., Keller, J., Smith, W. K., & Lewis, M. W. (2018). Microfoundations of organizational paradox: The problem is how we think about the problem. *Academy of Management Journal*, 61(1), 26–45. <https://doi.org/10.5465/amj.2016.0594>
- Perez-Batres, L. A., Doh, J. P., Miller, V. V., & Pisani, M. J. (2012). Stakeholder pressures as determinants of CSR strategic choice: Why do firms choose symbolic versus substantive self-regulatory codes of conduct? *Journal of Business Ethics*, 110(2), 157–172.
- Pinkse, J., Hahn, T., & Figge, F. (2019). Supersized Tensions and Slim Responses? The Discursive Construction of Strategic Tensions Around Social Issues. *Academy of Management Discoveries*, 5(3), 314–340. <https://doi.org/10.5465/amd.2018.0150>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies. *Journal of Applied Psychology*, 88(5), 879–903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Poole, M. S., & van de Ven, A. H. (1989). Using Paradox to Build Management and Organization Theories. *The Academy of Management Review*, 14(4), 562. <https://doi.org/10.2307/258559>
- Poon, T. S. C., & Law, K. K. (2022). Sustainable HRM: An extension of the paradox perspective. *Human Resource Management Review*, 32(2), 100818. <https://doi.org/10.1016/j.hrmr.2020.100818>
- Preuss, L., Pinkse, J., Hahn, T., & Figge, F. (2021). Travelled Roads and Novel Vistas: Taking Stock of Empirical Studies into Tensions in Business Sustainability. *The Routledge Companion to Corporate Social Responsibility*, 342–354.
- Putnam, L. L., Fairhurst, G. T., & Banghart, S. (2016). Contradictions, Dialectics, and

- Paradoxes in Organizations: A Constitutive Approach†. *Academy of Management Annals*, 10(1), 65–171. <https://doi.org/10.1080/19416520.2016.1162421>
- Randhawa, K., Nikolova, N., Ahuja, S., & Schweitzer, J. (2021). Design thinking implementation for innovation: An organization's journey to ambidexterity. *Journal of Product Innovation Management*, 38(6), 668–700.
- Reinecke, J., & Ansari, S. (2016). Taming Wicked Problems: The Role of Framing in the Construction of Corporate Social Responsibility. *Journal of Management Studies*, 53(3), 299–329. <https://doi.org/10.1111/joms.12137>
- Rerup, C., & Feldman, M. S. (2011). Routines as a source of change in organizational schemata: The role of trial-and-error learning. *Academy of Management Journal*, 54(3), 577–610. <https://doi.org/10.5465/AMJ.2011.61968107>
- Schad, J., & Bansal, P. (2018). Seeing the Forest and the Trees: How a Systems Perspective Informs Paradox Research. *Journal of Management Studies*, 55(8), 1490–1506. <https://doi.org/10.1111/joms.12398>
- Schad, J., Lewis, M. W., Raisch, S., & Smith, W. K. (2016). Paradox Research in Management Science: Looking Back to Move Forward. *Academy of Management Annals*, 10(1), 5–64. <https://doi.org/10.1080/19416520.2016.1162422>
- Seifert, B., Morris, S. A., & Bartkus, B. R. (2004). Having, giving, and getting: Slack resources, corporate philanthropy, and firm financial performance. *Business & Society*, 43(2), 135–161.
- Sharma, G., & Bansal, P. (2017). Partners for Good: How Business and NGOs Engage the Commercial–Social Paradox. *Organization Studies*, 38(3–4), 341–364. <https://doi.org/10.1177/0170840616683739>
- Sharma, G., Bartunek, J., Buzzanell, P. M., Carmine, S., Endres, C., Etter, M., Fairhurst, G., Hahn, T., Lê, P., Li, X., Pamphile, V., Pradies, C., Putnam, L. L., Rocheville, K., Schad, J., Sheep, M., & Keller, J. (2021). A Paradox Approach to Societal Tensions during the Pandemic Crisis. *Journal of Management Inquiry*. <https://doi.org/10.1177/1056492620986604>
- Sharma, G., & Jaiswal, A. K. (2018). Unsustainability of Sustainability: Cognitive Frames and Tensions in Bottom of the Pyramid Projects. *Journal of Business Ethics*, 148(2), 291–307. <https://doi.org/10.1007/s10551-017-3584-5>
- Slawinski, N., & Bansal, P. (2015). Short on time: Intertemporal tensions in business sustainability. *Organization Science*, 26(2), 531–549. <https://doi.org/10.1287/orsc.2014.0960>
- Slawinski, N., Winsor, B., Mazutis, D., Schouten, J. W., & Smith, W. K. (2019). Managing the Paradoxes of Place to Foster Regeneration. *Organization and Environment*, 1–24. <https://doi.org/10.1177/1086026619837131>
- Smith, K. K., & Berg, D. N. (1987). Paradoxes of group life : understanding conflict, paralysis, and movement in group dynamics. In *Jossey-Bass management series*. Jossey-Bass.
- Smith, W. K., & Besharov, M. L. (2019). Bowing before Dual Gods: How Structured Flexibility Sustains Organizational Hybridity*. *Administrative Science Quarterly*, 64(1), 1–44. <https://doi.org/10.1177/0001839217750826>
- Smith, W. K., & Lewis, M. (2011). Toward a theory of paradox: A dynamic equilibrium model of organizing. *Academy of Management Review*, 36(2), 381–403. <https://doi.org/10.5465/amr.2009.0223>

- Smith, W. K., & Tushman, M. L. (2005). Managing strategic contradictions: A top management model for managing innovation streams. *Organization Science*, *16*(5), 522–536. <https://doi.org/10.1287/orsc.1050.0134>
- Tang, S., Nadkarni, S., Wei, L., & Zhang, S. X. (2021). Balancing the Yin and Yang: TMT gender diversity, psychological safety, and firm ambidextrous strategic orientation in Chinese high-tech SMEs. *Academy of Management Journal*, *64*(5), 1578–1604. <https://doi.org/10.5465/AMJ.2019.0378/ASSET/IMAGES/LARGE/AMJ.2019.0378F3.JPEG>
- van Bommel, K. (2018). Managing tensions in sustainable business models: Exploring instrumental and integrative strategies. *Journal of Cleaner Production*, *196*, 829–841. <https://doi.org/10.1016/j.jclepro.2018.06.063>
- Van der Byl, C. A., & Slawinski, N. (2015). Embracing Tensions in Corporate Sustainability: A Review of Research From Win-Wins and Trade-Offs to Paradoxes and Beyond. *Organization and Environment*, *28*(1), 54–79. <https://doi.org/10.1177/1086026615575047>
- Walker, K., Yu, X., & Zhang, Z. (2020). All for one or all for three: Empirical evidence of paradox theory in the triple-bottom-line. *Journal of Cleaner Production*, *275*, 122881. <https://doi.org/10.1016/j.jclepro.2020.122881>
- Weick, K. E., & Roberts, K. H. (1993). Collective mind in organizations: Heedful interrelating on flight decks. *Administrative Science Quarterly*, 357–381.
- Whitman, D. S., Van Rooy, D. L., & Viswesvaran, C. (2010). Satisfaction, citizenship behaviors, and performance in work units: A meta-analysis of collective construct relations. *Personnel Psychology*, *63*(1), 41–81. <https://doi.org/10.1111/j.1744-6570.2009.01162.x>
- Yang, L., Qin, H., Xia, W., Gan, Q., Li, L., Su, J., & Yu, X. (2021). Resource slack, environmental management maturity and enterprise environmental protection investment: An enterprise life cycle adjustment perspective. *Journal of Cleaner Production*, *309*(October 2020), 127339. <https://doi.org/10.1016/j.jclepro.2021.127339>

Tables and Figures

Table 1. Characteristics of the Business Case Frame and the Paradoxical Frame (source Hahn et al. 2014)

Frame Characteristics	Business Case Frame	Paradoxical Frame
<i>Content</i>	Exclusive focus on business attributes	Combination of multiple attributes with different rationales
<i>Structure</i>	Simple	Complex
<i>Differentiation</i>	Low number of frame elements	High number of frame elements
<i>Integration</i>	Low degree of connectedness with singular focus on economic means-ends relationships	High degree of connectedness with a plurality of reinforcing, neutral, and conflicting relationships
<i>Implicit goal</i>	Improve economic performance at the organizational level	Address economic, environmental, and social concerns at organizational and societal levels
<i>Underlying logic</i>	Business case thinking: Alignment of environmental and social concerns with economic objectives	Paradoxical thinking: Juxtaposition of economic, environmental, and social concerns, even if contradictory
<i>Treatment of tensions</i>	Elimination	Acceptance

Table 2. Companies' Sectors & Size

Sector	Number	%
<i>Metal products</i>	69	27%
<i>Textile</i>	51	20%
<i>Chemical</i>	37	15%
<i>Plastic & Rubber</i>	25	10%
<i>Food & Beverage</i>	20	8%
<i>Paper</i>	12	5%
<i>Non metallic mineral products</i>	11	4%
<i>Leather & Wood</i>	11	4%
<i>Basic metals</i>	10	4%
<i>Wearing Apparel</i>	7	3%
Size	Number	%
<i>10-24</i>	123	49%
<i>25-49</i>	63	25%
<i>50-249</i>	67	26%
<i>Average</i>	44	
<i>Median</i>	25	

Table 3. Means, Standard Deviation and Correlations for Research Variables

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Experiencing Tensions (TENSIONS)	3.52	0.96	1.00																	
Paradoxical Cognitive Frame (PARADOX)	1.92	0.44	0.54***	1.00																
Financial Outcomes (FINANCIAL)	0.57	0.22	0.00	0.07	1.00															
Social Outcomes (SOCIAL)	3.63	0.74	0.07	0.22***	-0.08	1.00														
Environmental Outcomes (ENVIRONMENTAL)	3.60	0.75	0.00	0.27***	-0.03	0.83***	1.00													
Certification ^a	0.39	0.49	0.03	0.08	-0.05	0.20***	0.25***	1.00												
SIZE ^b	3.62	1.12	0.01	-0.10	0.00	-0.07	-0.04	0.02	1.00											
Resources Slack (SLACK)	10.55	8.65	-0.04	-0.02	-0.11*	-0.02	-0.04	-0.01	-0.10	1.00										
Metal products	1.87	1.12	-0.21***	-0.10*	-0.04	0.05	-0.01	-0.15**	0.05	0.05	1.00									
Nonmetallic products	0.27	0.45	-0.13**	-0.15**	-0.01	0.04	0.06	0.03	0.15**	-0.08	-0.13**	1.00								
Plastic	0.04	0.20	-0.03	-0.02	-0.11*	-0.02	-0.08	-0.05	-0.04	0.02	-0.20***	-0.07	1.00							
Chemical	0.10	0.30	0.09	0.10	0.17***	0.00	0.08	0.13**	-0.07	0.01	-0.25***	-0.09	-0.14**	1.00						
Food&Beverage	0.15	0.35	-0.05	0.00	0.10	-0.05	0.01	-0.08	-0.15*	-0.10	-0.18***	-0.06	-0.10	-0.12*	1.00					
Textile	0.08	0.27	0.19***	0.07	-0.09	0.06	0.07	0.10	0.01	0.05	-0.31***	-0.11*	-0.17***	-0.21***	-0.15**	1.00				
Leather	0.20	0.40	0.02	0.01	-0.04	0.03	0.04	0.09	-0.04	0.06	-0.10	-0.03	-0.05	-0.06	-0.05	-0.08	1.00			
Basic metals	0.02	0.15	-0.02	-0.04	-0.04	-0.04	-0.04	0.13**	0.12*	-0.02	-0.12**	-0.04	-0.07	-0.08	-0.06	-0.10	-0.03	1.00		
Wearing apparel	0.04	0.20	0.11*	0.12**	0.06	-0.05	0.00	-0.14**	0.05	0.06	-0.10	-0.04	-0.06	-0.07	-0.05	-0.08	-0.03	-0.03	1.00	
paper	0.03	0.16	0.07	0.09	-0.01	-0.12*	-0.12*	0.05	-0.03	-0.09	-0.14**	-0.05	-0.07	-0.09	-0.07	-0.11*	-0.03	-0.05	-0.04	1.00

*** p < .01, ** p < .05, * p < 0.10

^a Certification: 1 = yes, 0 = no

^b Size mean is the natural logarithm of companies' employees in 2018

^c MOSTPOL_SECTOR: 1 = yes, 0 = no

Table 4. Regressions results

	Environmental Outcomes			Social Outcomes			Financial Outcomes		
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Predictor									
Experiencing Tensions (TENSIONS)		-0.164*** (0.058)	-0.560*** (0.194)		-0.051 (0.059)	-0.492** (0.198)		-0.015 (0.018)	0.098 (0.060)
Paradoxical Cognitive Frame (PARADOX)	0.459*** (0.104)	0.664*** (0.125)	0.003 (0.333)	0.372*** (0.104)	0.497*** (0.128)	-0.239 (0.339)	0.036 (0.032)	0.046 (0.038)	0.236** (0.102)
TENSIONS*PARADOX			0.203** (0.095)			0.227** (0.097)			-0.058** (0.029)
Control									
SIZE		0.014 (0.048)	-0.001 (0.048)		0.024 (0.049)	0.007 (0.049)		0.025* (0.015)	0.029* (0.015)
SLACK		-0.073 (0.086)	-0.070 (0.085)		-0.034 (0.087)	-0.031 (0.087)		-0.036 (0.026)	-0.037 (0.026)
Metal_product		0.199 (0.337)	0.138 (0.336)		-0.130 (0.344)	-0.198 (0.342)		-0.128 (0.103)	-0.110 (0.103)
Non-metallic_product		0.493 (0.392)	0.440 (0.390)		0.018 (0.400)	-0.040 (0.397)		-0.138 (0.120)	-0.123 (0.120)
Plastic		0.044 (0.356)	0.011 (0.354)		-0.259 (0.364)	-0.296 (0.361)		-0.187* (0.109)	-0.177 (0.109)
Chemical		0.324 (0.347)	0.271 (0.346)		-0.257 (0.355)	-0.316 (0.352)		-0.029 (0.107)	-0.014 (0.106)
Food_Beverage		0.208 (0.363)	0.305 (0.439)		-0.368 (0.370)	-0.383 (0.367)		-0.050 (0.111)	-0.046 (0.111)
Textile		0.343 (0.340)	0.274 (0.339)		-0.135 (0.347)	-0.213 (0.346)		-0.148 (0.104)	-0.128 (0.104)
Leather		0.416 (0.439)	0.305 (0.439)		0.073 (0.448)	-0.196 (0.447)		-0.178 (0.135)	-0.146 (0.135)
Basic_metal		0.076 (0.402)	0.061 (0.399)		-0.347 (0.410)	-0.364 (0.406)		-0.187 (0.123)	-0.183 (0.123)
Wearing_apparel		0.103 (0.429)	0.008 (0.428)		-0.546 (0.438)	-0.652 (0.436)		-0.042 (0.132)	-0.015 (0.132)
Paper		-0.297 (0.392)	-0.304 (0.389)		-0.702* (0.397)	-0.709* (0.395)		-0.155 (0.120)	-0.153 (0.119)
N	253	253	253	253	253	253	253	253	253
R ²	0.072	0.149	0.165	0.048	0.093	0.114	0.005	0.083	0.098
Adj R ²	0.068	0.099	0.113	0.044	0.040	0.058	0.001	0.029	0.041
F	19.383***	2.982***	3.130***	12.698***	1.751**	2.029**	1.297	1.539*	1.720**

*** p < .01, ** p < .05, * p < 0.10

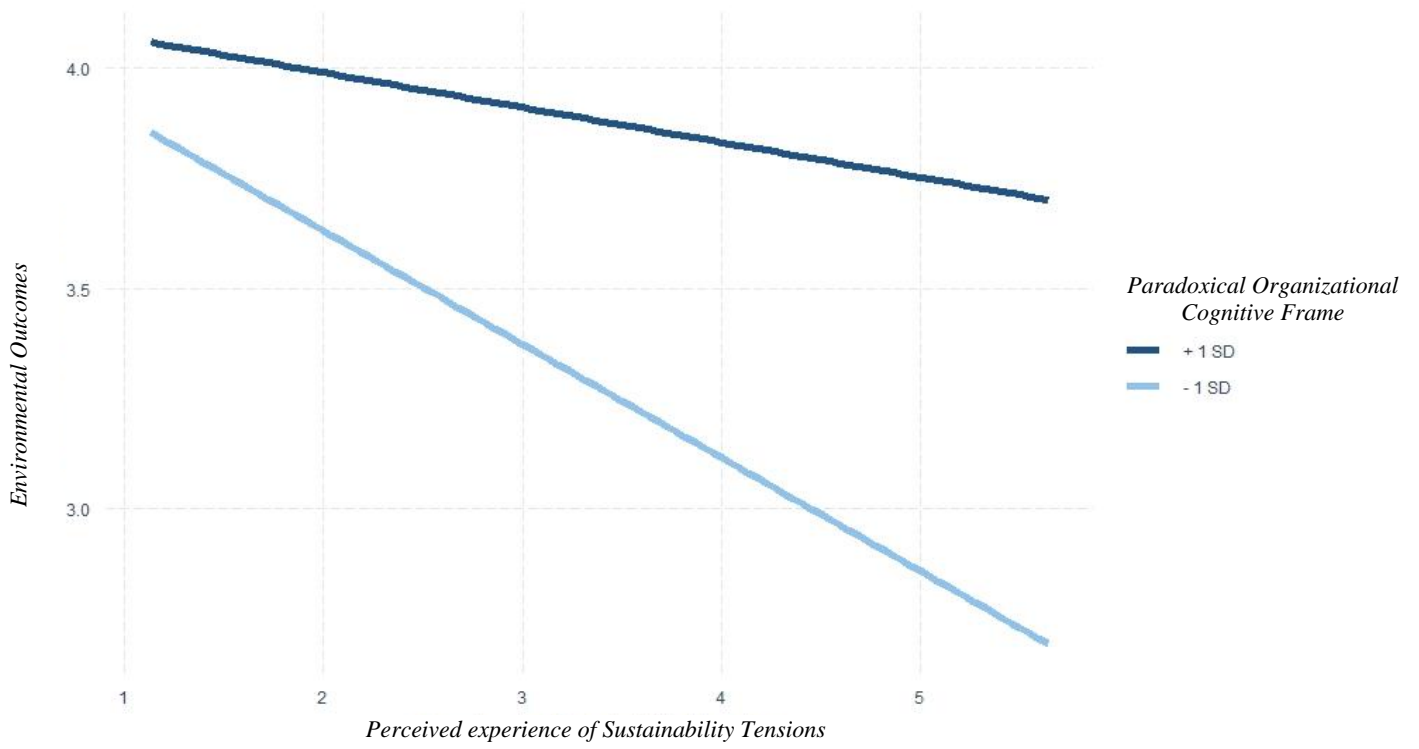


Fig. 1 Effect of experiencing tensions and paradoxical organizational cognitive frame on environmental outcomes

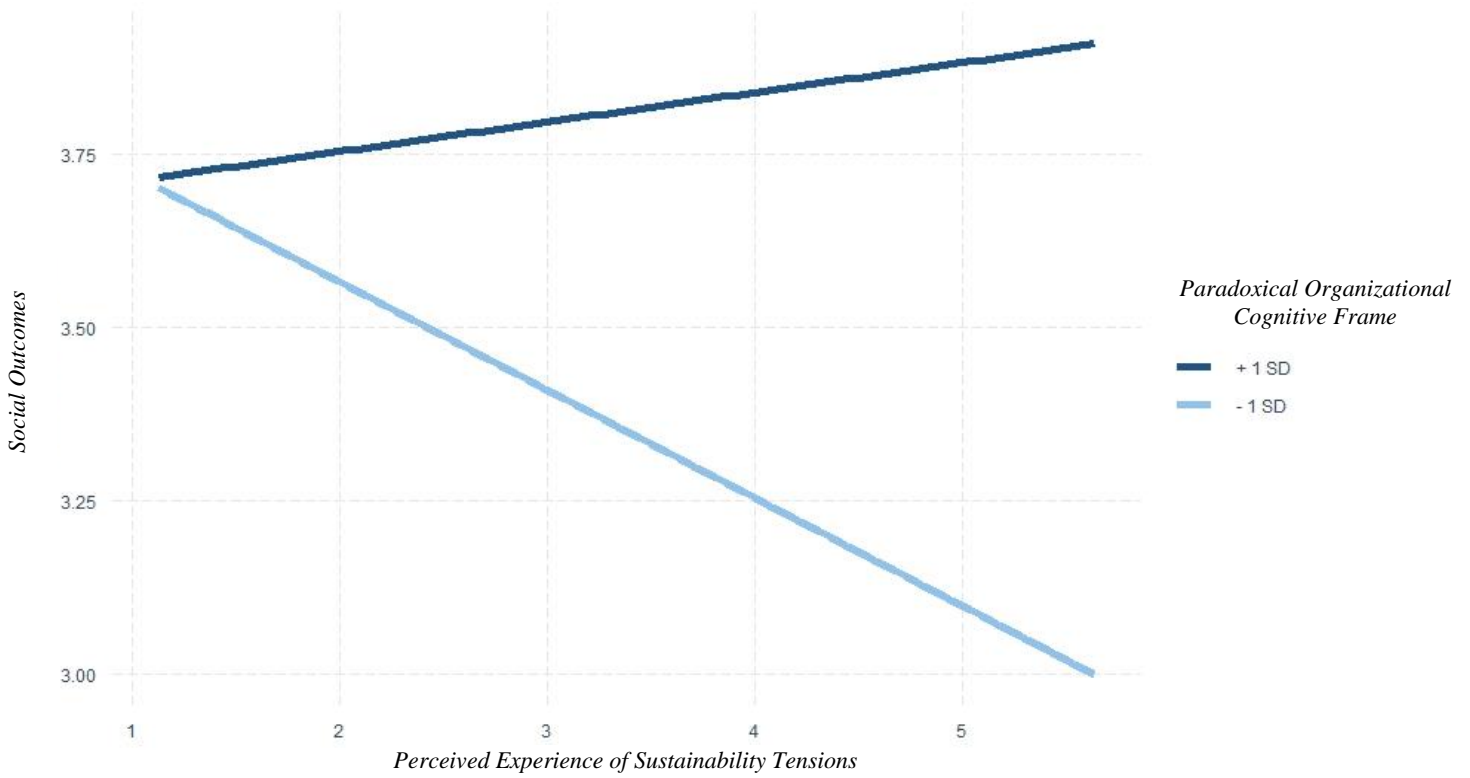


Fig. 2 Effect of experiencing tensions and paradoxical organizational cognitive frame on social outcomes

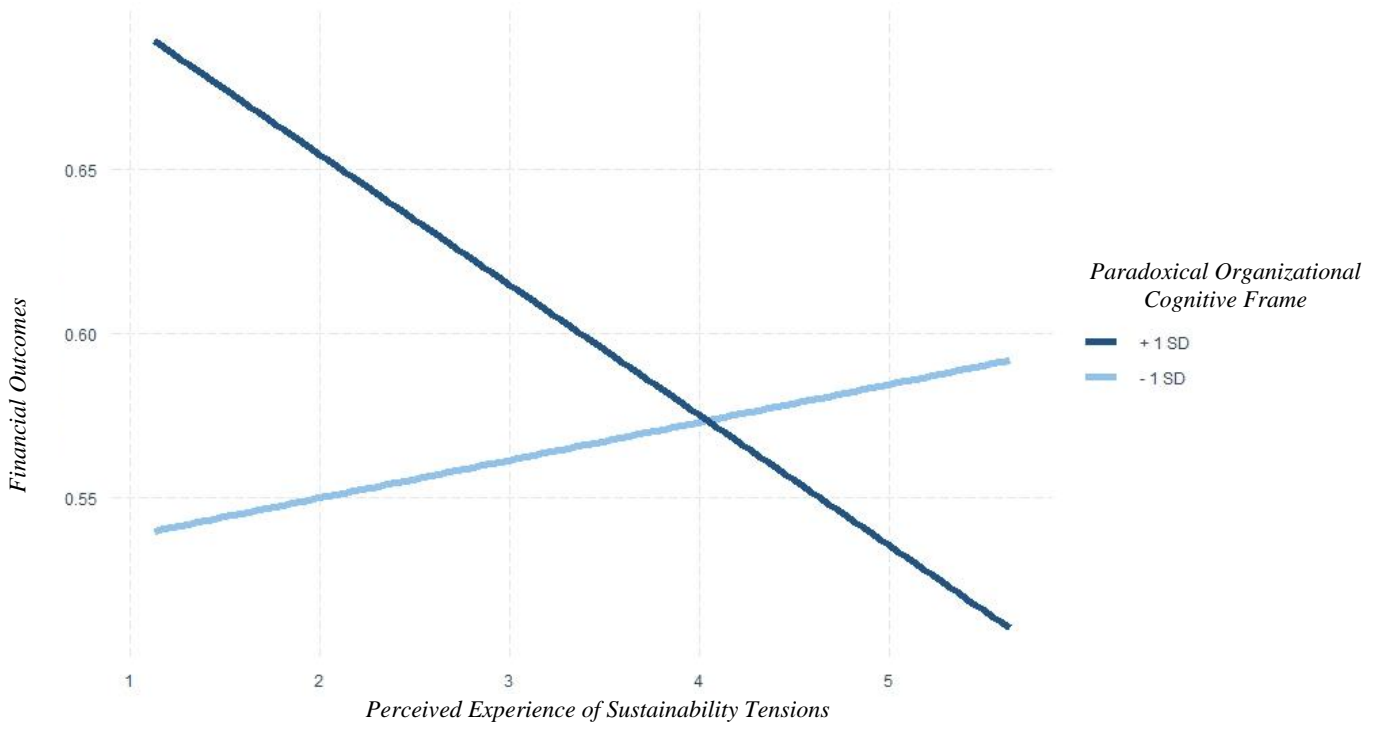


Fig. 3 Effect of experiencing tensions and paradoxical organizational cognitive frame on financial outcomes

Appendix

Scales adopted

EXPERIENCING TENSIONS

Please specify the level to which you agree (1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, 7 = Strongly Agree) with the following statements regarding *sustainability tensions in your company*:

1. In sustainability activities, our company often has competing demands that need to be addressed at the same time.
2. Our company sometimes takes actions, regarding sustainability, that seem contradictory.
3. Our company often has sustainability goals that contradict each other.
4. Our company often has to meet contradictory sustainability requirements.
5. Usually when our company addresses a sustainability problem, the possible solutions seem contradictory.
6. Our company often needs to decide between opposing sustainability alternatives.
7. Our company's work on sustainability is filled with tensions and contradictions.

PARADOXICAL ORGANIZATIONAL COGNITIVE FRAME IN CORPORATE SUSTAINABILITY

Please specify the level to which you agree (1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, 7 = Strongly Agree) with the following statements regarding *sustainability tensions in your company*:

1. Our company is comfortable dealing with conflicting sustainability demands at the same time.
2. Accepting sustainability contradictions is essential for our company success.
3. Tensions between sustainability issues enhance our company's sustainability efforts
4. Our company is proud when it manages to pursue contradictory sustainability goals.
5. Our company often finds itself simultaneously embracing conflicting sustainability demands.
6. Our company is comfortable in working on sustainability tasks that contradict each other.
7. Our company is proud when it manages to address contradictory sustainability issues.
8. Our company integrate competing sustainability goals in its sustainability strategies

OUTCOMES

Rate your firm's overall outcomes for the last fiscal year, compared to other competitors across the industry, on each of the following objectives (1 = much worse, 2 = worse, 3 = slightly worse, 4 = neither worse nor better, 5 = slightly better, 6 = better, 7 = much better)

Financial Outcomes

1. Return on investment
2. Earnings growth
3. Sales growth
4. Market share change

Environmental Outcomes

5. Complying with environmental regulations
6. Limiting environmental impact beyond compliance
7. Preventing and mitigating environmental crises (i.e. air, soil, water pollution)
8. Educating employees and the public about the environment (i.e. climate change, excessive consumption of natural resources, recycling, circular economy)

Social Outcomes

9. Complying with social (i.e., health and safety, human rights) regulations
10. Limiting social impact beyond compliance
11. Preventing and mitigating social crises (i.e., work-related fatal injuries, incidents of discrimination, incidents of human rights violations across the supply chain)
12. Educating employees and the public about social issues (i.e., health and safety, human rights)

Table A1. Reverse causation models

Environmental Outcomes		Social Outcomes		Financial Outcomes	
	TENSIONS		TENSIONS		TENSIONS
<i>ENVIRONMENTAL</i>	-0.068 (0.067)	<i>SOCIAL</i>	-0.011 (0.062)	<i>FINANCIAL</i>	-0.086 (0.063)
<i>Constant</i>	-0.000 (0.051)	<i>Constant</i>	-0.000 (0.051)	<i>Constant</i>	-0.000 (0.051)
<i>R2</i>	0.003	<i>R2</i>	0.0001	<i>R2</i>	0.006
<i>Adjusted R2</i>	0.0001	<i>Adjusted R2</i>	-0.003	<i>Adjusted R2</i>	0.003
<i>F Statistic</i>	1.037	<i>F Statistic</i>	0.033	<i>F Statistic</i>	1.827

*** p < .01, ** p < .05, * p < 0.10