Paradoxes in corporate sustainability : examining managerial responses through cognitive framing and sensemaking perspectives

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**PARADOXES IN CORPORATE SUSTAINABILITY:
EXAMINING MANAGERIAL RESPONSES THROUGH
COGNITIVE FRAMING AND SENSEMAKING PERSPECTIVES**

NG SHI QI, EUNICE

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NG SHI QI, EUNICE

Nanyang Business School

A thesis submitted to the Nanyang Technological University
in partial fulfilment of the requirement for the degree of
Doctor of Philosophy

2020

STATEMENT OF ORIGINALITY

I hereby certify that the work embodied in this thesis is the result of original research, is free of plagiarised materials, and has not been submitted for a higher degree to any other University or Institution.

24 March 2020

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Date

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Ng Shi Qi, Eunice

SUPERVISOR DECLARATION STATEMENT

I have reviewed the content and presentation style of this thesis and declare it is free of plagiarism and of sufficient grammatical clarity to be examined. To the best of my knowledge, the research and writing are those of the candidate with amendments, changes and improvements as suggested by me as the Supervisor. I confirm that the investigations were conducted in accord with the ethics policies and integrity standards of Nanyang Technological University and that the research data are presented honestly and without prejudice.

24/03/2020

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Date

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Assoc Prof Kang Soon Lee, Eugene

AUTHORSHIP ATTRIBUTION STATEMENT

This thesis contains material from 1 paper accepted at a conference in which I am listed as an author.

Essay 1 is accepted at the 2019 Academy of Management Annual Meeting as Ng, E. SQ, Walls, J. L. (2019). Managerial Responses to Paradoxes in Corporate Sustainability: A Cognitive Framing Perspective. DOI: 10.5465/AMBPP.2019.12362abstract. In Guclu Atinc (Ed.), Proceedings of the Seventy-Ninth Annual Meeting of the Academy of Management.

The contributions of the co-authors are as follows:

- I prepared the initial direction of the paper, conducted the literature review, and drafted the propositions. I also wrote and edited the manuscript drafts. As this is a theoretical paper, no data collection and analysis was required.
- Professor Judith Walls reviewed the paper and provided her feedback for improvement.

24 March 2020

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Date

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EXECUTIVE SUMMARY

Corporate sustainability issues are complex and rife with paradoxical tensions – tensions that arise from contradictory yet interrelated elements that exist simultaneously and persist over time. Organizational leaders have to respond to multiple and potentially competing stakeholder demands as they navigate the constantly evolving nature of such demands in corporate sustainability. While decision makers constantly face paradoxical tensions in navigating their firms' corporate sustainability, they differ in how they interpret and respond to these paradoxical tensions. In an attempt to explain the variance in managerial responses, Hahn, Preuss, Pinkse, and Figge (2014) examined how two ideal-type frames – a business case frame and a paradoxical frame – affect managerial sensemaking on corporate sustainability. Yet, our understanding on (1) how these cognitive frames drive actual firm behaviors in response to paradoxical tensions in corporate sustainability, (2) if and when these cognitive frames result in superior corporate sustainability performance, and (3) the role of social learning in managerial sensemaking of paradoxical tensions in corporate sustainability remain limited. I attempt to address these knowledge gaps in a series of three papers within my thesis.

In my first essay, I apply a cognitive frames perspective to examine how a business case frame and a paradoxical frame drive varying firm behaviors across four types of paradoxical tensions in corporate sustainability, namely performing, belonging, learning, and organizing paradoxical tensions. Corporate decision makers with a business case frame address environmental and social issues only when there is a business rationale for doing so, placing corporate financial performance as firms' dominant objective. In contrast, decision makers with a paradoxical frame attend to these competing demands simultaneously and view economic, environmental, and

social objectives as equally important. I draw upon existing management theories and concepts to propose strategic behaviors that firms with different managerial cognitive frames engage in within each category of paradox: performing (goals), learning (knowledge), belonging (identity), and organizing (processes). Specifically, I leverage on the literature on behavioral theory of the firm (goals), organizational learning (knowledge), organizational identity (identity), and embedded/peripheral corporate sustainability (processes) to predict how firms respond differently. In doing so, I connect these management theories and concepts with paradox theory to provide an overarching view of the range of sustainability issues that decision makers grapple with in their organizations.

My second essay builds on the first essay by first establishing the impact of chief executive officers' (CEOs) paradoxical frame on corporate sustainability performance. While paradox scholars espouse the value of a paradoxical frame in driving corporate sustainability, other scholars have demonstrated negative organizational outcomes from mismanaging paradoxes. To bridge the gap between these paradigms, I examine if and when CEOs' paradoxical frame can lead to superior corporate financial, environmental, and social performances. I present competing hypotheses as to whether CEOs who apply a more paradoxical frame will drive higher or lower corporate sustainability performance. Drawing upon behavioral theory of social performance, I consider the role of stakeholders in influencing this relationship by examining the moderating effects of (a) stakeholder recognition of CEOs' environmental and social efforts, (b) CEOs' stakeholder ties, and (c) boards' attention to non-financial stakeholder interests. To test these hypotheses, I adopted a cognitive-linguistic approach to measure CEOs' paradoxical frame towards corporate sustainability. I do so by coding stakeholder letters within annual sustainability reports

of S&P 500 firms over the period of 2012-2014 to measure CEOs' paradoxical frame. I found that CEOs' paradoxical frame did not have significant effect on financial and environmental performances in the subsequent year. Instead, CEOs' paradoxical frame had a significant positive within-firm effect on corporate social performance. In addition, stakeholder recognition of CEOs' environmental and social efforts, as well as a greater number of stakeholder ties, strengthened the relationship between CEOs' paradoxical frame and corporate sustainability performance. As a whole, my second essay highlights the role of stakeholders in moderating the impact of CEOs' paradoxical frame on corporate sustainability performance.

My third essay dives deeper into examining the interactions between decision makers and their firms' stakeholders on corporate sustainability issues. As the institutional environment develops, decision-makers have to make sense of their firms' changing contexts and respond strategically to their stakeholders. While current literature largely examines social learning as a one-way passive learning process, decision makers often engage in coactive vicarious learning of educating while learning from their stakeholders in reality. Accordingly, I adopted an inductive approach in my third essay to examine the interrelatedness between coactive vicarious learning and decision makers' sensemaking of the coopetition paradox in corporate sustainability. Grounding my insights in conference observations and interviews, I first provide empirical evidence of how coactive vicarious learning occurred within the context of corporate sustainability. Next, I present key discursive texts that developed through this learning process and consider how these texts directed managerial attention towards corporate sustainability. Finally, I examine the role of these discursive texts in shaping decision makers' sensemaking of the coopetition paradox in corporate sustainability. My study highlights how stakeholders can shape collaborative

and competitive efforts among for-profit firms on sustainability issues by leveraging upon discursive texts to disrupt dominant narratives and practices in maximizing firm outcomes.

In summary, my thesis contributes to the literature on organizational paradoxes by elucidating how individual decision makers' cognitive frames can impact firms' choices of strategic behaviors in response to paradoxical tensions in corporate sustainability, as well as their impact on firms' sustainability performance. My thesis also draws attention to the role of organizational decision makers and stakeholders at large in working together to improve corporate environmental and social performances without necessarily compromising firms' financial performance. Given that decision makers make strategic choices on their firms' behalf, my thesis offers a more nuanced understanding of the role of decision makers' cognitive frames and stakeholder interactions in determining how firms vary in their corporate sustainability actions and performance outcomes.

MANAGERIAL RESPONSES TO PARADOXICAL TENSIONS IN CORPORATE SUSTAINABILITY: A COGNITIVE FRAME PERSPECTIVE

ABSTRACT

Organizational decision makers constantly face paradoxical tensions in navigating their firms' corporate sustainability. Yet, decision makers differ in how they respond to these tensions, which can affect their firms' financial, environmental, and social activities and outcomes. Applying a cognitive frame perspective, I examine the impact of a business case frame and a paradoxical frame on how firms respond to performing, belonging, learning, and organizing paradoxical tensions in corporate sustainability. I draw upon existing management theories and concepts to propose the strategic behaviors that firms engage in within each category of paradoxical tensions. Specifically, I theorize how cognitive frames affect decision makers' choices regarding how they (i) set their firms' performance targets, (ii) engage in exploration and exploitation, (iii) foster organizational identity orientations, and (iv) structure their firms' sustainability activities internally. In doing so, I connect these management theories and concepts with paradox theory to provide an overarching view of the range of paradoxical tensions in corporate sustainability that decision makers grapple with in their organizations. As a whole, my paper offers a more nuanced understanding of the role of individual decision makers' cognitive frames in determining how firms vary in their strategic choice of corporate sustainability actions.

Keywords: Corporate sustainability, paradoxical tensions, cognitive frames, managerial decision making, sustainable development

Corporate sustainability issues are complex and rife with paradoxical tensions – tensions that arise from “contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011, p. 382). For example, organizational leaders have to respond to multiple and potentially competing stakeholder demands while navigating the constantly evolving nature of such demands for corporate sustainability (Basu & Palazzo, 2008). In fact, accepting and working through paradoxical tensions in corporate sustainability are critical to organizational leaders’ success in attending to all aspects of their firms’ triple bottom line simultaneously (Hahn, Figge, Pinkse, & Preuss, 2018). Yet, corporate decision makers may differ in how they respond to paradoxical tensions in corporate sustainability, which can affect their firms’ financial, environmental, and social activities and outcomes (Slawinski & Bansal, 2015). With calls to reexamine current approaches to economic development (Intergovernmental Panel on Climate Change, 2018), this paper explores how firms differ in their strategic responses to paradoxical tensions in corporate sustainability as a result of differing managerial cognitive frames.

Existing literature has established that managerial cognitive frames affect decision makers’ responses to paradoxical tensions in corporate sustainability (Hahn, Preuss, Pinkse, & Figge, 2014; Sharma & Jaiswal, 2018). By way of definition, a cognitive frame is a “mental template that individuals impose on an information environment to give it form and meaning” (Walsh, 1995, p. 281). Cognitive frames determine what information is included or excluded in the strategic decision making process (Ocasio, 1997; Porac & Thomas, 2002). This affects how decision makers categorize and organize knowledge into cognitive frameworks (i.e. schemas) that can guide current understanding or action (Bartlett, 1932; Walsh, 1995). Especially in environments that are complex and ambiguous, decision makers rely on their current

schemas to simplify and interpret the information environment (Bartlett, 1932; Lyles & Schwenk, 1992). Hence, cognitive frames are critical in the context of corporate sustainability because they enable decision makers to cope with the complexities and uncertainties in navigating paradoxical tensions (Hahn et al., 2018; Roome, 1992). I draw on this literature to identify how different managerial cognitive frames affect firms' choices to respond strategically to paradoxical tensions in corporate sustainability.

Research on managerial cognitive frames in corporate sustainability generally coalesce around two types of cognitive frames – the business case frame and the paradoxical frame (Hahn et al., 2014; Sharma & Jaiswal, 2018). Corporate decision makers with a business case frame address environmental and social issues only when there is a business rationale for doing so, placing corporate financial performance as the dominant objective of their firms (Hahn et al., 2018). When faced with competing stakeholder demands, these decision makers bypass or eliminate paradoxical tensions in corporate sustainability by aligning environmental and social objectives to a superordinate goal of financial prosperity. In contrast, decision makers with a paradoxical frame attend to these competing demands simultaneously and view economic, environmental, and social objectives as equally important for their firms (Carollo & Guerci, 2018; Slawinski & Bansal, 2015). These decision makers embrace and work through paradoxical tensions in corporate sustainability by exploring strategies that accommodate competing firm objectives. While Hahn et al. (2014) have proposed that the business case frame and the paradoxical frame lead to generally more pragmatic and prudent stances on sustainability issues respectively, we do not know how firms with decision makers who apply a business case frame differ in their actual behaviors from those who apply a paradoxical frame. As a result, we cannot ascertain

how applying two alternative managerial cognitive frames may affect corporate sustainability actions, and thereby drive superior firm sustainability outcomes.

Drawing on the literature of paradox theory and managerial cognition in the context of corporate sustainability, this paper extends the work of Hahn et al. (2014) by examining the impact of managerial cognitive frames on firms' sustainability actions. Here, I seek to explain how the business case frame and the paradoxical frame differentially drive firm behaviors in response to paradoxical tensions in corporate sustainability. I first situate my discussion in Smith and Lewis (2011)'s four categories of organizational paradoxes – performing, learning, belonging, and organizing – in the context of corporate sustainability. These four categories represent the primary paradoxes that occur across core aspects of organizations, based on organizational goals, knowledge, identity, and processes respectively (Smith & Lewis, 2011). Next, I offer testable propositions on how the business case frame and the paradoxical frame lead to different strategic behaviors within each category of paradoxical tensions in corporate sustainability. Hahn et al. (2014) grouped sustainability issues broadly, without distinguishing the different types of paradoxical tensions in corporate sustainability that decision makers face. In this paper, I build on their work by specifying how the two alternative cognitive frames drive varying firm responses across the four types of paradoxical tensions in corporate sustainability. I theorize how managerial cognitive frames affect firms' choices regarding how they (i) set their firms' performance targets, (ii) engage in exploration and exploitation, (iii) foster organizational identity orientations, and (iv) structure their firms' sustainability activities internally. Accordingly, I draw attention to how a business case frame and a paradoxical frame can influence the actions firms take to address various paradoxical tensions in corporate sustainability.

As my main contribution, I offer a more specific understanding of how firms with alternative managerial cognitive frames behave differently in response to different types of paradoxical tensions in corporate sustainability. I draw upon existing management theories and concepts to propose the strategic behaviors that firms engage in within each category of paradox: performing (goals), learning (knowledge), belonging (identity), and organizing (processes). Specifically, I leverage on the literatures of behavioral theory of the firm (goals), organizational learning (knowledge), organizational identity (identity), and embedded/peripheral corporate sustainability (processes) to predict how firms respond. In doing so, I connect these management theories and concepts with paradox theory to provide an overarching view of the range of paradoxical tensions in corporate sustainability that decision makers grapple with in their organizations. While I present the two alternative frames as binary for the purpose of theorizing (Doty & Glick, 1994), in reality decision makers may combine both frames to different degrees and vary in their orientations along a continuum. I reflect this notion of a continuum in my propositions. I also do not assume that one cognitive frame is superior over another. Each has its advantages and disadvantages to decision makers and their firms. By avoiding a strong bias towards either cognitive frame, this paper provides a foundation for further studies to examine situations when either frame is more advantageous for firms, as well as fuel discussions if the interplay of the frames is needed to implement substantive actions on corporate sustainability. As a whole, this paper offers a more nuanced understanding of the role of individual decision makers' cognitive frames in determining how firms vary in their strategic response of corporate sustainability actions.

PARADOXICAL TENSIONS IN CORPORATE SUSTAINABILITY

Corporate sustainability is defined as “meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc.), without compromising its ability to meet the needs of future stakeholders as well” (Dyllick & Hockerts, 2002, p. 131). Instead of a single focus on firms’ shareholders, corporate sustainability encompasses the demands of a broader set of stakeholders who are affected by or can affect firms’ activities (Freeman, 1984). Consequently, corporate sustainability performance is a multi-dimensional construct that encompasses firms’ financial, environmental, and social performances (Aguilera, Desender, Bednar, & Lee, 2015). These three dimensions do not operate in isolation; rather, they are inextricably connected and interdependent with one another (Bansal, 2002) and decision makers therefore attend to all three objectives simultaneously (Elkington, 1997).

However, to what extent and how decision makers address each of these three performance dimensions vary because sustainability is a complex issue that not only requires attention at multiple levels of analyses (Roome, 1992). It also includes a temporal element (Slawinski & Bansal, 2015), and a diverse, sometimes contradictory, set of demands from different stakeholders (Delmas & Toffel, 2008; Hahn, Figge, Pinkse, & Preuss, 2010). As such, decision makers have to navigate paradoxical tensions that arise from a variety of stakeholder demands, along multiple performance dimensions while balancing both short- and long-term obligations. In other words, these contradictory yet interrelated elements mean that corporate sustainability creates paradoxical tensions. In the following sections, I first review existing literature on organizational paradoxes and managerial cognitive frames. I then integrate these two streams of literature within the context of corporate sustainability to propose how

different managerial cognitive frames affect decision makers' responses to four types of paradoxical tensions in corporate sustainability.

Paradoxical Tensions: When Paradoxes are Salient to Decision Makers

Paradoxes are “contradictions that persist over time, impose and reflect back on each other, and develop into seemingly irrational or absurd situations because their continuity creates situations in which options appear mutually exclusive, making choices difficult” (Putnam, Fairhurst, & Banghart, 2016, p. 72). Unlike dilemmas, paradoxes are not either-or choices that can be easily resolved by selecting among options in a one-shot event (Fairhurst et al., 2016; Van der Byl & Slawinski, 2015). Instead, three core characteristics define paradoxes: contradiction, interdependence, and persistence. The elements within paradoxes are inextricably linked, yet have the power to negate each other (Putnam et al., 2016). Just like the Taoist symbol of yin-yang in Figure 1, the black and white slivers illustrate the distinction and synergism between the elements of paradoxes, while the white and black dots within their oppositional shade depict the mutual constitution between the elements (Schad, Lewis, Raisch, & Smith, 2016).

Insert Figure 1 here

While organizational contexts may present latent paradoxes, paradoxes become salient when individuals subjectively perceive them as such (Smith & Lewis, 2011). When confronted with decisions and situations that involve contradictions (Fairhurst & Putnam, 2014), individuals experience the tensions intrapersonally. Defined as “stress, anxiety, discomfort, or tightness in making choices and moving forward in organizational situations” (Putnam et al., 2016, p. 68), tensions are feeling states of individuals as they encounter paradoxes. In other words, individuals experience

paradoxical tensions when they perceive and interpret aspects of their environment as conflicting, incompatible, and yet interdependent (Keller, Loewenstein, & Yan, 2017).

In their review of paradoxes, Smith and Lewis (2011) presented four categories of paradoxes, namely performing, learning, belonging, and organizing paradoxes. Performing paradoxes refer to a plurality of competing performance demands placed upon decision makers as their firms' stakeholders may seek divergent outcomes of organizational success. Learning paradoxes surface when existing knowledge and routines are replaced by while being leveraged upon to form new knowledge and practices. Belonging paradoxes stem from competing memberships, values, and roles between the individual and the collective, as individuals and groups seek both homogeneity and distinction. Organizing paradoxes arise from competing structures and processes designed to achieve a desired organizational outcome. Collectively, these four categories capture the key paradoxes across core aspects of organizations, based on organizational goals (performing), knowledge (learning), identity (belonging), and processes (organizing) (Smith & Lewis, 2011).

These four categories of paradoxes are particularly relevant in the context of corporate sustainability because they provide a comprehensive view towards the range of paradoxical tensions that decision makers have to navigate in their attempts to meet their firms' present and future stakeholders' needs. Decision makers have to consider how their firms' goals, knowledge, identity, and processes are affected by the presence of multiple stakeholder demands along financial, environmental, and social performance dimensions that constantly evolve over time (Donaldson & Preston, 1995). For example, decision makers need to evaluate the strategy of incremental steps towards sustainability versus a more radical and comprehensive approach. Each of these options carries advantages and disadvantages. On one hand, accepting and working through

paradoxical tensions in corporate sustainability requires decision makers to dedicate significant corporate resources in order to pursue multiple goals and activities simultaneously (Schad et al., 2016). Decision makers may experience increased affective and cognitive demands in dealing with persistent contradictions, which may result in frustration and defensive reactions that undermine corporate goals (Leonard-Barton, 1992). On the other hand, accepting and working through paradoxical tensions in corporate sustainability can provide the means for corporations to contribute significantly to sustainable development because decision makers attend to sustainability issues that go beyond those that seek an immediate economic benefit (Hahn et al., 2018). Decision makers may feel that such actions are more meaningful for sustainability, even though this approach also carries a higher physical and mental strain. While all decision makers are confronted with paradoxical tensions in corporate sustainability, they differ in their strategic responses to these paradoxical tensions based on the cognitive frames that they adopt (Smith & Lewis, 2011). In order to understand how decision makers differ in their responses to paradoxical tensions in corporate sustainability, I draw upon the literature on managerial cognitive frames from the perspective of schema theory.

MANAGERIAL COGNITIVE FRAMES: A PARADOX PERSPECTIVE

Managerial cognition is theorized to be a key determinant of firms' strategic behavior and outcomes (Hambrick, 2007; Hambrick & Mason, 1984). According to schema theory, decision makers form cognitive frameworks (i.e. schemas) that guide current understanding or action (Bartlett, 1932; Walsh, 1995). Cognitive frames play a key role in the forming of schemas because they determine what information is included or excluded in decision makers' interpretation of the current environment (Ocasio, 1997; Porac & Thomas, 2002). This is particularly critical in the context of corporate

sustainability because cognitive frames enable decision makers to simplify and interpret the complexities and uncertainties of corporate sustainability (Lyles & Schwenk, 1992). Specifically, decision makers rely on their cognitive frames to define and structure the information environment that they attend to (see Hahn et al. (2014) and Walsh (1995) for a detailed discussion). While cognitive frames are formed from prior experience of firm activities and outcomes, they may change over time as a result of new experiences and interpersonal interactions (Kaplan, 2008). Given that decision makers make strategic choices on their firms' behalf, their cognitive frames have significant impacts on firms' sustainability actions and performance outcomes (Bansal & Roth, 2000; Knight & Paroutis, 2017; Sharma, 2000).

Hahn et al. (2014) developed two cognitive frames – the business case frame and the paradoxical frame – in exploring how they affect managerial sensemaking of the triple bottom line. Decision makers who adopt a *business case frame* “focus on environmental and social aspects that align with economic objectives and thus interpret sustainability issues univalently as either positive or negative for their business” (Hahn et al., 2014, p. 19). These decision makers adopt a pragmatic stance towards sustainability issues by engaging in environmental and/or social activities that bring greater financial prosperity to their firms (i.e. low degree of integration) (Hahn et al., 2014). How decision makers engage in environmental and/or social activities, as well as the extent they pursue these activities, are a function of how these activities contribute to financial performance (Kaplan, 2019). As such, decision makers may bypass paradoxical tensions in corporate sustainability by engaging only in certain environmental and/or social activities or adopt a trade-off approach of choosing one dimension over another (e.g. social versus environmental) to eliminate tensions (Van der Byl & Slawinski, 2015).

On the other hand, decision makers who adopt a *paradoxical frame* attend to economic, environmental, and social concerns all at once, even if they appear as contradictory objectives for their firms (Smith & Lewis, 2011). This is driven by a belief that inconsistencies present in complex organizational contexts cannot be eliminated (Smith & Tushman, 2005). The structure of a paradoxical frame is complex as decision makers attend to a wide range of economic, environmental, and social objectives simultaneously and with equal importance (Hahn et al., 2014). In addition, a paradoxical frame allows decision makers to see the interrelatedness between the three objectives and take into account how the competing dimensions can reinforce or negate each other (i.e. high degree of integration) (Leung et al., 2018). Instead of aligning environmental/social objectives with economic goals, these decision makers choose to explore how they can simultaneously address their firms' triple bottom line with all its complexity (Van der Byl & Slawinski, 2015). In doing so, they integrate economic, environmental, and social objectives holistically to achieve substantive corporate sustainability, but they also take a more prudent stance or approach by moving forward slowly and carefully because they are aware of both the risks and the tensions (Hahn et al., 2014). I summarize the characteristics of the business case frame and the paradoxical frame in Table 1.

 Insert Table 1 here

Hahn et al. (2014)'s work neatly proposes how broadly decision makers scan, their perceived control over sustainability issues, and whether they adopt pragmatic or prudent stances based on their cognitive frames. However, their work does not predict how alternative cognitive frames drive firms' specific responses to paradoxical tensions in corporate sustainability. I differ from Hahn et al. (2014)'s work by distinguishing

different types of sustainability issues that decision makers grapple with into four categories of paradoxical tensions that reflect organizations' core aspects and activities. It is noteworthy at this point to emphasize that while the literature on managerial cognition presents these frames as binaries for theoretical discussion purposes (Doty & Glick, 1994), they belong to two ends on a continuum. In reality, decision makers are likely to combine both frames to different degrees and along a continuum as Hahn et al. (2014) already acknowledged. As my propositions suggest, firms with decision makers who apply different cognitive frames vary to different extent in their responses to paradoxical tensions in corporate sustainability. I summarize the differences between the cognitive frames and the resulting firm responses to paradoxical tensions in corporate sustainability in Table 2.

 Insert Table 2 here

RESPONSES TO PARADOXICAL TENSIONS IN CORPORATE SUSTAINABILITY: DIFFERENCES BETWEEN THE TWO FRAMES

Performing Paradoxical Tensions

At the organizational level, corporate sustainability is commonly related to the triple bottom line view of corporate performance, namely the financial, environmental, and social performance dimensions (Elkington, 1997; Montiel & Delgado-Ceballos, 2014). Over the past two decades, corporate decision makers have faced increasing stakeholder pressures to look beyond profit maximization for their firms' shareholders and attend to financial, environmental, and social performance dimensions concurrently (Aguilera, Florackis, & Kim, 2016). Tensions arise when decision makers have to decide on how they should allocate their finite attention and resources towards a diverse set of sustainability issues, such as their firms' core business operations, civic engagement, and biodiversity conservation. For instance, in his letter to the firm's

stakeholders, Thomas Ferrell, chief executive officer and chairman of Dominion Energy, acknowledged that “success in addressing our long-term energy and environmental challenges will require... realistic expectations about the time, money, and trade-offs it will take to get there” (Dominion Energy, 2013). Nevertheless, decision makers attend to the three performance dimensions to varying degrees in ensuring their firms’ ability to survive financially and maintaining their firms’ license to operate (Bansal & Clelland, 2004; Suchman, 1995). Accordingly, performing paradoxical tensions in corporate sustainability surface as the plurality of stakeholder demands requires decision makers to attend to competing firm performance dimensions simultaneously (Smith & Lewis, 2011).

To examine how firms attend to competing firm performance dimensions, I turn to the behavioral theory of the firm (BTOF), as this is crucial in determining firms’ performance pursuits and resource allocation decisions (Cyert & March, 1963). According to BTOF (Cyert & March, 1963), decision makers’ bounded rationality in accessing, processing, and using information influences decision-making processes in organizations. As a result of decision makers’ cognitive limitations, firms typically compare their current performance against certain performance targets to quickly assess how well they are performing (Aranda, Arellano, & Davila, 2017). These performance targets are either based on their firms’ historical performance and/or performance relative to peers (Audia & Greve, 2006; Kim, Finkelstein, & Halebian, 2015). Within this stream of literature, scholars have focused their work on examining financial performance as the key performance dimension that firms are assessed on (Gavetti, Greve, Levinthal, & Ocasio, 2012; Shinkle, 2012). Indeed, research within BTOF has not examined how firms are assessed on their environmental and social performances,

or how firms form performance targets on these other dimensions (Nason, Bacq, & Gras, 2018).

While financial performance referents are clear, easily accessible, and fixed (Lant, 1992), environmental and social performance referents are ambiguous, malleable, and negotiated (Nason et al., 2018). Specifically, environmental and social performance point criteria are ambiguous in that the scope of corporate sustainability falls along a wide range of issues (Bundy, Shropshire, & Buchholtz, 2013). In addition, performance on some of these issues may be too complex to quantify and evaluate (Luo, Wang, Raithel, & Zheng, 2015). Accordingly, Nason et al. (2018) extended BTOF by proposing that environmental and social performance reference points are negotiated with the firms' stakeholders. Firms turn to their stakeholders to understand the scope of sustainability issues that they should attend to and how they are expected to perform on each issue (Nason et al., 2018). This process of negotiation between firms and their stakeholders surfaces various sets of expectations and desires as to what constitutes organizational success (Fisher, Ury, & Patton, 2011).

Applying a managerial cognitive frame perspective, I theorize that firms with decision makers who apply a business case frame will focus on their historical sustainability performance and sustainability performance relative to peers in setting sustainability performance reference points. These decision makers prioritize shareholders as their firms' primary stakeholder, and place economic goals over environmental and social goals for the purpose of shareholder profit maximization (Carroll & Shabana, 2010). Decision makers are less likely to perceive non-shareholder stakeholders' expectations as relevant in defining how they should direct their firms' performance pursuits and resource allocation decisions. Given shareholders' dominant interest in firms' financial performance, decision makers with a business case frame are

likely to approach environmental and social initiatives as two of the many tools to drive firm financial performance (Hahn et al., 2014). Hence, decision makers cognitively define economic attributes as the key common criterion across different performance dimensions. These decisions makers will allow economic attributes of environmental and social activities to filter into their decision-making process, while filtering out environmental and social attributes of these activities. Following BTF, I propose that firms with such decision makers are more likely to approach performance on environmental and social activities with the same satisficing behavior used in assessing other activities that drive corporate financial performance. Specifically, I expect these firms to be satisfied as long as their environmental and social performances are comparable to or higher than their historical performances and/or performances relative to their peers. This approach allows these firms to pursue their financial goals while ensuring that they retain some level of legitimacy to operate. Accordingly, I expect firms with decision makers who apply a business case frame to respond to competing performance demands by ensuring that their sustainability performance levels are at least comparable to or higher than their historical performance levels and performance levels of their peers.

Proposition 1: Firms with CEOs who have a more business case oriented frame will be more likely to rely on their historical sustainability performance and sustainability performance relative to peers in the formation of their sustainability performance reference point.

The paradoxical frame does not direct decision makers to prioritize one performance dimension over another. Instead, decision makers with a paradoxical frame view economic, environmental, and social attributes of firms' sustainability initiatives as equally important in their strategic decision-making (Hahn et al., 2014). However, definitions of superior environmental and social performances are ambiguous and negotiated with stakeholders (Nason et al., 2018). Hence, decision makers with a

paradoxical frame are likely to engage with a diverse set of stakeholders to collect information about their sustainability concerns (Bundy et al., 2013; Slawinski & Bansal, 2015). These decision makers are less likely to prioritize one group of stakeholders over another, as each stakeholder group provides relevant information in their resource allocation decisions to drive economic, environmental, and social performances simultaneously. Doing so broadens decision makers' perspective on the sustainability issues that they need to attend to, and increases the awareness of their firms' impacts on the environment, broader society, and future generations of stakeholders (Slawinski & Bansal, 2015). In addition to historical performance and performance relative to peers, meeting or exceeding stakeholder expectations becomes a critical element for firms with decision makers who apply a paradoxical frame in assessing if they are satisfied with their sustainability performance. Despite stakeholders placing competing demands on their firms, decision makers with a paradoxical frame are able to see the interrelatedness between economic, environmental, and social attributes of their stakeholders' demands. Hence, such decision makers are able to integrate multiple stakeholder concerns in a coherent manner that drives financial, environmental, and social progress simultaneously (Grewatsch & Kleindienst, 2018; Hahn et al., 2014). Accordingly, I expect that firms with decision makers who apply a paradoxical frame will be more likely to integrate stakeholder expectations as a key benchmark together with their historical performance and performance relative to peers into the formation of their sustainability performance reference point.

Proposition 2: Firms with CEOs who have a more paradoxical frame will be more likely to integrate stakeholders' expectations together with their historical sustainability performance and sustainability performance relative to peers in the formation of their sustainability performance reference point.

Learning Paradoxical Tensions

Corporate sustainability is characterized by dynamism in terms of its scope and content. In particular, the range of activities that fall under the purview of firms' corporate sustainability and the performance evaluation of these activities constantly evolve in tandem with what stakeholders consider socially accepted and expected (Mitchell, Agle, & Wood, 1997). Corporate decision makers may choose to adapt their firms' sustainability policies, plans, and practices within the boundaries of existing knowledge and routines (Walker & Wan, 2012). Or, decision makers may engage in radical actions that fundamentally change their firm's systems and processes. Tensions arise when decision makers engage in both actions simultaneously, as they are faced with the challenge of departing from current practices while building on existing routines and systems as means to address corporate sustainability (Kolk & Pinkse, 2008). Both actions are interdependent on each other, since leveraging on existing knowledge may not be sufficient in adapting to the changes in corporate sustainability while constant implementation of new knowledge and practices may be overly disruptive for firms (Hahn et al., 2018). Accordingly, these efforts to adjust, change, and innovate foster learning paradoxical tensions in corporate sustainability.

Two main activities in organizational learning – exploitation and exploration – provide insight into how decision makers divide their attention and firm resources between leveraging on existing knowledge and learning new knowledge (March, 1991; Raisch & Birkinshaw, 2008). Exploitation refers to learning from repeating the same tasks occurring within existing frameworks, norms, policies, and rules (Argote, 2013; Tosey, Visser, & Saunders, 2012). This is typically done via a local search within the neighborhood of existing knowledge and routines known to the firms (Baum, Li, & Usher, 2000; Rosenkopf & Nerkar, 2001). For example, manufacturing firms may set

efficiency targets for their manufacturing processes, such as reducing waste production by 10% within the year. Decision makers can implement small changes – ramping up their recycling efforts or introducing composting and waste reduction initiatives – to their existing manufacturing processes to meet these targets, without changing underlying processes. In contrast, exploration refers to learning from planned experimentation in search of novel solutions with an aim to change existing frameworks, norms, policies and routines (Argote, 2013; Tosey et al., 2012). This learning activity is critical for organizations in navigating intense changes in their environments, as existing solutions are no longer relevant in such contexts (Cope, 2003). For example, instead of introducing small initiatives to reduce waste production, Dell worked with its supply chain to implement a closed-loop system, in which its customers' electronic waste was converted into new materials to re-enter the production cycle (Clancy, 2014). Exploration requires a long-term perspective on the part of the decision makers, as the search for novel solutions may fail or not be found easily. While exploration may compromise performance in the short run, it is critical in avoiding obsolescence and driving long-term firm performance (Fang, Lee, & Schilling, 2010).

Applying a managerial cognitive frame perspective to organizational learning, I expect decision makers with a business case frame to encourage the use of exploitative activities in improving their firms' environmental and social performances. These decision makers approach environmental and social activities primarily as tools to drive their firms' economic objectives and create a competitive advantage over others (Hahn et al., 2014). Since decision makers do not seek to maximize their firms' environmental and social performances, I expect them to be less likely to seek out new knowledge and practices regarding environmental and social issues as the costs of doing so likely outweigh their financial returns (Denrell & March, 2001). Accordingly, I expect such

decision makers to favor exploitative social and environmental activities that provide more immediate and certain financial returns, even if the outcomes from exploitative activities do not result in new knowledge or practices (Fang et al., 2010). While decision makers may still adopt both exploitative and explorative strategies in improving their firms' *financial* performance, I expect these decision makers are more likely to rely on an exploitative strategy when it comes to improving their firms' *environmental* and *social* performance dimensions. In doing so, firms with these decision makers bypass learning paradoxical tensions by choosing to focus on exploitation of existing knowledge and routines for their environmental and social activities.

Proposition 3: Firms with CEOs who have a more business case oriented frame will be more likely to use exploitative activities to improve their environmental and social performance dimensions.

Contrary to the business case frame, decision makers with a paradoxical frame are more likely to encourage the use of both explorative and exploitative strategies for corporate sustainability. Existing literature refers to this simultaneous pursuit of exploration and exploitation activities by the firm and its decision makers as organizational ambidexterity (Raisch & Birkinshaw, 2008). While both forms of learning are fundamentally distinct and orthogonal in nature, they can exist simultaneously within the firm (Auh & Menguc, 2005; Katila & Ahuja, 2002). On one hand, decision makers with a paradoxical frame recognize that radical action to move away from unsustainable practices is essential for substantial improvements in environmental and social performances (Kolk & Pinkse, 2008). On the other, excessive reliance on implementing new knowledge and routines may hamper efforts to disseminate and substantively implement these innovations (Hahn et al., 2018). When faced with learning paradoxical tensions, I expect these decision makers to pace learning new knowledge and practices with exploitative activities leveraging on existing

knowledge and routines to ensure their firms' viability (Gupta, Smith, & Shalley, 2006). Exploitative activities are necessary to ensure that continuous improvements are made to sustainability performance while allowing non-local search for new ideas to continue. Altogether, this simultaneous exploration and exploitation provide a novel and sustainable pace of change needed to drive corporate sustainability. In addition, decision makers with a paradoxical frame are likely to embrace exploration and exploitation as interdependent and simultaneous activities, instead of viewing them as opposing activities that result in tradeoffs in allocating attention and resources (Gupta et al., 2006; Putnam et al., 2016). Since exploration does not guarantee eventual success, a paradoxical frame enables decision makers to foster internal processes and structure that can support organizational ambidexterity through combining exploration with exploitation (Raisch & Birkinshaw, 2008; Smith & Tushman, 2005). Accordingly, I expect firms with these decision makers to leverage on existing knowledge and routines while seeking out new knowledge and practices to simultaneously drive corporate sustainability.

Proposition 4: Firms with CEOs who have a more paradoxical frame will be more likely to use both explorative and exploitative activities to improve their environmental and social performance dimensions.

Belonging Paradoxical Tensions

Belonging paradoxical tensions stem from competing values and roles between the individual and the collective (Smith & Lewis, 2011). This is particularly relevant to the context of corporate sustainability as there are varying perceptions of for-profit firms' relationship with their stakeholders as well as firms' purpose within broader society (Pratt & Foreman, 2000). Decision makers may view their firms as being distinct from its stakeholders and are focused on maximizing their firms' own interests (i.e. shareholder value maximizing firm) (Sundaram & Inkpen, 2004). In contrast, decision

makers may view their firms as being interdependent with their stakeholders (Freeman, Wicks, & Parmar, 2004). As such, they recognize that their firms' interests are intertwined with the mutual success of their stakeholders (Brickson, 2005). Tensions arise when decision makers view their firms as being both independent from and interdependent on its stakeholders, as firms' interests may diverge from their stakeholders' interests. For instance, Pratt and Foreman (2000) studied a managed-care organization that composed of a medical insurance company, a non-profit hospital, and a clinic. In such situations, decision makers may view their firms as both a business that is focused on generating profits (i.e. independent from stakeholders), and a charity that is concerned about its patients' interests (i.e. interdependent with stakeholders). Nevertheless, decision makers recognize that their firms are interdependent to varying degrees since their firms' ability to survive remains connected with meeting their stakeholders' needs (Bansal & Clelland, 2004; Suchman, 1995). Accordingly, belonging paradoxical tensions in corporate sustainability surface when decision makers are faced with these opposing yet coexisting purposes in leading their firms' relationships with their stakeholders.

In considering how firms relate to their stakeholders, I draw insights from organizational identity literature. Organizational identity orientation refers to "the assumed nature of association between an organization and stakeholders as perceived by (the organization's) members" (Brickson, 2007, p. 866). Brickson (2005) identified three distinct identity orientations that for-profit firms generally have, namely individualistic, relational, and collectivistic orientations. In the context of corporate sustainability, an *individualistic orientation* emphasizes the value of corporate sustainability for the firm's self-interests. It focuses on being distinct and superior from other firms, and expresses a strong competitive spirit on corporate sustainability (Basu

& Palazzo, 2008). Firms with an individualistic orientation present themselves as independent entities and are driven by a primary motivation of self-interests for engaging with stakeholders. As such, these firms are likely to build weak ties with their stakeholders based on instrumental motivations (Brickson, 2007). That is, stakeholder engagement efforts are directed at maximizing firms' interests rather than building deep and meaningful relationships with other stakeholders.

On the other hand, firms with a *relational* or *collectivistic orientation* recognize the interdependencies between themselves and their stakeholders (Brickson, 2007). Firms with a relational orientation perceive themselves as a partner of a specific stakeholder group that is identified as relevant for the firm. These firms focus on forming strong dyadic ties with these stakeholder groups and direct their efforts at maximizing the interests of both their firms and the identified stakeholder group (Brickson, 2005). Firms with a collectivistic orientation perceive themselves as a member of a broader set of stakeholders who have a common collective agenda. As such, these firms' stakeholder engagement efforts are directed at addressing a higher-order societal issue or environmental phenomenon, such as eliminating poverty or addressing climate change (Basu & Palazzo, 2008). Although these two identity orientations differ in the loci of self-definition, both orientations are driven by a primary motivation to go beyond their own self-interests and pursue the interests of others, be it a specific stakeholder group or that of broader society (Brickson, 2007). Nevertheless, it is important to note that for-profit firms with these two identity orientations need not necessarily compromise their own interests for the sake of other stakeholders, since they still possess the need and drive to survive (Brickson, 2007).

Given that organizations are made of multiple individuals and multiple subgroups, a plurality of organizational identity orientations can either exist without

being universally held by all organizational members or embraced by all members simultaneously (Foreman & Whetten, 2002; Golden-Biddle & Rao, 1997; Pratt, 2016). With leadership being one of the most direct and significant factors in influencing organizational identity (van Knippenberg, 2016), decision makers play a key role in shaping how their organizational members perceive their firms' relationships with their stakeholders. Decision makers' schema can influence how they construct and present a desired organizational image to their organizational members as a means of achieving their firms' objectives (Scott & Lane, 2000). Notably, decision makers may choose to emphasize an individualistic orientation that focuses on their firms' interests, or aggregate competing identity orientations of individualism with relational/collectivism in order to pursue multiple firm objectives simultaneously (Brickson, 2005; Walsh, 1995).

Applying a business case frame perspective, I expect firms with decision makers who apply a business case frame to separate competing identity orientations by choosing to keep the individualistic orientation as the dominant identity orientation and maintain relational/collectivistic identity orientation as a subordinate identity orientation. Since these decision makers prioritize economic prosperity as their firms' primary objective, I expect these decision makers to emphasize the importance of pursuing their firms' self-interest and view their firms as independent from their stakeholders and broader society (Brickson, 2007). These decision makers may choose to maintain relational/collectivistic as a subordinate identity orientation to maintain flexibility when the subordinate identity orientation is valuable for future strategic moves (Pratt & Foreman, 2000). In the case of a corporate consulting firm, Sandberg (2003) found that the decision maker constructed a dominant identity of an "external consultant" in distinguishing the firm from its parent company. To do so, the decision maker used his

rhetoric to emphasize the importance of economic profitability and enhance the perceived prestige of the firm. When necessary, the decision maker also nurtured a secondary identity of a “staff unit” that supported its parent company by using illustrative anecdotes and abstract wordings. Decision makers can also use other means to separate competing identity orientations in their firms, such as demarcating different identity orientations through the symbolic use of dress codes (Pratt & Rafaeli, 1997) or spatially separating different identity orientations on different floors, different buildings, or different parts of the country (Pratt & Foreman, 2000). Applying this to the context of corporate sustainability, I similarly expect firms with decision makers who apply a business case frame to separate a dominant individualistic orientation from a subordinate relational/collectivistic orientation as a means to bypass belonging paradoxical tensions of being independent from and interdependent on their firms’ stakeholders.

Proposition 5: Firms with CEOs who have a more business case oriented frame will be more likely to separate a dominant individualistic orientation from a subordinate relational or collectivistic orientation.

On the other hand, I propose that firms with decision makers who apply a paradoxical frame are likely to aggregate competing identity orientations within their organizations. These decision makers are likely to explicitly or symbolically communicate their desire to pursue economic, environmental, and social initiatives simultaneously and with equal importance (van Knippenberg, 2016). For example, Gioia and Chittipeddi (1991) described the symbolic function of a “strategic planning task force and a widening circle of consultation and feedback from various stakeholders” (p. 441) that fueled a change process within a university. Decision makers may also construct a meta-identity that abstracts competing identity orientations without forcing them to fuse together. For example, Patagonia described itself as “an activist

company” that is “in business to save our home planet” (Patagonia, 2019). The use of a meta-identity enables decision makers to increase identity synergy between competing identity orientations while simultaneously preserving their unique features (Pratt & Foreman, 2000). While multiple and equally important identity orientations may increase belonging paradoxical tensions within their firms, decision makers with a paradoxical frame will explore how they can simultaneously pursue both their firms’ and stakeholders’ objectives, forging links between them, and leveraging on their synergies. They may do so by creating new beliefs that can reconcile ideological inconsistencies (Pratt & Foreman, 2000) or leveraging on their internal hiring and socializing processes to foster dual identity orientations among organizational members (Battilana & Dorado, 2010). Accordingly, when faced with belonging paradoxical tensions of being independent from or interdependent on firms’ stakeholders, firms with decision makers who apply a paradoxical frame are more likely to aggregate competing identity orientations to fulfill their opposing yet coexisting purposes.

Proposition 6: Firms with CEOs who have a more paradoxical frame will be more likely to aggregate competing identity orientations of individualism with relational or collectivism.

Organizing Paradoxical Tensions

Unlike belonging paradoxical tensions that focus on philosophical aspects of tensions such as values and roles, organizing paradoxical tensions focus on structural aspects of designs and processes within firms. Notably, tensions arise as decision makers decide between exerting control and providing flexibility over their firms’ environmental and social activities (Smith & Lewis, 2011). On one hand, exerting control over environmental and social activities allows decision makers to ensure consistency in implementing sustainability initiatives throughout their firms. On the other, providing flexibility over environmental and social initiatives allows these

activities to flourish independently without having to conform to existing business practices (Hahn et al., 2018). Yet, control and flexibility are interdependent upon each other as decision makers have to coordinate their firms' activities to ensure internal coherency while providing allowance for sustainability practices to adapt and cater to firms' stakeholder demands (Yuan, Bao, & Verbeke, 2011). Thus, decision makers face organizing paradoxical tensions arising from competing designs and processes as they strategize their approach on corporate sustainability to achieve their desired outcomes (Schad et al., 2016).

In the context of corporate sustainability, decision makers face tensions between control and flexibility in how they choose to integrate environmental and social dimensions of corporate sustainability into their firms' core business routines (i.e. exerting control), or keep at their firms' periphery (i.e. providing flexibility). When corporate sustainability is embedded in the core of a firm's structure, it requires decision makers to integrate environmental and social objectives in their firms' strategy, routines, and operations (Aguinis & Glavas, 2013). One of the world's largest pulp producers, Fibria, integrated its environmental issues within its core strategic priorities and targets (Mosher & Smith, 2015). In doing so, Fibria was able to exert greater control to align environmental initiatives of various departments with its commercial activities and processes. Notably, embedding corporate sustainability requires decision makers to build on their firms' core competencies as they implement environmental and social objectives throughout their firms' systems and structures (Aguinis & Glavas, 2013). For example, in promoting its vision of "Well being/Being well", personal care company Natura leveraged on its core competency of innovation to create new cosmetic products that bring economic value to the firm while reducing environmental and social impacts (Hashiba, 2012). Given that each firm has a unique set of core competencies, embedded

corporate sustainability is context-specific and cannot be easily replicated by other firms.

Decision makers may choose to keep environmental and social activities at their firms' periphery by keeping these activities separate from their core business and strategy. Examples of peripheral environmental and social activities include engaging in corporate philanthropy, general biodiversity conservation, and employee volunteering activities. Peripheral activities can fulfill a strategic purpose for decision makers and their firms, such as bringing reputational benefits, increasing shareholder value, or fulfilling a personal environmental/social conviction (Hogarth, Hutchinson, & Scaife, 2018; Jeong & Kim, 2019). Notably, effectively embedding environmental and social objectives into the core of the firm is more challenging, and failure to do so may negatively affect firms' financial goals (Yuan et al., 2011). Hence, keeping environmental and social objectives at their firms' periphery provides decision makers the benefits of engaging in environmental and social initiatives without the costs of inadequate cross-functional coordination and internal conflicts. Nevertheless, these peripheral activities do not transform firms' core business routines and are context generic (Aguinis & Glavas, 2013). Accordingly, such environmental and social activities can be implemented by any organization.

Decision makers' schemas affect their perception as to whether they view environmental and social activities as means for economic gains, or if these three sustainability performance dimensions are equally valued firm objectives. This has distinct impacts in the extent that decision makers choose to embed corporate sustainability within their firms' operations. From a managerial cognition perspective, I expect firms with decision makers who have a business case frame to embed environmental and social objectives that directly drive financial performance, while

keeping environmental and social objectives that indirectly affect financial performance at their firms' periphery. This enables decision makers to bypass organizing paradoxical tensions between control and flexibility by controlling activities that are core to their business success, while providing flexibility to activities that serve to adapt to stakeholder demands. First, I propose these decision makers will embed selected environmental and social objectives based on their potential to drive superior financial performance, much like other business objectives such as improving productivity and resource use. Decision makers may selectively embed environmental and social objectives by formalizing strategic priorities and targets related to these objectives for each department, like in the example of Fibria. Decision makers may also choose to designate a specialized department, such as a corporate social responsibility department, to deal with environmental and social issues that directly affect their firms' financial performance. By selectively embedding environmental and social objectives, decision makers ensure that their core operational processes are strengthened to drive greater financial performance. Accordingly, I expect firms with decision makers who apply a business case frame to exert greater control over certain environmental and social objectives by selectively embedding them into their structures and processes.

Second, I expect these decision makers to keep environmental and social objectives that indirectly contribute to their firms' financial performance at the periphery of their firms. These peripheral objectives serve an instrumental purpose of enabling these decision makers to adapt to stakeholder demands, which is critical in maintaining firms' license to operate. By keeping these objectives at firms' periphery, decision makers avoid having to change their firms' structure and processes substantially to incorporate environmental and social objectives that are non-essential to their business operations. I expect these decision makers to delegate such

environmental and social activities to market-facing departments within the firms' organizational structure as an extension of these departments' functions. Such departments are responsible for presenting the company to the public and potential customers, and are likely to use corporate sustainability as a way to drive further financial gains for the company. For example, the marketing department may be responsible for creating messages to promote the firm's environmental and social initiatives, while the public relations department might focus on building the firm's reputation for being environmentally or socially positive. Accordingly, I expect firms with decision makers who have a business case frame to embed selected environmental and social objectives into their core operational structures and processes, while leaving environmental and social objectives that indirectly drive financial performance to the periphery of their firms. In doing so, these firms respond to organizing paradoxical tensions between control and flexibility by controlling environmental and social activities that directly drive corporate financial performance, while providing flexibility to those activities that indirectly affect corporate financial performance.

Proposition 7: Firms with CEOs who have a more business case oriented frame will be more likely to embed environmental and social objectives that directly drive financial performance into their core operational processes, while leaving other environmental and social objectives at the periphery of their firms.

Decision makers with a paradoxical frame emphasize the interrelations between economic, environmental, and social attributes within corporate sustainability. Hence, they are less likely to differentiate environmental and social activities according to the financial benefits that these activities yield. Instead, decision makers with a paradoxical frame are likely to embed environmental and social objectives to their firms' core activities by assembling cross-functional teams to work on corporate sustainability issues. First, embedding environmental and social initiatives into their firms' core

strategy and operations require substantial changes to firms' overall operations and practices (Hahn et al., 2018). Second, successfully embedding corporate sustainability requires capabilities that span across multiple functional departments, such as technology, regulatory compliance, research and development, manufacturing, marketing, and environmental management (Aguinis & Glavas, 2013; Szalavetz, 2018). While cross-functional coordination may lead to internal conflicts, I expect decision makers with a paradoxical frame to be adept at forging collaboration among team members with competing interests and demands (Ivory & Brooks, 2018; Yuan et al., 2011). These decision makers are likely to foster communication and sharing among their organizational members with different expertise in order to develop strategies that can address financial, environmental, and social objectives simultaneously. Drawing from the previous example of Natura, the firm's decision makers chose to restructure the organization by reducing layers of hierarchy and allowing employees to have more autonomy in making decisions (Hashiba, 2012). Natura also implemented a process-based management system that provided opportunities for employees across strategic and operational departments to interact within project teams as they create new products (Lacy, McNamara, Barrett, & Drewell, 2013). For example, Natura assigned a product development manager within each business unit to connect the business unit with the product and packaging development team, and the research and development team (Hashiba, 2012). Doing so allowed these decision makers to drive substantive change along the entire organization, while transforming existing routines and operations to comprehensively embed corporate sustainability within their firms.

Cross-functional teams provide decision makers with both control and flexibility in leading their firms' corporate sustainability. In particular, cross-functional teams facilitate the transferring and integrating of function-specific components of knowledge

through collaborations across different departments (Szalavetz, 2018). This provides decision makers with more control over ensuring corporate sustainability is substantively embedded across their firms. In addition, unlike standalone corporate social responsibility departments, individuals from cross-functional teams retain the flexibility to return to their functional departments and develop their own sustainability initiatives. The coordination and reconfiguration of routines and practices across intra-organizational boundaries create synergistic capabilities that contribute to developing firms' competitive advantage in corporate sustainability (Laszlo & Zhexembayeva, 2011). Accordingly, when faced with organizing paradoxical tensions between control and flexibility, I expect firms with decision makers who apply a paradoxical frame to leverage upon cross-functional teams that provide both control and flexibility in embedding corporate sustainability across their organizations.

Proposition 8: Firms with CEOs who have a more paradoxical frame will be more likely to embed environmental and social objectives across their organizations while maintaining flexibility by assembling cross-functional teams to collaborate on corporate sustainability.

DISCUSSION

Paradoxical tensions are pervasive within corporate sustainability, arising from the complexities of multiple performance dimensions and competing demands that decision makers have to navigate (Hahn et al., 2018). Yet, decision makers differ in how they simplify and respond to these paradoxical tensions in corporate sustainability (Miron-Spektor, Ingram, Keller, Smith, & Lewis, 2018; Smith & Lewis, 2011). Accordingly, I apply a cognitive frame perspective to elucidate how different mental templates can drive varying responses of decision makers across an organization's goals, knowledge, identity, and processes. While a business case frame leads decision makers to emphasize the financial contributions of social and environmental initiatives, a paradoxical frame leads decision makers to embrace competing demands and work

through them instead (Hahn et al., 2014). In this essay, I respond to calls to reexamine current approaches to economic development by highlighting how these alternative cognitive frames can affect decision makers' choice of strategic behaviors (Intergovernmental Panel on Climate Change, 2018). Specifically, I theorize how cognitive frames affect decision makers' choices regarding how they (i) set their firms' performance targets, (ii) engage in exploration and exploitation, (iii) foster organizational identity orientations, and (iv) structure their firms' sustainability activities internally. As decision makers make strategic choices on their firms' behalf, their cognitive frames can shape their firms' behaviors regarding corporate sustainability (Bansal & Roth, 2000; Knight & Paroutis, 2017; Sharma, 2000).

My main contribution is that I provide a more specific understanding of how decision makers with alternative cognitive frames vary in their strategic responses when faced with paradoxical tensions in corporate sustainability. Here, I apply a paradox lens to broaden theorizing of how a business case frame and a paradoxical frame can influence managerial responses to paradoxical tensions in corporate sustainability. In doing so, I differ from Hahn et al. (2014)'s work that ended with decision makers' stances towards sustainability issues, in that I explore the impact of alternative cognitive frames on actual managerial behavior. In addition, Hahn et al. (2014) broadly grouped sustainability issues as a whole; here I break down the different types of paradoxical tensions in corporate sustainability that decision makers grapple with. I show how decision makers with alternative cognitive frames differ in their specific strategic responses across the four categories of performing (goals), learning (knowledge), belonging (identity), and organizing (processes) paradoxical tensions. Understanding how decision makers differ in their strategic responses is critical in highlighting the

relevance of managerial cognitive frames for financial, environmental, and social outcomes at the firm level.

In developing my propositions across the four categories of paradoxes, I draw upon several management theories and concepts to predict different strategic behaviors of decision makers. While paradox theory draws links to other fundamental theories in management, it distinctively provides a perspective on the presence and role of paradoxical tensions in organizational phenomena (Lewis & Smith, 2014). Notably, the paradox perspective of corporate sustainability focuses on individuals accepting and working through tensions arising from contradictory elements within paradoxes in order to achieve sustainability (Hahn et al., 2018; Smith & Lewis, 2011). In particular, the literature on paradoxical frames emphasizes how decision makers view economic, environmental, and social objectives as equally valid goals for their firms (Hahn et al., 2014; Sharma & Jaiswal, 2018). However, this stream of literature appears disconnected from other strategic management theories in theorizing how decision makers and their firms differ in their strategic actions in response to paradoxical tensions in corporate sustainability. For instance, while paradox theory highlights the tensions that arise from multiple and competing performance goals (i.e. performing paradox), the literature has remained ambiguous about how decision makers who accept these tensions differ in their actual behaviors from decision makers who bypass or eliminate the tensions. Hence, I draw upon the literature on behavioral theory of the firm, organizational learning, organizational identity, and embedded/peripheral corporate sustainability to bring clarity in my theorizing of decision makers' behaviors within performing, learning, belonging, and organizing paradoxes respectively. In doing so, I connect these management theories and concepts with paradox theory to provide an overarching view

of the range of paradoxical tensions in corporate sustainability that decision makers grapple with in their organizations.

A Business Case Approach Versus a Paradoxical Approach

More generally, sustainability management literature has predominantly adopted a business case approach (Kaplan, 2019), which assumes that decision makers make trade-offs for sustainability to achieve the primary goal of economic prosperity (Van der Byl & Slawinski, 2015). I add to this literature by examining how decision makers with a paradoxical frame may choose alternative actions to achieve economic prosperity while pursuing environmental and social objectives. In attempts to encourage greater action on corporate sustainability, advocates for environmental and social issues have increasingly drawn on the narrative of “a business case for sustainability” (Carroll & Shabana, 2010). This narrative encourages decision makers to adopt a more business case oriented frame in which decision makers focus on benefiting financially from engaging in corporate sustainability (Gao & Bansal, 2013). On one hand, having a dominant goal of pursuing financial performance enables decision makers to take quick and concrete actions on corporate sustainability, even if these actions may be incremental. In the context of urgent calls for action on issues such as climate change and biodiversity loss (Figueres et al., 2017; Howard-Grenville, Buckle, Hoskins, & George, 2014; Whiteman & Perego, 2012), a business case frame may be critical in catalyzing swift action across for-profit firms. On the other hand, Kaplan (2019) argued that it “may not actually motivate managers to act, ... and it may create moral struggles for the people who feel that they must make the business case in order to justify social action” (p. 4). Hence, prioritizing a dominant goal of pursuing financial performance could limit more radical actions needed of corporate decision makers (Hahn et al., 2014). Consequently, Kaplan (2019) calls for greater empirical examination on the usefulness

and limitations of the “business case for sustainability” and to move beyond the business case by adopting a paradoxical approach towards firms’ triple bottom line.

While a paradoxical approach may appear to drive more proactive action on corporate sustainability, I recognize the challenges in applying a paradoxical frame. In my propositions, I suggest that decision makers with a paradoxical frame will engage with a broader set of stakeholders and better integrate their expectations in forming sustainability performance targets for their firms. Also, I expect decision makers to engage in both explorative and exploitative activities to improve their firms’ sustainability performance. These behaviors may enable decision makers to be more adept at responding to stakeholder demands and driving substantive corporate sustainability, but a paradoxical frame may also result in ambitious choices that are difficult to implement effectively. Specifically, applying a paradoxical frame requires significant firm resources to pursue competing goals simultaneously. In addition, maintaining disparate identity orientations may drive internal strife and political infighting when different subgroups within the firm compete to prioritize their interests (Pratt & Foreman, 2000). As such, my essay identifies decision makers’ choice of strategic behaviors in response to paradoxical tensions in corporate sustainability as an attempt to bring clarity on how decision makers with a more business case oriented frame will vary from decision makers who are more paradoxical in their cognitive frames. Future research can build upon this essay to empirically examine the situations when these alternative cognitive frames drive behaviors that can result in greater financial, environmental, and social outcomes for both firms and society at large.

Understanding that some decision makers adopt a more business case oriented frame while others a more paradoxical frame has practical implications as well. Stakeholders pushing companies towards more substantive sustainable development

contributions need to keep in mind where decision makers are coming from, as each cognitive frame requires different levers for stakeholder engagement strategies. For example, decision makers with a more business case oriented frame are more likely to be open to stakeholder demands for environmental or social actions that highlight a financial benefit. Also, I expect these decision makers to rely primarily on exploitative activities in improving their environmental and social activities. Perhaps engaging these decision makers to leverage on their current knowledge and drive immediate changes on their firms' environmental and social practices may be more effective than pressurizing them to learn new knowledge and practices. In contrast, decision makers with a more paradoxical frame would be open to demands that do not have an immediate financial benefit but perhaps reap rewards in the long term. Closely engaging with decision makers and observing their actual sustainability behaviors will provide stakeholders with a better understanding of decision makers' cognitive frames and how they can better work with decision makers to improve firms' corporate sustainability performance.

Shifting from a Business Case Frame to a Paradoxical Frame

Scholars in support of the paradox perspective on corporate sustainability have made calls for decision makers to embrace and work through paradoxical tensions in order to achieve sustainability (Hahn et al., 2018; Smith & Lewis, 2011). If we indeed expect decision makers to do so, a change in cognitive frames is necessary. Given that cognitive frames are schemas of underlying beliefs and perceptions that are developed from prior experience (Gilbert, 2006; Hahn et al., 2014), such a change is unlikely to happen spontaneously. Sharma and Jaiswal (2018) have provided initial evidence that cognitive frames can shift, depending on the frames of other individuals in the team and the decision-making horizon. In particular, organizational leaders and their team

members can mutually influence each other's cognitive frames through their close and repeated interactions over time. Instead of viewing paradoxical thinking as an embedded trait that predisposes certain individuals to it, stakeholders have the potential to shift managerial cognitive frames and widen the scale and scope of substantive corporate sustainability actions (Schad et al., 2016). Indeed, consistent engagement of stakeholders with decision makers over time is key to facilitating a shift from a more business case oriented frame to one that embraces paradoxical tensions in corporate sustainability.

Following this, Schad et al. (2016) highlight that our understanding of how environmental conditions can influence individuals' application of paradoxical thinking remains limited. In addition, scholars have highlighted the lack of research on elucidating factors that can influence the formation of cognitive frames (Hahn et al., 2018; Schad et al., 2016; Sharma & Jaiswal, 2018). Identifying institutional factors that assist decision makers in shifting their mental templates is necessary in order to develop an ecosystem that encourages paradoxical thinking towards corporate sustainability issues. Future research can consider how institutional factors, like active engagement of regulatory bodies and other stakeholders with decision makers over time, foster paradoxical thinking within corporations. This is valuable for policymakers and stakeholders in their efforts to reexamine current approaches to economic development, as it can elucidate which types of engagement strategies may be most beneficial in shifting managerial cognitive frames and driving substantive progress on corporate sustainability.

One stakeholder group that plays a critical role in shifting managerial cognitive frames is the board of directors. In particular, the board of directors shapes management's priorities regarding firms' triple bottom line, and control whether top

executives remain at the helm of their firms. Traditionally, corporate governance scholars and board directors have been focused with minimizing agency costs and attending to the interests of shareholders (Fama, 1980; Jensen & Meckling, 1976). Yet, in light of changing organizational contexts and the pressing need for a more sustainable approach to economic development, board of directors need to broaden their perspective to consider firms' obligations to all stakeholders (Hill & Jones, 1992). In fact, governing their firms' environmental and social impacts has a significant impact on the long-term viability of their firms (Slawinski & Bansal, 2015; Walls, Berrone, & Phan, 2012). Hence, future empirical studies examining the interaction effects between directors' and top executives' cognitive frames will provide insight into the role of corporate boards in influencing how firms' managements approach paradoxical tensions in corporate sustainability.

Affective Demands of Embracing a Paradoxical Frame

My essay applies a cognitive frame perspective that focuses on decision makers' knowledge structure and processing of information on the relationship between and among financial, environmental, and social performance dimensions (Walsh, 1995). However, cognition is only one of the many factors that can affect decision makers' motivation to engage in sustainability action along the triple bottom line (Latham & Pinder, 2005). Other factors, such as needs, traits, values, affect, and the environment/context, can predict or influence managerial motivation to work through paradoxical tensions in corporate sustainability (Latham & Locke, 2008). For example, decision makers may be motivated by competitiveness, legitimation, or individual values to embrace paradoxical tensions in corporate sustainability (Bansal & Roth, 2000; Stern, Diet, Kalof, & Guagnano, 1995). Decision makers may also choose not to work through paradoxical tensions in corporate sustainability if they are restricted by

external factors, such as the lack of firm resources to engage in environmental and social initiatives. Hence, decision makers with similar levels of paradoxical frame may differ in their eventual propensity to work through paradoxical tensions in corporate sustainability given the presence of differing levels of motivation.

Although my essay focuses on the analytical aspect of decision makers' processing of the information environment, I acknowledge that individuals' affect and emotions play an influential role in managerial decision-making (Hodgkinson & Sadler-Smith, 2018; Zolotoy, O'Sullivan, Martin, & Veeraraghavan, 2018). Decision makers are thinking and feeling beings that rely on both their calculating cognition and intuitive affect simultaneously (Hodgkinson & Healey, 2011). Existing studies have shown that paradoxes foster anxiety, uncertainty, and ambiguity, which can take a toll on the individuals working through paradoxical tensions in corporate sustainability (Schneider, 1990). In a qualitative study of Mongolian mining managers, decision makers expressed experiencing adverse psychological effects when faced with paradoxical tensions in corporate sustainability (Ng, Walls, & Wingard, 2018). For example, the mining managers experienced frustration with the government, adopted a normative perspective towards sustainability, and engaged in peripheral biodiversity offsetting programs, all of which were coping mechanisms in response to paradoxical tensions in corporate sustainability. Accordingly, decision makers may also experience cognitive dissonance when their strategic decision-making may run counter to their individual beliefs towards corporate sustainability (Schad et al., 2016). As working through paradoxical tensions in corporate sustainability increases the affective and cognitive demands on decision makers, this can result in frustration and defensive reactions by decision makers that may inadvertently undermine corporate goals (Leonard-Barton, 1992; Schad et al., 2016).

Working through paradoxical tensions in corporate sustainability can bring benefits to both the organization and society at large when decision makers embrace these tensions and pursue financial, environmental, and social goals simultaneously (Hahn et al., 2014). Nevertheless, decision makers need to cope with the affective demands of working through paradoxical tensions in corporate sustainability (Keller & Sadler-Smith, 2019). Recent development in paradox literature has identified having a paradox mindset – “the extent to which one is accepting of and energized by tensions” (Miron-Spektor et al., 2018, p. 26) – as a key difference as to why some individuals thrive with tensions while others struggle. In addition to institutional factors shifting cognitive frames discussed above, scholars can consider examining constructive strategies that decision makers can engage in to release or cope with the psychological discomforts that paradoxical tensions can bring. For example, Jarzabkowski and Lê (2017) show how team members use lighthearted humor to construct and respond to paradoxes in the moment, which affected how the team collectively responded to paradoxical issues. Developing a paradox mindset may also be a strategy to mitigate psychological discomforts from engaging with paradoxical tensions, as individuals with a paradox mindset are energized by, rather than drained from, engaging with paradoxes (Miron-Spektor et al., 2018). Notably, a paradox mindset can be both an inherent trait and a mental framework developed over time (Miron-Spektor et al., 2018; Schad et al., 2016). Accordingly, I echo calls by Keller and Sadler-Smith (2019) for future research to clarify how best to teach or develop a paradox mindset within decision makers.

Empirically Examining the Impact of a Paradoxical Frame

Existing literature examining paradoxical frames has relied on experimental priming and qualitative coding methodologies. In micro-level studies, scholars manipulated cognitive frames by having study participants either read descriptions or

engage in writing tasks that prime them to adopt a paradoxical frame (e.g. creativity-efficiency paradoxical frame in Leung et al. (2018) and Miron-Spektor, Gino, and Argote (2011)). Scholars also qualitatively coded interviews, case studies, and archival documents to measure paradoxical frames. For example, Gilbert (2006) examined paradoxical frame by measuring how managers frame events both as an opportunity and as a threat. In particular, the author summed the frequency counts within discrepant attribute categories of positive versus negative, control versus no control, and gain versus loss as a measure of the extent that managers are paradoxical in their cognitive frames. In another study, Sharma and Jaiswal (2018) coded interviews and archival documents for frame content (i.e. social goals versus profit goals) and frame structure (i.e. relationship between elements of frame content) to identify whether managers adopt a business case frame or a paradoxical frame.

Recent research on paradox-related constructs have also developed survey scales to measure the relative importance of corporate sustainability in firms' organizational cognitive frame (Grewatsch & Kleindienst, 2018) and individuals' paradox mindset (Miron-Spektor et al., 2018). However, there is a dearth in studies applying these quantitative approaches to measure the business case frame and paradoxical frame within the context of corporate sustainability. Future research can explore applying survey scales to measure individuals' cognitive frame with regards to the relationship between economic, environmental, and social sustainability concerns. Similar to how Miron-Spektor et al. (2011) and Leung et al. (2018) focused on the creativity-efficiency paradoxical frame in their experimental priming, future research can also explore priming individuals with a single versus multiple sustainability performance goals to examine the impact of a business case frame and a paradoxical frame on individual decision-making. In addition, there is an increase in studies within management research

adopting a content analysis approach in measuring top executives' psychological concepts – such as strategic schemas (Nadkarni & Narayanan, 2007) and CEO regulatory focus (Gamache, McNamara, Mannor, & Johnson, 2015). Likewise, future research can consider content analyzing decision makers' communications to stakeholders and company reports to measure a business case frame and a paradoxical frame.

CONCLUSION

Corporate decision makers vary in how they respond to paradoxical tensions in corporate sustainability, which has a significant impact on firms' sustainability actions and performance outcomes. With increasing calls to reconsider current approaches to economic development, examining how decision makers cognitively approach paradoxical tensions in corporate sustainability provides insight into their choice of strategic actions in driving their firms' financial, environmental, and social outcomes. I apply a managerial cognitive frame perspective to consider the impact of alternative cognitive frames – both the business case frame and the paradoxical frame – on decision makers' choice of strategic behaviors in response to paradoxical tensions in corporate sustainability. As cognitive frames can be molded and shifted over time, this opens up future avenues for research to consider the conditions and strategies to facilitate managerial decision-making that can result in substantive corporate sustainability.

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FIGURE

Figure 1. Taoist symbol of yin-yang depicting the relationship between elements in paradoxes (Figure extracted from Smith and Lewis (2011)).

Paradox

Contradictory yet interrelated elements (dualities) that exist simultaneously and persist over time; such elements seem logical when considered in isolation, but irrational, inconsistent, and absurd when juxtaposed

Dualities (A and B) — Opposites that exist within a unified whole

- internal boundary creates distinction and highlights opposition
- external boundary encourages synergies by constructing the unified whole

TABLES

Table 1. Characteristics of a business case frame and a paradoxical frame (Adapted from Hahn et al. (2014)).

Frame Characteristics	Business Case Frame	Paradoxical Frame
Underlying logic	Business case thinking: Economic prosperity as primary objective of the organization.	Paradoxical thinking: Economic, environmental, and social prosperity are equally important objectives, even if contradictory.
Implicit goal	Increase organization's financial performance.	Increase organization's financial, environmental, and social performances.
Content	Exclusive focus on economic attributes in decision-making.	Combination of economic, environmental, and social attributes in decision-making, with no single attribute being dominant.
Structure	Simple	Complex
<ul style="list-style-type: none"> • Differentiation • Integration 	<ul style="list-style-type: none"> • Low number of frame elements • Low degree of connectedness between elements 	<ul style="list-style-type: none"> • High number of frame elements • High degree of connectedness between elements
Treatment of tensions	Bypassing or eliminating	Acceptance and working through

Table 2. Cognitive frames and the resulting managerial responses to paradoxical tensions in corporate sustainability.

Categories of Paradoxes	Business Case Frame	Paradoxical Frame	Key Theoretical Mechanism
Performing	Relies on firm's historical performance and performance relative to peers in formation of firm's sustainability performance reference point.	Integrates multiple stakeholders' expectations together with firm's historical performance and performance relative to peers in the formation of firm's sustainability performance reference point.	Behavioral theory of the firm versus behavioral theory of social performance
Learning	Relies on exploitative activities to improve environmental and social performance dimensions.	Leverages on both exploitative and explorative activities to improve corporate sustainability.	Exploration and exploitation in organizational learning
Belonging	Separates a dominant individualistic orientation from a subordinate relational or collectivistic orientation.	Aggregates competing identity orientations of individualism with relational or collectivism.	Independent and interdependent organizational identity orientations
Organizing	Embeds environmental and social objectives that drive financial performance into core operational processes, while leaving other environmental and social objectives at the firm's periphery.	Embeds environmental and social objectives throughout the organization, while providing flexibility by assembling cross-functional teams to collaborate on corporate sustainability.	Embedded versus peripheral corporate sustainability

MANAGERIAL COGNITIVE FRAMES AND CORPORATE SUSTAINABILITY PERFORMANCE: A COGNITIVE-LINGUISTIC APPROACH

ABSTRACT

While paradox scholars espouse the value of managerial paradoxical frames in driving corporate sustainability, other scholars have demonstrated negative organizational outcomes from mismanaging paradoxes. To bridge the gap between these paradigms, I examined if and when chief executive officers' (CEO) paradoxical frame can lead to superior corporate financial, environmental, and social performances. Drawing upon behavioral theory of social performance (BTS), I focused on stakeholders as a key factor that moderates the relationship between a paradoxical frame and corporate sustainability performance (CSP). Situating my study on S&P 500 companies over 2012 – 2014, I adopted a cognitive-linguistic approach in measuring the extent that CEOs are paradoxical in their cognitive frame. My results show that CEOs applying a more paradoxical frame did not necessarily compromise CSP in the subsequent year. In addition, stakeholder recognition of CEOs' environmental and social efforts, as well as a greater number of stakeholder ties, strengthened the relationship between CEOs' paradoxical frame and CSP. As a whole, my study highlights the role of stakeholders in influencing the impact of CEOs' paradoxical frame on CSP.

Keywords: Corporate sustainability, paradoxical tensions, managerial cognitive frame, cognitive-linguistic analysis, hybrid model analysis

The Intergovernmental Panel on Climate Change (2018) recently called for faster and more widespread action from the private sector to avoid severe and worsening consequences of climate change. Yet, many scholars are ambivalent as to whether organizational decision makers of for-profit firms are truly able to pursue economic prosperity while achieving environmental and social objectives of their firms and the broader society (Barnett & Salomon, 2012; Friedman, 1970; Hahn, Figge, Pinkse, & Preuss, 2018). Indeed, it is cognitively challenging and demanding for chief executive officers (CEOs) to embrace such paradoxical tensions – tensions that arise from “contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011, p. 382) – in corporate sustainability (Schad, Lewis, Raisch, & Smith, 2016). To simplify complex and ambiguous information environments, CEOs rely on their cognitive frames to determine what information is included or excluded in their strategic decision making processes (Ocasio, 1997; Porac & Thomas, 2002). Hence, cognitive frames are critical in the context of corporate sustainability because they enable CEOs to cope with the complexities and uncertainties in navigating paradoxical tensions (Hahn et al., 2018; Roome, 1992).

A cognitive frame is a “mental template that individuals impose on an information environment to give it form and meaning” (Walsh, 1995, p. 281). Within the literature on organizational paradoxes, scholars have proposed that a paradoxical frame directs CEOs to pursue contradictory performance goals in corporate sustainability simultaneously (Hahn, Preuss, Pinkse, & Figge, 2014; Sharma & Jaiswal, 2018). To specify, corporate sustainability performance (CSP) encompasses firms’ financial, environmental, and social performance dimensions. Instead of solely focusing on financial performance, CEOs with a paradoxical frame will view economic, environmental, and social objectives as equally important for their firms and attend to

these competing performance demands. While paradox scholars espouse the value of managerial paradoxical frames in driving corporate sustainability (Hahn & Aragón-Correa, 2015; Ivory & Brooks, 2018; Van der Byl & Slawinski, 2015), other scholars have demonstrated negative organizational outcomes from mismanaging paradoxes (Pratt & Foreman, 2000; Schad et al., 2016). This leads to a debate among scholars as to whether advocating for CEOs to pursue multiple firm performance dimensions simultaneously may be more detrimental for for-profit firms and broader society as compared to focusing on maximizing firms' financial performance. Therefore, establishing *if* and *when* a paradoxical frame can lead to superior firm performance along the three performance dimensions is necessary to build consensus regarding the value of applying a paradoxical frame.

Drawing on the literature of paradox theory and managerial cognition in the context of corporate sustainability, this paper explores the impact of CEOs' paradoxical frame on their firms' CSP. To do so, I apply a cognitive-linguistic approach that focuses on how CEOs communicate with their stakeholders as a means of determining the extent that CEOs are paradoxical in their cognitive frames (Langacker, 2008). A cognitive-linguistic approach proposes that the linguistic structure of CEOs' communications sheds light on their mental representations of corporate sustainability (Crilly, Hansen, & Zollo, 2016). How CEOs structure and express their thoughts, rather than differences in the contents communicated, provide insight into their distinct cognitive processes (Pennebaker & King, 1999). In addition, I draw upon behavioral theory of social performance (BTS) to examine the influence of firms' stakeholders on the relationship between CEOs' paradoxical frames and CSP (Nason, Bacq, & Gras, 2018). I consider how (a) stakeholder recognition of CEOs' environmental and social efforts, (b) CEOs' stakeholder ties, and (c) boards' attention to non-financial stakeholders' interests

moderate the relationship between CEOs' paradoxical frame and CSP. In doing so, I highlight the role of stakeholders in engaging with CEOs to encourage better CSP.

Using panel data from S&P 500 firms, I applied a cognitive-linguistic approach in coding 625 stakeholder letters within companies' annual sustainability reports from 2012 – 2014 to measure the extent to which CEOs are paradoxical in their cognitive frame towards corporate sustainability (Crilly et al., 2016). I tested the impact of CEOs' paradoxical frame on three separate firm performance dimensions – financial, environmental, and social – using archival data from Compustat and Thomson Reuters databases. I also extracted data from Boardex and Morgan Stanley Capital International (MSCI) GMI ratings to test the influence of stakeholder-related moderators on CEOs' paradoxical frame and CSP. I found that CEOs with a more paradoxical frame resulted greater corporate social performance in the subsequent year. However, CEOs' paradoxical frame had no significant effect on corporate financial and environmental performances. This indicates that applying a paradoxical frame did not necessarily compromise firms' CSP. In addition, my study shows that stakeholder recognition of CEOs' environmental and social efforts strengthened the relationship between CEOs' paradoxical frame and corporate financial performance. Finally, I also found that stakeholder ties strengthened the relationship between CEOs' paradoxical frame and corporate social performance. Altogether, my findings highlight the role of stakeholders fostering a positive relationship between CEOs' paradoxical frame and CSP.

My study speaks to the literature on paradox theory, BTS, and corporate sustainability. As my main contribution, I attempt to build consensus regarding the value of a paradoxical frame in improving CSP. I do so by applying a cognitive-linguistic measure of CEOs' paradoxical frame, which allows me to study a larger sample of CEOs, thus strengthening the generalizability of my study's findings (Crilly et al.,

2016). A second contribution of my paper relates to the role of stakeholders in affecting firm-level sustainability outcomes. I build upon BTS to demonstrate how stakeholders affect the relationship between CEOs' paradoxical frame and CSP. As a whole, my study draws attention to CEOs and their firms' stakeholders working together to improve corporate environmental and social performance without necessarily compromising firms' financial performance.

PERFORMING PARADOXICAL TENSIONS IN CORPORATE SUSTAINABILITY

Corporate sustainability is defined as “meeting the needs of a firm’s direct and indirect stakeholders (such as shareholders, employees, clients, pressure groups, communities etc.), without compromising its ability to meet the needs of future stakeholders as well” (Dyllick & Hockerts, 2002, p. 131). Instead of a single focus on shareholders, corporate sustainability encompasses the demands of a broader set of stakeholders who are affected by or can affect the firm’s activities (Freeman, 1984). Hence, CSP is a multi-dimensional construct that encompasses a firm’s financial, environmental, and social performances (Aguilera, Desender, Bednar, & Lee, 2015). These three dimensions do not operate in isolation; rather, they are inextricably connected and interdependent on one another (Bansal, 2002). For example, companies face increasing climate-related risks to their operations globally, with climate change posing a value of risk ranging from \$4.2 trillion to \$43 trillion to the total global stock of manageable assets between now and the end of the century (Economist Intelligence Unit, 2015). This raises the awareness among organizational leaders regarding the interdependencies between firms’ financial prosperity and other firm performance dimensions, such as preserving the natural environment (Figueres et al., 2017). As such, organizational decision makers are increasingly pressured to attend to all three performance dimensions simultaneously (Elkington, 1997).

CEOs are faced with a multitude of stakeholder demands along their firms' financial, environmental, and social performance dimensions (Basu & Palazzo, 2008). On one hand, shareholders may view maximizing financial profits as a key, if not the entire, measurement of a firm's success. On the other hand, other stakeholders like non-governmental organizations, employees, and communities may define firms' success with environmental and social indicators (Donaldson & Preston, 1995). *Performing paradoxical tensions* arise when the plurality of stakeholder demands result in multiple organizational goals, as each stakeholder group defines organizational success differently (Nason et al., 2018; Smith & Lewis, 2011). CEOs have to decide on how they should allocate their finite attention and resources towards pursuing a diverse set of organizational goals, such as their firms' core business profitability, civic engagement, and biodiversity conservation (Bundy, Shropshire, & Buchholtz, 2013). Nevertheless, with increasing stakeholder pressures on corporate sustainability, CEOs attend to the three performance dimensions to varying degrees in ensuring their firms' ability to survive financially and maintaining their firms' license to operate (Bansal & Clelland, 2004; Suchman, 1995).

While CEOs face similar paradoxical tensions in corporate sustainability, they differ in how they engage with and work through these paradoxical tensions effectively (Smith & Lewis, 2011). In particular, managerial cognition is theorized to be a key factor for CEOs' choice of strategic behaviors (Hambrick, 2007; Hambrick & Mason, 1984). According to schema theory, CEOs form cognitive frameworks (i.e. schemas) that guide current understanding or action (Bartlett, 1932; Walsh, 1995). Cognitive frames play a key role in the forming of schemas because they determine what information is included or excluded in CEOs' interpretation of the current environment (Ocasio, 1997; Porac & Thomas, 2002). This is particularly critical in the context of

corporate sustainability because cognitive frames enable CEOs to simplify and interpret the complexities and uncertainties of corporate sustainability (Lyles & Schwenk, 1992). Cognitive frames affect CEOs' strategic decision-making process, as their decisions are based on the information available and the subjective interpretation of the meaning of the information received (Daft & Weick, 1984; Ocasio, 1997). Consequently, managerial cognitive frames affect firm outcomes through the strategic decisions that organizational leaders make on behalf of their firms (Bansal & Roth, 2000; Knight & Paroutis, 2017; Sharma, 2000). In order to understand the impact of managerial cognitive frames on CSP, I draw upon the literature on managerial cognitive frames in the next section.

MANAGERIAL COGNITIVE FRAMES: A PARADOX PERSPECTIVE

Within the context of corporate sustainability, Hahn et al. (2014) introduced the concept of a paradoxical frame that influences how CEOs make sense of paradoxical tensions in corporate sustainability. A paradoxical frame is driven by a belief that inconsistencies present in complex organizational contexts cannot be eliminated (Smith & Tushman, 2005). Consequently, a paradoxical frame leads CEOs to attend to competing economic, environmental, and social concerns simultaneously, even if they appear as contradictory objectives for the firm (Smith & Lewis, 2011). The structure of a paradoxical frame is complex as CEOs attend to a wide range of economic, environmental, and social objectives simultaneously and with equal importance (i.e. high degree of differentiation) (Hahn et al., 2014). In addition, a paradoxical frame allows CEOs to see the interrelatedness between the three objectives and take into account how the competing dimensions can reinforce or negate each other (i.e. high degree of integration) (Leung et al., 2018). Hence, CEOs who apply a more paradoxical frame are more likely to explore how they can simultaneously address their firms' triple

bottom line with all its complexity, rather than merely pursuing environmental/social activities for an ultimate objective of economic prosperity (Van der Byl & Slawinski, 2015). Nevertheless, these CEOs are likely to take a more prudent approach by moving forward slowly and carefully because they are aware of both the risks and the tensions in pursuing competing performance goals simultaneously (Hahn et al., 2014).

In contrast, CEOs who apply a less paradoxical frame are likely to adopt a pragmatic stance towards sustainability issues by engaging in environmental and/or social activities that bring greater financial prosperity to their firms (i.e. low degree of integration) (Hahn et al., 2014). These CEOs are more likely to focus on “environmental and social aspects that align with economic objectives and thus interpret sustainability issues univalently as either positive or negative for their business” (Hahn et al., 2014, p. 19). How these CEOs engage in environmental and/or social activities, as well as the extent they pursue these activities, are a function of how these activities contribute to financial performance (Kaplan, 2019). As such, CEOs with a less paradoxical frame may bypass *performing paradoxical tensions* by engaging only in certain environmental and/or social activities or adopt a trade-off approach of pursuing financial performance over environmental/social performance. Although these CEOs address a narrower scope of sustainability issues, adopting an alignment logic reduces the complexity within corporate sustainability and facilitates a quicker implementation of sustainability practices throughout their firms (Hahn et al., 2014).

In order to attend to multiple firm objectives successfully, CEOs with a paradoxical frame depend on the social approval from their firms’ stakeholders to obtain support and resources needed to address their firms’ CSP (Carlos & Lewis, 2018; Pfeffer & Salancik, 2003). Stakeholder is defined as “any group or individual who can affect or is affected by the achievement of the organization's objectives” (Freeman, 1984, p. 46).

When faced with a plurality of stakeholder demands, how successful CEOs are in meeting stakeholder expectations can influence the impact of a paradoxical frame on firms' CSP (Freeman, 1984). According to BTS¹, environmental and social performance expectations are negotiated with firms' stakeholders (Nason et al., 2018). This process of negotiation between firms and their stakeholders surface various sets of stakeholder desires as to what constitutes organizational success (Smith & Lewis, 2011). When stakeholder expectations are met or exceeded, stakeholders may express positive feedback by providing financial, natural, and social resources (Laplume, Sonpar, & Litz, 2008). These resources are particularly critical in enabling a paradoxical frame to implement ambitious strategies in pursuing financial, environmental, and social objectives simultaneously. In contrast, when stakeholder expectations are not fulfilled, stakeholders may express negative feedback by withholding resources or putting negative media attention on the firms (Sharma & Henriques, 2005). In such situations, CEOs' attempts to enact sustainability strategies may not succeed with a lack of resources and potential loss of legitimacy. Accordingly, stakeholders play a significant contextual role in influencing the impact of a paradoxical frame on firms' CSP.

While a paradoxical frame directs CEOs to address their firms' financial, environmental, and social objectives substantively, mismanaging the complexities arising from *performing paradoxical tensions* can be detrimental for firms and broader society (Schad et al., 2016). In fact, existing studies have demonstrated both positive and negative organizational outcomes from engaging with paradoxes (Ashforth & Reingen, 2014; Smith, 2014). Since we do not yet know *if* and *when* a paradoxical frame can lead to superior firm performance along the three performance dimensions, I first set out to establish if CEOs with a more paradoxical frame result in higher or lower CSP.

¹ BTS includes other firm performance dimensions besides financial performance (Nason et. al., 2018).

Next, I explore the role of stakeholders in influencing the impact of a paradoxical frame on CSP. I examine the moderating effects of (a) stakeholder recognition of CEOs' environmental and social efforts, (b) CEOs' stakeholder ties, and (c) boards' attention to non-financial stakeholder interests on the relationship between a paradoxical frame and CSP.

Managerial Paradoxical Frame and CSP

Existing studies within the paradox literature present mixed evidence regarding the outcomes of working through paradoxes (Schad et al., 2016). On one hand, engaging paradoxical tensions effectively can result in greater ambidexterity (Raisch & Birkinshaw, 2008), creativity (Miron-Spektor, Gino, & Argote, 2011), and innovation (Gebert, Boerner, & Kearney, 2010). At the organizational level, firms attain superior long-term performance as they become increasingly capable of meeting competing yet significant demands over time (Schmitt & Raisch, 2013; Slawinski & Bansal, 2015; Smith, Lewis, & Tushman, 2011). On the other hand, failure to manage paradoxical tensions effectively can result in individuals' defensive responses (Iivonen, 2018), anxiety (Schneider, 1990), and frustration (Ng, Walls, & Wingard, 2018). Organizations may develop internal strife and in-fighting (Ashforth & Reingen, 2014), and ongoing conflicts can negatively impact firms' performance (Battilana & Dorado, 2010). While paradoxical tensions present the potential to drive short-term peak performance that can fuel long-term success, attempts to work through paradoxical tensions may also result in negative organizational outcomes (Smith & Lewis, 2011). Accordingly, I present competing hypotheses on the relationship between CEOs' paradoxical frame and CSP.

Working through paradoxical tensions can drive CSP through three mechanisms. First, CEOs with a paradoxical frame are likely to perceive any information regarding their firms' financial, environmental, and social aspects as relevant to their strategic

decision making (Smith & Lewis, 2011). For example, these CEOs are likely to leverage on both quantitative planning tools (e.g. economic modeling) and qualitative planning tools (e.g. scenario analyses) to gather a broad range of information in their strategic decision-making process (Slawinski & Bansal, 2015). Having a diverse perspective regarding sustainability issues enables these CEOs to adapt to the dynamism in corporate sustainability and preemptively resolve sustainability issues (Bundy et al., 2013; Jones, 1995). In addition, these CEOs will mindfully explore the dynamic relationships between financial, environmental, and social performance dimensions in order to develop strategies that can drive these three performance dimensions simultaneously (Hahn et al., 2014). This enables CEOs to address a wider range of sustainability issues to a fuller extent, which leads to substantive improvements across their firms' operations (Hahn et al., 2018).

Second, CEOs with a paradoxical frame are likely to embed corporate sustainability into the core of their firms as a means of driving substantive improvements to their firms' CSP. This requires CEOs to integrate environmental and social objectives in the firm's strategy, routines, and operations (Aguinis & Glavas, 2013). Embedding corporate sustainability requires CEOs to build on their firms' core competencies as they implement environmental and social objectives throughout their firms' systems and structures (Aguinis & Glavas, 2013). For example, in promoting its vision of "Well being/Being well", personal care company Natura leveraged its core competency of innovation to create new cosmetic products that bring economic value to the firm while reducing environmental and social impacts (Hashiba, 2012). Given that each firm has a unique set of core competencies, embedded corporate sustainability is context-specific and cannot be easily replicated by other firms. This enables CEOs to create a competitive advantage over their firms' competitors, which leads to superior corporate

financial performance while pursuing environmental and social performances (Aguinis & Glavas, 2013).

Third, CEOs with a paradoxical frame are likely to seek out collaborative efforts with other firms and other sectors, such as government, civil society organizations, and think tanks (Slawinski & Bansal, 2015). As these CEOs gather information on sustainability, they may reach out to their internal stakeholders (e.g. employees) and external stakeholders (e.g. government, outside experts) to exchange knowledge about corporate sustainability. These CEOs may also choose to engage in cross-sector partnerships that facilitate the sharing of knowledge and resources on corporate sustainability (Stadtler, 2018). Collectively, stakeholder engagement efforts facilitate building of strong stakeholder relationships that can bring a multitude of benefits to the firms (Barnett, 2007). For example, strong stakeholder relationships based on mutual trust and cooperation can reduce transaction costs between firms and their stakeholders (Jones, 1995), reduce firms' resource dependency on their stakeholders (Hillman, Withers, & Collins, 2009), and provide firms with the license to operate (Suchman, 1995). Despite the possibility of competing stakeholder demands, a paradoxical frame enables CEOs to integrate various stakeholder demands in a coherent fashion that will develop their firms' stakeholder integration capacity (Grewatsch & Kleindienst, 2018). Accordingly, CEOs who have a more paradoxical frame will drive superior performance across their firms' financial, environmental, and social performance dimensions.

Hypothesis 1a: CEOs who are more paradoxical in their cognitive frame will drive superior corporate sustainability performance for their firms.

Mismanaging performing paradoxical tensions can result in negative organizational outcomes. First, as CEOs with a paradoxical frame may perceive any information regarding their firms' sustainability as relevant to their strategic decision making, these CEOs may face a cognitive overload of information and develop

ambivalent interpretations of sustainability issues instead (Ashforth & Reingen, 2014; Hahn et al., 2014). These CEOs are likely to carefully evaluate the potential positive and negative outcomes of their decisions on all three performance dimensions (Wong, Ormiston, & Tetlock, 2011), which may result in a cautious awareness of the risks involved in taking any sustainability action. These CEOs will also require more time to assess and integrate a diverse and potentially competing stakeholder perspectives on various sustainability issues (Slawinski & Bansal, 2012). In adopting a prudent stance towards sustainability issues, these CEOs are more likely to make strategic changes slowly and carefully. As a result, swift strategic responses on sustainability issues may be impeded or may never materialize at all (Castro, Garrido, Reis, & Menezes, 2009).

Second, as CEOs with a paradoxical frame gather contradictory information on corporate sustainability, they may experience anxiety, uncertainty, ambiguity, or even frustration (Ashforth & Reingen, 2014; Schneider, 1990). Given individuals' preference for consistency in their beliefs and actions, CEOs may respond defensively towards paradoxical tensions in a manner that undermines corporate goals (Smith & Lewis, 2011). For example, Leonard-Barton (1992) found that managers reacted defensively to tensions of applying existing capabilities and renewing these capabilities in developing new products. Their defensive reactions, such as abandoning new capabilities or reverting to existing capabilities, increased their firms' rigidity in adapting to market demands and undermined their firms' development projects. Individuals are also inclined to maintain a commitment to existing beliefs and behaviors in order to ensure consistency between the past and the future (Weick, 1993). For example, CEOs may continue investing in sustainability strategies that are not effective or economical because of their previous commitments and financial investments (Yoder, Mancha, & Agrawal, 2014). In attempting to drive sustainability objectives simultaneously,

negative effects arising from pursuing contradictory goals may neutralize or exceed the benefits of embedding corporate sustainability substantively (Gebert et al., 2010).

Third, in attempts to achieve financial, environmental, and social objectives simultaneously, CEOs with a paradoxical frame are likely to communicate competing performance goals to their firms' members (Knight & Paroutis, 2017). Although these CEOs recognize the interrelatedness among the performance goals, their organizational members may not necessarily recognize the paradoxical nature of CSP and may be divided into groups that identify with different performance goals (Battilana & Dorado, 2010). This results in the potential for internal conflict among organizational members, as members strive for managerial attention and resources to advance their own preferred organizational goal (Chung & Beamish, 2010). For example, members of a natural food cooperative split into two groups that identified with the cooperative's financial and social missions respectively (Ashforth & Reingen, 2014). This resulted in intergroup conflict within the cooperative as each group developed polarized views towards their firm's purpose. Rather than moving towards a common goal, firms may experience chaos internally that may ultimately lead to their firms' decline (Smith, Besharov, Wessels, & Chertok, 2012). Accordingly, CEOs who have a more paradoxical frame may negatively impact their firms' financial, environmental, and social performances.

Hypothesis 1b: CEOs who are more paradoxical in their cognitive frame will negatively impact their firms' corporate sustainability performance.

Moderating Effect of Stakeholder Recognition

In light of these competing hypotheses, I next consider the role of stakeholders in moderating the impact of a paradoxical frame on CSP. As BTS proposes, stakeholders play a critical role in influencing firms' sustainability performance levels (Nason et al., 2018). Notably, unlike financial performance, environmental and social performance reference points are ambiguous and negotiated with the firm's stakeholders. Since

stakeholders can provide or withhold support and resources from firms, I next examine the moderating effect of stakeholder recognition as a means of indicating stakeholder expectations of firms' corporate sustainability. I hypothesize on the moderating effects of stakeholder recognition, rather than a mediating pathway, because I do not expect a paradoxical frame to be an antecedent of stakeholder recognition. Both CEOs with a more and less paradoxical frame may receive stakeholder recognition for their environmental and social efforts. On one hand, while CEOs with a more paradoxical frame attempt to maximize environmental and social performances, adopting a more prudent stance may result in slow action or inaction on corporate sustainability (Hahn et al., 2014). Hence, applying a more paradoxical frame does not necessarily result in higher stakeholder recognition. On the other hand, although CEOs with a less paradoxical frame may not view environmental and social objectives as equally important as financial objectives, they may nevertheless pursue certain environmental and social activities to maximize their economic performance (Kaplan, 2019). Applying a less paradoxical frame does not discount the efforts that these CEOs may put in into driving selected environmental and social activities. Accordingly, I focus on the moderating effects of stakeholder recognition instead.

First, stakeholder recognition increases CEOs' attribute-specific reputation on corporate sustainability issues (Rindova, Williamson, Petkova, & Sever, 2005). Reputation is defined as a "collective social judgment regarding the quality or capabilities of a focal actor within a specific domain" (Boivie, Graffin, & Gentry, 2016, p. 188). Attribute-specific reputations are based on CEOs being known for a specific characteristic (e.g. acting on environmental and social issues) and meeting the expectations of a specific audience, such as government and civil society organizations (Highhouse, Brooks, & Gregarus, 2009; Lange, Lee, & Dai, 2011). As presented in my

third argument for H1(a), CEOs with a paradoxical frame are likely to seek out collaborative efforts with various stakeholder groups to share knowledge and resources on corporate sustainability (Slawinski & Bansal, 2015). In doing so, their stakeholder engagement efforts facilitate building of strong stakeholder relationships. Stakeholder recognition moderates this causal mechanism by providing a clearer indication that CEOs have fulfilled or exceeded stakeholders' expectations on their efforts regarding environmental and social issues (Boivie et al., 2016). This bolsters CEOs' reputation on corporate sustainability among stakeholders (Deephouse & Carter, 2005), which may influence their firms' performances (Barnett & Leih, 2018; Koh, 2011). Accordingly, the increased stakeholder trust and cooperation can reduce transaction costs between firms and their stakeholders (Jones, 1995), reduce firms' resource dependency on their stakeholders (Hillman et al., 2009), and provide firms with the license to operate (Suchman, 1995).

Second, stakeholder recognition of CEOs' environmental and social efforts – such as sustainability-related awards and nominations – provides clearer indication to CEOs on the type of sustainability issues advocated by stakeholders. Within corporate sustainability, CEOs face *performing paradoxical tensions* arising from multiple and competing stakeholder demands (Smith & Lewis, 2011). As discussed in my first argument for H1(b), while collecting diverse stakeholder perspectives may enable CEOs with a more paradoxical frame to address a wider range of sustainability issues, CEOs will also require more time to assess and integrate these perspectives (Slawinski & Bansal, 2012). Stakeholder recognition narrows the range of sustainability issues that CEOs need to address by providing a clearer indication on the types of sustainability issues of concern to them (Bundy et al., 2013). For example, receiving a “CEO Diversity Leadership Award” reflects the importance of diversity to the firm's stakeholders and

directs the CEO towards committing to continued work on diversity-related issues (David, Bloom, & Hillman, 2007). Since CSP is a negotiated process between stakeholders and firms, each firm is likely to differ in the range of sustainability issues of concern. Hence, rather than attempting to solve all possible sustainability issues, stakeholder recognition enables CEOs who apply a more paradoxical frame to prioritize and commit to continued action on certain sustainability issues instead (Bundy et al., 2013).

Third, receiving stakeholder recognition reduces ambiguity in navigating corporate sustainability because it clearly indicates to CEOs that their environmental and social efforts fulfill or exceeds their stakeholders' expectations (Nason et al., 2018). As presented in my second argument for H1(b), CEOs with a paradoxical frame may experience uncertainty and ambiguity as they gather contradictory information on corporate sustainability (Ashforth & Reingen, 2014; Schneider, 1990). This may result in these CEOs responding defensively towards paradoxical tensions in a manner that undermines corporate goals (Smith & Lewis, 2011). Since an accurate accounting of stakeholder expectations is not readily available, CEOs cannot easily infer if their environmental and social efforts have fulfilled stakeholder expectations. Instead, stakeholders must express visible and active feedback to CEOs, such as through providing sustainability awards and nominations (Sharma & Henriques, 2005). These visible and active forms of stakeholder recognition formally validate that CEOs have met or exceeded stakeholders' standard or set of criteria, and have substantively implemented practices or engaged in sustainability activities (Nason et al., 2018). In doing so, stakeholder recognition indicates to CEOs that sustainability issues prioritized by them resonates with stakeholders, and that CEOs' environmental and social efforts are approved and encouraged by stakeholders. Hence, these CEOs are more likely to

commit to continued work on these environmental and social issues (Bundy et al., 2013). Altogether, I propose stakeholder recognition (a) increases CEOs' reputation on corporate sustainability, (b) narrows the range of sustainability issues, and (c) reduces ambiguity on stakeholder expectations on sustainability issues. Given the competing hypotheses in H1, I expect stakeholder recognition to (a) strengthen the positive impact, or (b) weaken the negative impact of CEOs' paradoxical frame on CSP.

Hypothesis 2: Stakeholder recognition of a CEO's environmental and social efforts (a) strengthens the positive relationship or (b) weakens the negative relationship between a CEO's paradoxical frame and corporate sustainability performance.

Moderating Effect of CEOs' Stakeholder Ties

Corporate sustainability issues are particularly complex, because the range of activities that fall under the purview of firms' corporate sustainability and the performance evaluation of these activities constantly evolve in tandem with what stakeholders consider socially accepted and expected (Mitchell, Agle, & Wood, 1997). CEOs regularly engage with their stakeholders in a bid to understand the scope of sustainability issues they should attend to and how they are expected to perform on each issue (Nason et al., 2018). Engaging with stakeholders enables CEOs to gather current developments on corporate sustainability and respond to changing stakeholder demands on a timely basis (Gulati, 1999). Accordingly, CEOs form ties with their firms' stakeholders to facilitate the transfer of information, knowledge, and resources on corporate sustainability (Koschmann, Kuhn, & Pfarrer, 2012). This may be done through firm-level arrangements, such as joining cross-sector partnerships that bring together a variety of stakeholders to work on sustainability issues (Stadtler, 2018). CEOs may also form ties with their firms' stakeholders when they participate in environmental and social activities outside of their job scopes, such as serving as trustees on boards of charities and environmental conservation organizations (Walls & Hoffman, 2013).

Notably, network formation is path dependent, socially complex, and difficult to imitate (Walls, Phan, & Berrone, 2011). As such, building stakeholder ties between CEOs and their firms' stakeholders can become a strategic capability that drives firms' competitive advantage (Lenz, 1980).

In light of the potential benefits of stakeholder ties, I expect CEOs' stakeholder ties to strengthen the relationship between a paradoxical frame and CSP. In particular, I focus on the number of stakeholder ties that CEOs form as the focal moderating variable. I hypothesize on the moderating effects of stakeholder ties, rather than a mediating pathway, because I do not expect a paradoxical frame to be an antecedent of the number of stakeholder ties. Both CEOs with a more and less paradoxical frame may form numerous stakeholder ties since managing their firms' interdependencies on stakeholders is critical to achieving superior firm performance (Freeman, 1984; Laplume et al., 2008). Building more stakeholder ties enable CEOs to gather current information on developments in corporate sustainability and up-to-date knowledge on addressing sustainability issues (Gulati, 1999). Regardless of CEOs' level of paradoxical frame, the flow of knowledge and information through stakeholder ties is valuable for CEOs in reducing ambiguity within corporate sustainability as they enact strategies to drive their firms' CSP. Building a number of stakeholder ties also enables CEOs to indicate to stakeholders at large that they view environmental and social issues as important to them and their firms (Bansal & Clelland, 2004; Carlos & Lewis, 2018). As discussed further below, this is critical for providing firms with the license to operate (Suchman, 1995), as well as reducing transaction costs and interdependencies between firms and their stakeholders (Hillman et al., 2009; Jones, 1995). Accordingly, I focus on the moderating effects of stakeholder ties instead.

First, the number of stakeholder ties moderates the relationship between a paradoxical frame and CSP by allowing a flow of knowledge and information needed to address sustainability issues (Gulati, 1999). As presented in the first argument for H1(a), CEOs with a more paradoxical frame are likely to perceive any information regarding their firms' sustainability issues as relevant to their strategic decision making (Smith & Lewis, 2011). Forming stakeholder ties enable these CEOs to obtain a greater flow of information and knowledge from their stakeholders, which is critical in gathering up-to-date developments on sustainability practices (Koschmann et al., 2012). This enables these CEOs to develop new and creative strategies that can drive competing firm objectives simultaneously (Gulati, 1999). In addition, these CEOs are likely to work on multiple sustainability issues that require knowledge and resources that span across multiple disciplines, such as technology, regulatory compliance, research and development, manufacturing, marketing, and environmental management (Szalavetz, 2018). Hence, forming more stakeholder ties enable these CEOs to gather perspectives from more stakeholders on environmental and social issues, which enable them to address sustainability issues to a fuller extent. Accordingly, stakeholders ties allow a transfer of valuable knowledge and information that can influence the impact of a paradoxical frame on CSP.

Second, building more stakeholder ties is a critical aspect of managing firms' interdependency with their stakeholders (Barnett, 2007). As presented in my third argument for H1(a), stakeholder engagement efforts can bring a multitude of benefits to firms, such as reduced transaction costs and resource dependencies (Barnett, 2007). Forming ties with a greater number of stakeholders strengthens this causal mechanism by allowing CEOs to communicate with more stakeholders, thereby facilitating trust and favor between CEOs and their stakeholders (Barnett & Salomon, 2012; Suchman,

1995). This increases the extent that CEOs are embedded in stakeholder networks, which serves as an indication to stakeholders that these CEOs are actively working on their firms' sustainability issues (Bansal & Clelland, 2004; Sharkey, 2014). As a result, stakeholders perceive a higher trustworthiness of these firms, which decreases transaction costs between firms and their stakeholders (Jones, 1995) and provide firms with the license to operate (Suchman, 1995). In addition, forming ties with more stakeholders decreases firms' resource dependency on individual stakeholders by providing multiple avenues to obtain knowledge and resources on corporate sustainability (Hillman et al., 2009). This bolsters CEOs' autonomy to make sustainability decisions to integrate environmental and social objectives in the firms' strategy, routines, and operations without interference by specific stakeholders (Drees & Heugens, 2013). Hence, building more stakeholder ties enables CEOs to manage their firms' interdependencies with their stakeholders.

Third, building stakeholder ties reduces the ambiguity in navigating corporate sustainability by enabling CEOs to form a measured understanding of their firms' stakeholder expectations (Bundy et al., 2013). As presented in my second argument for H1(b), CEOs with a paradoxical frame may experience uncertainty and ambiguity as they gather contradictory information on corporate sustainability (Ashforth & Reingen, 2014; Schneider, 1990). Stakeholder expectations regarding firms' sustainability performance are varied, ambiguous, and constantly evolving (Nason et al., 2018). In addition, CEOs cannot easily infer if their environmental and social efforts have fulfilled stakeholders expectations. Rather, engaging with stakeholders is necessary for CEOs to elucidate their stakeholders' expectations regarding their firms' sustainability performance (André, Cho, & Laine, 2018). When CEOs engage with a greater number of stakeholders, they are more aware of how various stakeholders may differ in their

expectations regarding their firms' corporate sustainability (Nason, Mazzelli, & Carney, 2019). As a result, they are able to form a representative understanding of stakeholder expectations and enact strategies that can drive CSP. In addition, given the dynamism in corporate sustainability, engaging a number of stakeholders allows CEOs to promptly gather latest stakeholder expectations, which in turn allows CEOs to address their firms' stakeholder concerns on a timely basis. Altogether, I propose that forming a greater number of stakeholder ties (a) increases CEOs' knowledge and information on corporate sustainability, (b) enables CEOs to manage their firms' interdependencies on stakeholders, and (c) reduces ambiguity regarding stakeholder expectations. Hence, I expect CEOs' stakeholder ties to (a) strengthen the positive impact, or (b) weaken the negative impact of CEOs' paradoxical frame on CSP.

Hypothesis 3: A CEO's stakeholder ties (a) strengthen the positive relationship or (b) weaken the negative relationship between a CEO's paradoxical frame and corporate sustainability performance.

Moderating Effect of Boards' Attention to Non-financial Stakeholder Interests

CEOs with a paradoxical frame recognize a broad range of stakeholder groups – including employees, communities, customers, and suppliers – as having legitimate interests that their firms need to attend to (Bundy et al., 2013; Kaplan, 2019). These CEOs view addressing the demands of various stakeholder groups as valid and important, regardless of the financial benefits that they may yield (Hahn et al., 2018). In order to substantively address various stakeholder demands for corporate sustainability, CEOs with a paradoxical frame recognize that substantively transforming their firms' structure and processes is necessary to embed environmental and social objectives into the core of their firms (Aguinis & Glavas, 2013). Doing so requires CEOs to make significant strategic changes to move away from unsustainable business practices, such as radically transforming production practices of their supply chain (Howard-Grenville,

Buckle, Hoskins, & George, 2014). For example, rather than introducing small initiatives to reduce waste production, Dell chose to work with its customers to implement a closed-loop system, in which its customers' waste is converted into new materials to re-enter the production cycle (Clancy, 2014). Although these initiatives may transform firms' structures and processes, they will require significant corporate resources in their implementation process.

While CEOs with a paradoxical frame may view efforts to embed corporate sustainability as crucial for corporate sustainability, their strategic direction has to resonate with their board of directors in order to obtain approval to mobilize their firms' resources (Ledgerwood, 1997). Corporate boards serve two main functions in governing firms: (i) monitor management and mitigate agency costs, and (ii) provide resources (e.g. legitimacy, advice and counsel, links with other organizations) with their networks and human capital (Hillman & Dalziel, 2003). Boards can affect their firms' strategic direction by initiating a change of CEOs when they perceive CEOs as ineffective or incompatible with their preferred strategic direction (Westphal & Fredrickson, 2001). Boards can also influence firms' strategic direction through the advice and counsel that they give to CEOs (Westphal, 1999). Since boards hold power over firms' management through their monitoring and resource provision roles, CEOs need to obtain their boards' support in order to successfully embed corporate sustainability into their firms.

Corporate boards vary in the extent that they perceive environmental and social objectives as important, which in turn affects how they govern their firms. Boards may perceive environmental and social objectives as relevant because of their own experience sitting on other boards' environmental/social committees or a recognition that addressing environmental/social concerns can drive corporate financial performance (Barnett & Salomon, 2012; Walls & Hoffman, 2013). Boards may also

recognize that integrating environmental and social objectives into their firms fulfills an expressive purpose of articulating the firm's identity and core values to its external stakeholders (Brickson, 2007; Bundy et al., 2013). For example, firms with environmental stewardship as a core value, such as Patagonia, may perceive addressing stakeholder concerns regarding environmental issues as a means of expressing their identity to their stakeholders (Patagonia, 2019). As such, corporate boards may be more supportive of CEOs' attempts to address stakeholders' environmental and social concerns (Bansal & Roth, 2000).

I propose that boards' attention to non-financial stakeholder interests can strengthen the relationship between a CEO's paradoxical frame and CSP. First, Finally, I expect these boards to leverage on their networks and personal human capital to provide counsel and resources on environmental and social issues (Hillman & Dalziel, 2003). As presented in my first argument for H1(a), CEOs with a paradoxical frame are likely to gather diverse perspectives regarding sustainability issues and mindfully explore strategies to drive financial, environmental, and social performance dimensions simultaneously (Hahn et al., 2014). To do so, these CEOs will need to learn new knowledge to address their firms' financial, environmental, and social concerns simultaneously (Hahn et al., 2018). Corporate boards can facilitate the learning of new knowledge through their networks with other organizations (Gulati, 1999). By sitting on other boards, board directors can gather up-to-date information regarding environmental and social practices (Gulati, 1999). Board directors may also be able to access private information through their networks on how other firms address environmental and social concerns (Uzzi, 1999). In addition to leveraging on their networks, board directors may also share their prior experience in managing environmental and social issues. For instance, Walls and Hoffman (2013) found that

boards with more environmental experience drive positive deviance on corporate environmental performance. Collectively, boards can provide valuable information, knowledge, and resources that can support CEOs' efforts in working through paradoxical tensions in corporate sustainability.

Second, I expect boards that attend to non-financial stakeholder interests to perceive environmental and social objectives as important for their firms. As presented in my second argument for H1(a), CEOs with a paradoxical frame are likely to embed corporate sustainability into the core of their firms as a means of driving substantive improvements to their firms' CSP. Boards that attend to non-financial stakeholder interests are more aware of how their firms' environmental and social activities impact a range of stakeholders, including shareholders, communities, employees, and customers (Mitchell et al., 1997). These boards are likely to recognize that embedding corporate sustainability into their firms is needed to substantively address stakeholders' environmental and social concerns (Aguilera, Florackis, & Kim, 2016). In addition, embedding corporate sustainability may be valuable in ensuring the long-term viability of their firms (Slawinski & Bansal, 2015). In fulfilling their monitoring role, I expect these boards to value CEOs' environmental and social efforts in addressing various stakeholder demands (Ledgerwood, 1997). Rather than dismissing these CEOs' strategic plans, I expect these boards to reaffirm CEOs' choice of strategic direction and hold CEOs accountable for their firms' triple bottom line.

Finally, boards that attend to non-financial stakeholder interests are more likely to be in alignment with CEOs who adopt a more paradoxical frame on their firms' sustainability agenda. This coherency between boards and CEOs indicates to internal and external stakeholders regarding the importance of corporate sustainability to their firms (Wang, Tong, Takeuchi, & George, 2016). As presented in my third argument for

H1(b), organizational members may not necessarily recognize the paradoxical nature of CSP and may be divided into groups that identify with different performance goals (Battilana & Dorado, 2010). Given that embedding corporate sustainability requires changes to firms' internal structure and processes, the consistent tone from the top reinforces CEOs' role power over their internal stakeholders (Desai, 2016). This facilitates CEOs' efforts to change their firms internally and lead their employees towards a common goal of pursuing substantive corporate sustainability (Hengst, Jarzabkowski, Hoegl, & Muethel, 2019; Walls & Berrone, 2017). In doing so, this reduces the costs of strategic change, such as costs arising from lack of commitment to change or employee resistance to change (Zhang & Rajagopalan, 2010). In addition, when boards attend to non-financial stakeholder interests, they indicate to firms' external stakeholders that CEOs are held accountable for firms' triple bottom-line (Waddock & Graves, 1997). This can be valuable in developing firms' corporate reputation and legitimacy with their external stakeholders, both of which can drive firms' CSP (Deephouse & Suchman, 2008; Orlitzky, 2008). Altogether, I propose that boards that attend to non-financial stakeholder interests will (a) provide counsel and resources to CEOs on sustainability issues, (b) hold CEOs accountable for their firms' CSP, and (c) indicate to stakeholders that they value corporate sustainability. Hence, I expect boards' attention to non-financial stakeholder interests to (a) strengthen the positive impact, or (b) weaken the negative impact of CEOs' paradoxical frame on CSP.

Hypothesis 4: Board's attention to non-financial stakeholders' interests (a) strengthens the positive relationship or (b) weakens the negative relationship between a CEO's paradoxical frame and corporate sustainability performance.

METHODOLOGY

A Cognitive-Linguistic Perspective on Managerial Paradoxical Frame

Scholars have typically adopted two methodological approaches in their attempts to measure CEOs' paradoxical cognitions. First, paradox scholars have predominantly used qualitative methods such as interviews, case studies, and ethnography, to elicit CEOs' paradoxical frames and how they respond to paradoxical tensions (e.g. Kaplan, 2008; Knight & Paroutis, 2017; Sharma & Jaiswal, 2018; Smith, 2014). While this approach provides deep insights into CEOs' paradoxical cognitions, it also has a constraint: reliability and replicability are difficult given that the studies are often based on a small number of case studies or interviews with CEOs (Cho & Hambrick, 2006). Second, quantitative methods such as surveys and experiments have gained traction among the micro-level paradox scholars as a means to capture individual-level paradoxical cognitions. A constraint of these studies is that they often recruit students in college or general employees through online platforms such as Amazon Mechanical Turk and not actual senior executives of major companies (e.g. Keller, Loewenstein, & Yan, 2017; Leung et al., 2018). Scholars face the challenge of low response rates when surveying executives in major companies and tend to draw their samples from smaller firms (e.g. Waller, Huber, & Glick, 1995). Furthermore, given that cognitive frames can shift over time (Sharma & Jaiswal, 2018), this method seems cumbersome when measuring managerial cognitive frames.

In response to these methodological constraints, a growing number of scholars in social sciences have attempted to examine managerial cognition by content analyzing archival documents such as annual reports, press releases, and speeches made by firm CEOs. Within the content analyses methodology, there are two dominant approaches to analyzing textual data, which are examining *what* CEOs say and *how* they say it. The

first approach of examining *what* CEOs say is focused on counting words that most frequently appear as a measure of the topics that are more cognitively central and on the mind of the CEOs (e.g. Cho & Hambrick, 2006; Gamache, McNamara, Mannor, & Johnson, 2015). The second approach of examining *how* CEOs say is focused on the structure of the texts as a reflection of the mental representations, regardless of the content domain. While the content of CEOs' communications through annual reports and public speeches can be controlled to a certain extent, they are less able to regulate consciously how they express this content (Ireland & Pennebaker, 2010). For example, Crilly et al. (2016) examined grammar of interview transcripts and CEO letters to shareholders to distinguish deceptive from truthful communications on corporate sustainability. In essence, how CEOs differ in structuring their corporate sustainability communications can reflect their subconscious beliefs and perceptions towards sustainability (Crilly et al., 2016). This perspective of examining linguistic structure can provide insights on how organizational CEOs conceptualize the phenomenon of paradoxical tensions in corporate sustainability (Langacker, 2008).

While content analysis has been used to examine other psychological concepts such as entrepreneurial attention (Cho & Hambrick, 2006), regulatory focus (Gamache et al., 2015), strategic schemas (Nadkarni & Narayanan, 2007), CEO attention (Nadkarni & Barr, 2008), and deception in corporate sustainability (Crilly et al., 2016), no empirical studies have adopted this method to measure CEOs' paradoxical frame to the best of my knowledge. Given that CEOs often engage in impression management on corporate sustainability to gain or maintain firm legitimacy (Highhouse et al., 2009), analyzing the *content* of CEOs' communications may not prove to be useful in measuring paradoxical frames. This is because I expect CEOs to express about equal importance of financial, environmental, and social dimensions in their communications

to their firms' stakeholders. In contrast, examining the *structure* of CEOs' communications regarding the financial, environmental, and social dimensions can provide insights into their mental templates used in navigating their firms' corporate sustainability (Langacker, 2008). In particular, I expect CEOs who adopt a paradoxical frame to use more complex linguistic structures that reflect their understanding and appreciation of the complexities in navigating paradoxical tensions in corporate sustainability (Pennebaker & King, 1999). As Crilly et al. (2016) illustrated, "firms have to protect shareholder interests, but not at the cost of the environment" represents a more complex understanding than the sentence "firms have to protect shareholder interests and the environment" does, because it accentuates tensions between shareholder interests and protecting the natural environment. In the next section, I describe my methodology for coding CEOs' paradoxical frame.

Sample and Data Source

To investigate the effect of CEOs' paradoxical frame on CSP, I started with all firms included in Standard & Poor (S&P) 500 companies from 2012 to 2014. This was the latest available period as I intended to conduct sensitivity analyses with my dependent variables measured at $t+2$ and $t+3$. To measure my dependent variables, I obtained firms' financial performance using accounting data extracted from Compustat, and environmental and social performance ratings from Thomson Reuters (TR) database. These dependent variables were measured over the period of 2013-2015, allowing for a one-year lead (i.e. $t+1$). I measured my independent and moderating variables at time t . To measure CEOs' paradoxical frame, I obtained the firms' annual sustainability reports over the three-year period. To measure my moderating variables, I obtained information from Boardex and Morgan Stanley Capital International GovernanceMetrics International Ratings (MSCI GMI). After combining the various

databases and removing observations with missing data, my final sample consisted of 270 firms with 624 firm-year observations.

Dependent Variable: Corporate Sustainability Performance (CSP)

As CSP consists of firms' financial, environmental, and social performances, I measured CSP across three performance dimensions separately. First, *financial* performance is measured using return on assets (ROA), which is net income divided by total assets (Waddock & Graves, 1997). Second, *environmental* and *social* performance is measured by extracting the environmental and social performance scores produced by TR database. There are two main components within these scores. First, TR measures companies' ESG performance based on reported data in the public domain. TR draws from a variety of reported data, such as companies' financial and sustainability reports, stock exchange filings, companies' websites, non-governmental organizations websites, and news sources. TR adopts a percentile ranking methodology by comparing a focal firm's ESG performance with the performance of other firms and ranking the companies accordingly. This is based on a calculation of 178 indicators across 10 categories, taking both qualitative and quantitative data into its calculation. For environmental and social pillars, TR ranks companies within the same industry as determined by their TR sector and industry classification. I present TR's ESG categories in Table 1. Firms' CSP is measured at $t+1$, with t representing the year I coded the firms' sustainability reports.

Insert Table 1 here

Independent Variable: CEOs' Paradoxical Frame

To measure the extent that CEOs are paradoxical in their cognitive frames, I content analyzed CEOs' stakeholders letters in firms' annual sustainability reports. As there is no established coding scheme for paradoxical frame, I measured the dialectical

complexity of CEOs' cognition as a proxy for CEOs' paradoxical frame (Conway et al., 2008). Dialectical complexity is concerned with the recognition of tensions between competing yet equally valid dimensions on a focal topic (Conway, Conway, Gornick, & Houck, 2014). In other words, higher levels of dialectical complexity exhibited by CEOs indicate that they have a more paradoxical frame.

To obtain a dialectical complexity score (DCS), I attended an online training that provided the relevant literature and manual for coding (Baker-Brown et al., 1992a; Conway, 2008). I first practiced scoring 12 sample paragraphs, and compared my scores to the answers and resulting commentary provided. Next, I proceeded to score stakeholder letters by assigning a value of one if the CEO recognized dialectical tensions, and zero being otherwise. Scoring is done on a section of material that focuses on one idea as a unit to score. For the purposes of coding stakeholder letters, I assumed each paragraph within the stakeholder letter as a single unit to score. Using the previous example extracted from Crilly et al. (2016), "firms have to protect shareholder interests, but not at the cost of the environment" would be coded as dialectical (DC=1). Finally, I summed the DCS before dividing by the number of scoring units to obtain an average DCS for each stakeholder letter. Further examples of scoring units and the corresponding DCS are listed in Table 2, and descriptive statistics of the stakeholder letters are presented in Table 3.

Insert Table 2 and 3 here

Validity of coding. To ensure the validity of my coding, I double coded a random sample of 77 stakeholder letters (10% of stakeholder letters). The second coder was similarly trained to score DCS before coding the stakeholder letters. I also developed a coding protocol to contextualize DCS within corporate sustainability for my second

coder, as detailed in Appendix 1. We first coded two stakeholder letters that were not included in my sample as an initial practice and resolved any significant differences between the coders. We then proceeded to code the 77 stakeholder letters. Next, I ran an inter-rater reliability calculation and obtained a Cronbach's Alpha average of 0.83, showing high inter-rater reliability.

Moderating Variables

Stakeholder recognition of CEOs' environmental and social efforts. To measure this variable, I downloaded data on CEOs' awards received from Boardex. Building upon Walls and Hoffman (2013), I coded for awards and honors that CEOs received to calculate the total number of environmental and social awards a CEO has received. First, I searched for keywords in the titles of awards, such as "green", "environment", "diversity", and "citizen". I also searched for variations of these words, for example "sustainable" was a variation for "sustainability". The complete list of keywords searched is listed in Appendix 2. I then checked the context of award descriptions that were tagged for misrepresentation. For instance, when I searched for "healthcare" as a keyword, I eliminated items that were not indicative of awards related to corporate sustainability, such as "100 Most Influential People in Healthcare" and "Honorary Doctorate of Holistic Health". I also removed all award descriptions to do with country citizenships that were tagged by searching for "citizenship".

CEOs' stakeholder ties. Following Walls and Hoffman (2013), I downloaded CEOs' networks data from Boardex. I coded for their membership, advisory, or management role in stakeholder groups (i.e. non-corporate institutions), such as charities, government, medical institutions, universities, non-governmental organizations, and clubs. By CEO and year, I summed up the number of stakeholder ties as a measure of each CEOs' stakeholder ties.

Boards' attention to non-financial stakeholder interests. This dummy variable was measured using data from MSCI GMI regarding firms' constituency provision. GMI defines this variable as a company having a provision that allows a board to take into account the interests of non-financial constituencies such as employees, communities, customers and suppliers when making decisions, including decisions regarding control of the company. Firms with missing values were assumed to have no provisions.

Control Variables

To reduce omitted variable bias and alternative explanations in my model, I included the following control variables. Within the psychology field, elaborative complexity is identified as an alternative form of cognitive complexity. While DCS focuses on recognition of tensions, elaborative complexity focuses on understanding a single, dominant theme in a complex way (Conway et al., 2008). To ensure that my model captures the effect of DCS on CSP, I controlled for CEOs' *elaborative complexity* (ECS) by assigning a value of one if the CEO was elaborative within each scoring unit, and zero being otherwise. Scoring for elaborative complexity has no effect on the dialectical complexity score as these two forms of complexities are assessed independently (Conway et al., 2008). For example, "firms have to protect shareholder interests and preserve the natural environment" would be coded as elaborative (EC=1). I summed the ECS before dividing by the number of scoring units to obtain an average ECS for each stakeholder letter. Further examples of scoring units and the corresponding ECS are listed in Table 2.

I controlled for *firm size* as the number of employees because larger organizations have more resources to attend to sustainability issues and they are more likely to face pressures for better CSP (Kang, 2013; McWilliams & Siegel, 2001). I

controlled for firms' *leverage* as a ratio of long-term debt to equity (Bromiley, 1991), as higher debt levels reduce firms' discretion to invest in CSP activities. I controlled for *slack* as the level of free cash holdings, given that slack affects CEOs' capacity to engage on stakeholder issues (George, 2005). Firms that are unable to meet immediate financial obligations are vulnerable to bankruptcy proceedings, which can affect their investments into CSP activities in the short run. Accordingly, I controlled for firm's *solvency*, which is measured as the total amount of long-term debt divided by current assets (Gulati, 1999).

I controlled for firms' *research and development (R&D) intensity* and *advertising intensity*, as the existence of intangible assets (e.g. R&D capability and brand reputation) may affect CSP (Kang, 2013; McWilliams & Siegel, 2000). R&D intensity and advertising intensity were measured by taking R&D expense and advertising expense divided by sales respectively. I imputed as zero for these expenses if firms had missing values, based on the assumption that companies must report any material expenses in their annual financial reports, and any immaterial expenses can be excluded. Also, better sustainability management could be due to the quality of firms' corporate governance, and not necessarily CEOs' paradoxical frame. As such, I controlled for the *quality of corporate governance*, measured by the proportion of independent directors on the board. Firms that are closer to end consumers are more sensitive to public perception and have greater incentive to attain higher CSP (Tilcsik & Marquis, 2013). Also, CEOs of these firms may be more conscious of environmental and social issues due to the firms' proximity to end consumers, which can affect the extent that the CEOs are paradoxical in their cognitive frames. Accordingly, I controlled for firms' *distance-to-consumer* by measuring if a firm operates in a business-to-consumer industry. Following the Standard Industrial Classification (SIC) coding

scheme developed by Lev, Petrovits, and Radhakrishnan (2010), firms operating in a business-to-consumer industry will take a value of one, and zero otherwise. I detail the SIC classification scheme in Table 4. Finally, firms that are resource intensive may have a poorer CSP by nature of their industry. Hence, I controlled for this industry effect by measuring if a firm operates in a *resource-intensive industry*. Firms operating in industries with an SIC two-digit code 1 to 50 will take a value of one, and zero otherwise. Refer to Table 5 for the SIC division structure, and Table 6 for summary statistics and pair-wise correlations of the variables.

Insert Tables 4, 5, and 6 here

Analyses

To analyze the longitudinal data for my variables, I tested my hypotheses using a panel regression in STATA version 14. With the introduction of a hybrid panel method (Allison, 2005; Certo, Withers, & Semadeni, 2017), I conducted my analyses using this method to provide finer-grain insights to my sample. In particular, this method incorporates both fixed and random effects in the same regression model but disentangles between- and within-firm variances by measuring separate coefficients for each variance (Schunck, 2013). In doing so, this provides more information than running traditional fixed-effect or random-effect models. Briefly, this approach splits my variable into two variables: (1) a group-centered variable that incorporates only within-firm information and is identical to the coefficient estimates associated with a fixed-effects model, and (2) a group mean variable that represents the between-firm effect of the independent variable (Certo et al., 2017). In short, this method will separately report both the within- firm estimate (i.e., Do changes in the extent that CEOs are paradoxical in their cognitive frame over time affect their firms' CSP?) and the between-firm

estimate (i.e., Do firms with CEOs who apply a more paradoxical frame outperform on CSP?). I controlled for year effects in my analyses. I also used robust standard errors to account for the possibility of heteroskedasticity and auto-correlation in my panel dataset (Hoechle, 2007).

Correction for Endogeneity

Correction for sample selection bias. My conceptual model may face sample selection bias. First, as annual sustainability reporting for U.S. firms was on a voluntary basis, I was only able to obtain 796 sustainability reports with a stakeholder letter out of a total of a 1,500 firm-year sample (i.e. 53.1%). Hence, I expected that CEOs may influence whether their firms will issue a sustainability report, as well as to include a stakeholder letter within the report. As a result, a subset of my data is likely to be systematically excluded due to a particular unmeasured attribute. Using the self-selection correction method based on Heckman (1979)'s sample selection correction, I first estimated the probability of issuing a sustainability report using a first-stage probit model. I regressed the binary variable of a stakeholder letter on whether the CEO has a MBA, as well as other control variables from my main model (Bascle, 2008). I used the binary variable of CEO having an MBA as my exclusion restriction variable following Lewis, Walls, and Dowell (2014)'s finding that CEOs with an MBA are more likely to respond to voluntary firm environmental disclosure requests. I found that the exclusion restriction variable significantly predicts the presence of a stakeholder letter ($\beta = 0.412$, $p < 0.05$). Following Certo, Busenbark, Woo, and Semadeni (2016), I calculated the inverse Mills ratios (IMR) based on the first-stage probit estimation by using Stata's heckman selection module. I correlated the IMR with DCS and found weak correlation ($r = -0.063$, $p > 0.05$), which is an indicator of exclusion restriction strength. I also conducted a likelihood ratio test and Wald test, in which a significant Chi-square is an

indicator of exclusion restriction strength. Chi-squares of both tests are significant, which indicates that my exclusion restriction variable is relevant for the three dependent variables. Refer to Table 7 for the first-stage probit regression, and Table 8 for likelihood ratio test and Wald test results. I inserted the IMRs as a control of self-selection in my second-stage regressions.

Correction for reverse causality. It is possible that firms with higher CSP are more likely to attract or hire CEOs with a paradoxical frame, or drive CEOs to adopt a more paradoxical frame. I followed Chatterjee and Hambrick (2007) two-step method to address this concern. First, I regressed my measure of CEO paradoxical frame at time t against a set of antecedents and contemporaneous variables. The antecedent variables were measured at $t-1$ and they include firms' CSP, size, leverage, solvency, slack, R&D intensity, advertising intensity, distance-to-consumer, if the firm was in a resource-intensive industry, and year effects. The contemporaneous variable, ECS, was measured at t . Among these variables, ECS ($p < 0.01$), firm size ($p < 0.05$), and year effects significantly predicted CEO paradoxical frame. The overall model was significant ($R^2 = 0.15$; $p < 0.01$). Using the regression coefficients for these significant variables, I calculated the predicted value of CEO paradoxical frame and included that value as an endogeneity control in my analyses.

 Insert Tables 7 and 8 here

RESULTS

Before proceeding with the analyses, I conducted intraclass correlation values (ICC(1)) to better understand the relative within- versus between-firm variance of each variable. A low ICC(1) indicates that most of the variance is within firm over time. Table 9 displays the ICC(1) for each variable in the analyses. The ICC(1) for the

dependent variables – financial, environmental, and social performance – indicate that about 27%, 87%, and 86% of the variances occurs between-firm respectively. The ICC(1) for paradoxical frame is 0.24, while the ICC(1) for the moderator variables are 0.91 for stakeholder recognition, 0.82 for stakeholder ties, and 0.88 for board attention. Altogether, applying a hybrid model is beneficial in separating out within- and between-firm variances over time. I report my results for the hybrid effects model with the three separate dependent variables within Tables 10 - 12.

Insert Tables 9 – 12 here

CEOs' paradoxical frame did not have any significant effect on firms' financial and environmental performance. However, I found a positive within-firm effect between CEOs' paradoxical frame and corporate social performance in the subsequent year. Hence, Hypothesis 1(a) is partially supported. I found mixed results for the moderating effect of stakeholder recognition in Hypothesis 2. For within-firm analysis, stakeholder recognition weakened the relationship between CEOs' paradoxical frame and corporate financial performance (Table 10 Model 3 (within-firm): $\beta = -0.070$, $p < 0.01$). In contrast, for between-firm analysis, stakeholder recognition strengthened the relationship between CEOs' paradoxical frame and corporate financial performance (Table 10 Model 3 (between-firm): $\beta = 0.112$, $p < 0.05$). Stakeholder recognition had no significant moderating effect for corporate environmental and social performances. Also, I did not find any significant moderating effects for stakeholder ties and board attention across the three performance dimensions. Hence, Hypotheses 3 and 4 are not supported.

I conducted a simple slopes test to further examine the interaction effects for Hypothesis 2, as presented in Figures 1 (within-firm) and 2 (between-firm). In Figure 1,

the slope for low stakeholder recognition is statistically significant ($\beta = 0.102, p < 0.05$). This indicates that at low levels of stakeholder recognition, a more paradoxical frame resulted in better corporate financial performance. On the contrary, there was no significant difference between a more and less paradoxical frame at high levels of stakeholder recognition. As discussed in my arguments for H2, stakeholder recognition increases CEOs' attribute-specific reputation on corporate sustainability. While these reputational effects may lead to superior firm outcomes relative to firms' peers, CEOs with a more paradoxical frame receiving these awards are inclined to taking lesser risks so as to ensure that they retain stakeholders' recognition of their efforts. For example, recent studies found that CEOs receiving business awards reduced their spending on R&D (Shemesh, 2017) and engaged in less mergers and acquisitions (Plaksina, Gallagher, & Dowling, 2019). As discussed in H1(b), CEOs with a more paradoxical frame adopt a prudent stance towards sustainability issues and are cautiously aware of the risks involved in taking any sustainability action. Consequently, receiving stakeholder recognition is likely to have exacerbated these CEOs' prudent stance, resulting in a decrease in their firms' financial performance over time instead.

 Insert Figures 1 and 2 here

Figure 2 examines the interaction effects for between-firm analysis. The slope for high stakeholder recognition is statistically significant ($\beta = 0.075, p < 0.05$). This means that at high levels of stakeholder recognition, firms with CEOs who had a more paradoxical frame outperform firms with CEOs who had a less paradoxical frame on corporate financial performance. In contrast, there was no significant difference between firms at low levels of stakeholder recognition. As discussed in my arguments for H2, stakeholder recognition provides a clearer indication on the types of

environmental and social issues of concern to stakeholders. Rather than attempting to solve all possible sustainability issues, stakeholder recognition enables CEOs who apply a more paradoxical frame to prioritize and commit to continued action on certain sustainability issues instead. Even if stakeholder recognition directed these CEOs' attention to corporate environmental and social issues, these CEOs were able to embrace and work through the competing demands of financial, environmental, and social performances synergistically. Hence, high levels of stakeholder recognition did not compromise these firms' financial performance. On the contrary, high levels of stakeholder recognition may have directed CEOs with a less paradoxical frame to place more emphasis on environmental and social activities. Notably, these CEOs were less able to see the interrelatedness between the financial, environmental, and social objectives. These CEOs may not have the capability to pursue competing objectives in a synergistic manner. As a result, when CEOs with a less paradoxical frame turned to focus on corporate environmental and social performance dimensions, their firms' financial performance was compromised.

As seen in my results from Hypothesis 2, using a hybrid model allows researchers to compare and contrast the within- and between-firm effects. Traditional approaches to panel data analyses have typically been focused on fixed-effects or random-effects modeling. However, as Certo et al. (2017) and Schunck (2013) have discussed, using these methods of modeling ignores valuable information on between-firm estimates (i.e. fixed-effects model), or confounds within- and between-firm estimates (i.e. random-effects model). In contrast, using a hybrid model approach separates and reports both the within- and between-firm estimates for better insights into our hypothesized relationships.

Supplementary Analyses

Sensitivity analyses. I conducted additional analyses to examine the impact of CEOs' paradoxical frame on firm performances beyond the immediate year. I averaged the following two years' performances ($t2$ being an average of $t+1$ and $t+2$), as well as three years' performances ($t3$ being an average of $t+1$, $t+2$, and $t+3$), with t representing the year I coded the firms' sustainability reports. For both time periods, results for financial and environmental performances remained consistent with findings in my main model. However, the direct effect of CEOs' paradoxical frame on corporate social performance was no longer significant. Instead, the between-firm moderating effect of stakeholder ties became significant ($t2$: $\beta = 3.729$, $p < 0.05$; $t3$: $\beta = 3.296$, $p < 0.05$). In line with my theorizing for Hypothesis 3, stakeholder ties strengthened the relationship between CEOs' paradoxical frame and corporate social performance. It appears that the benefits of stakeholder ties may require a longer period of time to materialize, as compared to stakeholder recognition in Hypothesis 2. As a robustness check, I ran additional analyses using the absolute values of $t+2$ and $t+3$ without averaging them over the years. Results for these analyses were generally consistent with the previous findings from my main model and sensitivity analyses.

Alternative independent variable. In my main analyses, I obtained an average DCS for each stakeholder letter. As an alternative measure, I coded DCS as a binary variable, with a value of one if the CEO recognized dialectical tensions anywhere within the stakeholder letter and zero being otherwise. Results remained generally consistent, except that the direct effect of a paradoxical frame on corporate social performance was no longer significant. Instead, the direct positive effect of a paradoxical frame on corporate financial performance became significant. Nevertheless, my conclusion regarding Hypothesis 1(a) being partially supported remained unchanged.

Alternative dependent variable. In my main analyses, I used ROA as a measure of financial performance. Given that different industries are represented in my sample, I ran additional analyses using industry-adjusted ROA at the four-digit SIC level as an alternative measure of financial performance. Results remained consistent with findings from my main model.

Alternative control variables. Another common alternative measure of *firm size* is firm revenue (Kang, 2013), which I similarly tested as part of my additional analyses. Results remained consistent for all three performances. Also, I tested an alternative measure of *slack* using available slack (measured by company's current ratio, or current assets divided by current liabilities) (Bromiley, 1991), and results remained consistent with findings from my main model. As an alternative measure of *intangible assets* (i.e. R&D intensity and advertising intensity), I adopted Kang (2013)'s measurement of market-to-book ratio. Results for corporate environmental performance remain consistent. The direct effects of CEOs' paradoxical frame on corporate social performance, as well as the moderating effect of stakeholder recognition (between-firm) in corporate financial performance, were no longer significant. As alternative measures of the *quality of governance*, I ran additional analyses by using (a) CEO duality and (b) TR ESG database's corporate governance score, and results remained consistent with findings from my main model.

DISCUSSION

Organizational leaders face increasing stakeholder pressures to go beyond profit maximization for their firms' shareholders and equally attend to environmental and social performance dimensions concurrently (Aguilera et al., 2016). Yet, CEOs differ in how they respond to these competing performance demands and drive their firms' CSP. In this paper, I set out to examine if and when managerial paradoxical frames can

positively drive superior corporate financial, environmental, and social performance outcomes. I contribute to the literature on paradox theory by examining the value of a paradoxical frame in improving CSP. I do so by applying a cognitive-linguistic approach in measuring the extent that CEOs are paradoxical in their cognitive frames (Conway et al., 2008; Crilly et al., 2016). My results show that CEOs with a more paradoxical frame can positively impact CSP in the subsequent year. In addition, stakeholder recognition and stakeholder ties may strengthen the relationship between a paradoxical frame and CSP. As a whole, my paper highlights the importance of CEOs and their firms' stakeholders in working together to address paradoxical tensions in corporate sustainability (Hahn et al., 2014).

The Value of a Paradoxical Frame

While paradox scholars propose that working through paradoxical tensions in corporate sustainability is critical in achieving short-term performance and long-term sustainability (Hahn et al., 2018; Smith & Lewis, 2011), other management scholars emphasize the primacy of economic objectives for for-profit firms (Carroll & Shabana, 2010). Specifically, management scholars are concerned that as CEOs attempt to achieve multiple competing goals, they may inadvertently harm their firms' financial performance instead (Hillman & Keim, 2001). My results indicate that this may be not be true, as I did not find any negative relationship between CEOs' paradoxical frame and CSP. At the same time, although I found that CEOs' paradoxical frame positively impacted corporate social performance, it did not have any significant positive impact on corporate financial and environmental performances. Generally, my findings similarly echo Hahn et al. (2014)'s stance that applying a more or less paradoxical frame is not superior over one another in addressing the challenges that corporate sustainability presents. Perhaps, the key challenge is to identify other individual or social factors that

can unlock the potential of CEOs' paradoxical frame in addressing competing performance demands within corporate sustainability. In the following section, I discuss the role of stakeholders as a key social factor that can strengthen the relationship between CEOs' paradoxical frame and CSP.

The Role of Stakeholders in Navigating Organizational Paradoxes

Over the past two decades, stakeholder pressure for corporate sustainability has increased to the point where almost all large companies now report on their triple bottom line (e.g. GRI, 2019). Stakeholders are critical in shaping the landscape of corporate sustainability and influencing how firms determine their corporate sustainability targets and actions (Nason et al., 2018). Often, stakeholders use sustainability awards as a means of encouraging organizational leaders to take greater environmental and social actions. However, my study shows that the use of such external rewards had different effects on firms' financial performance, depending on how CEOs pursue multiple performance dimensions. My between-firm results show that at higher levels of stakeholder recognition, firms with CEOs who had a less paradoxical frame performed poorer on their financial performance in the subsequent year. It may be that receiving sustainability awards motivated these firms to focus on pursuing environmental/social objectives instead. However, since these firms were less able to pursue competing objectives simultaneously, their financial performance was negatively affected as a consequence.

In contrast, firms with CEOs who had a more paradoxical frame performed better on their financial performance. Receiving stakeholder recognition enabled these CEOs to prioritize certain sustainability issues of concern to their stakeholders and commit to continued action instead. Hence, these CEOs remained consistent in their efforts to pursue financial, environmental, and social objectives simultaneously with a

more focused approach. This result is interesting because it speaks to the concern about firms compromising their financial performance if they attempt to maximize their environmental and social performances (Hillman & Keim, 2001). My findings highlight that even if stakeholder recognition directed these CEOs' attention to corporate environmental and social issues, CEOs applying a more paradoxical frame will remain committed to maximizing their financial performance. Nason et al. (2018) discusses the possibility that receiving positive stakeholder feedback on environmental and social performance may indicate that firms are reaching environmental and social performance levels exceeding fiscal sustainability. This in turn directs CEOs towards maintaining financial efficiency, thereby ensuring that their financial performance are not compromised. Since CEOs with a more paradoxical frame seek out a broad range of information and strategies to drive multiple performance dimensions simultaneously, they may be better adept at leveraging on positive stakeholder feedback to inform how they pursue CSP holistically. Consequently, managerial cognitive frame is a critical differentiator between CEOs who compromise their firms' financial performance and CEOs who do not do so when faced with stakeholder recognition on environmental and social efforts.

My findings also indicate that the use of external rewards may not be a meaningful way of encouraging greater corporate sustainability. In examining within-firm effects, I found that higher levels of stakeholder recognition weakened the effect of CEOs' paradoxical frame on firms' financial performance over time. On one hand, these external rewards may have diminished the positive effect of a paradoxical frame on corporate financial performance over time. While reputational effects from stakeholder recognition can lead to superior firm outcomes relative to firms' peers, CEOs with a more paradoxical frame receiving these awards may have been inclined to

taking lesser risks so as to ensure that they retain stakeholders' recognition of their efforts. As a result, the effectiveness of CEOs' paradoxical frame in driving corporate financial performance was reduced over time. On the other hand, my study did not find evidence that receiving more environmental and social awards encouraged CEOs with a less paradoxical frame to perform better on any of the three performance dimensions. As a whole, my study highlights that sustainability awards may have limited effectiveness in encouraging greater corporate sustainability.

In conducting my sensitivity analyses, I found that stakeholder ties strengthened the relationship between CEOs' paradoxical frame and corporate social performance for between-firm analysis. This strengthening effect is only observed in the second and third year, which indicates that learning through stakeholder ties may require time to translate into firm performance outcomes. Although the benefits of stakeholder ties may take a longer time to materialize, developing a range of stakeholder ties can be beneficial for firms with a more paradoxical frame. Notably, the number of stakeholder ties is relevant in the context of corporate sustainability, given the variety of environmental and social issues that fall under the scope of corporate sustainability. Having a broad range of stakeholder ties will provide firms with access to different stakeholder groups that may have varying sustainability concerns or sustainability-related expertise. Nevertheless, future extensions can explore the moderating effect of other network-related variables, such as strength or density of ties, on CEOs' paradoxical frame and CSP.

Limitations of Study

My conclusions must be viewed in light of the limitations of this study. First, my dependent variable, CSP, was measured using TR's environmental and social ratings. TR's ratings are based on their evaluation from company reports, stock exchange filings, companies' websites, non-governmental organizations websites, and

news sources. Given the limitations of data availability, I did not measure the actual environmental and social performance of the firms. For example, a measure of firms' actual environmental performance can be the amount of carbon emissions or the amount of toxic waste produced. I was also not able to obtain a second database with environmental and social performance ratings to test the robustness of my findings. Future research can consider collecting data on the actual environmental and social performances, such as leveraging on Trucost and Toxics Release Inventory databases, or use different databases to operationalize corporate environmental and social performances.

A second limitation relates to the measurement of the extent that CEOs are paradoxical in their cognitive frame. In particular, I chose to measure this variable by coding archival documents of CEOs' letters to stakeholders. This approach faces the criticism that the letters may be written by professional writers, instead of CEOs themselves. While I acknowledge this criticism, we can expect that senior executives nevertheless direct the content of the letters, and carefully review and refine them to their preference (Cho & Hambrick, 2006). Notably, this approach serves to complement other means of studying managerial cognitive frames – such as qualitative studies using case studies, ethnographies, and interviews – as a way of attaining reliability and replicability of findings on a larger sample. Also, the currently available automated measure of integrative complexity remains low on its correlation with human coders' scores (Conway et al., 2014). This is due to multiple reasons, such as the system underestimating the multiple dimensions presented with no linguistic complexity marker or overestimating complexity when complexity words are used for other purposes (Conway et al., 2014). Notably, measuring the structure of communications is more complex than the content of communications as it does not rely on simple content-

counting rules (Baker-Brown et al., 1992b). My study attempted to address validity concerns by having a second human coder, although the double coded sample amounted only to 10% of the total sample. Increasing the sample that is double coded will provide greater assurance regarding the validity of my coding for a paradoxical frame.

Finally, my moderator variable – boards’ attention to non-financial stakeholder interests – was measured based on whether the firm has a constituency provision. This captures if the board takes into account the interests of non-financial stakeholders’ interests in their decision-making. However, this measure does not capture the extent that boards attend to non-financial stakeholder interests, or the relative attention boards give to financial versus non-financial stakeholder interests. As such, this may be one reason for the non-significant findings from my analyses. Future studies can explore alternative measures of boards’ attention, such as measuring directors’ previous experience serving on board environmental or social committees or their employment history relevant to environmental or social issues.

CONCLUSION

Organizational leaders are faced with competing demands along their firms’ financial, environmental, and social performance dimensions. While paradox scholars propose that addressing competing demands in corporate sustainability is critical for both short- and long-term sustainability, other management scholars are concerned that CEOs may inadvertently harm their firms’ financial performance instead. My study shows that CEOs who attempted to address these competing demands simultaneously did not necessarily compromise their firms’ performances. In addition, when stakeholders recognized and rewarded CEOs’ environmental and social efforts, CEOs who had a more paradoxical frame remained committed to pursuing financial prosperity. Also, developing a broader range of stakeholder ties benefited the social performance

of firms with CEOs who had a more paradoxical frame. On the whole, addressing the complexities within corporate sustainability will require the collective effort and resources of CEOs and their firms' stakeholders.

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FIGURES

Figure 1. Simple slopes test for the moderating effect of stakeholder recognition (within-firm variance).

Figure 2. Simple slopes test for the moderating effect of stakeholder recognition (between-firm variance).

TABLES

Table 1. Categories used in calculating the TR environmental and social score, as extracted from TR scores methodology dated May 2018.

Pillar	Category	Definition	Indicators in Rating	Weights ²
Environmental	Resource use	The Resource Use Score reflects a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.	19	31%
	Emissions	The Emission Reduction Score measures a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes.	22	36%
	Innovation	The Innovation Score reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.	20	33%
Total Environment Score			61	100%
Social	Workforce	The Workforce Score measures a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.	29	46%
	Human rights	The Human Rights score measures a company's effectiveness towards respecting the fundamental human rights conventions.	8	13%
	Community	The Community Score measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics.	14	22%
	Product responsibility	The Product Responsibility Score reflects a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity and data privacy.	12	19%
Total Social Score			63	100%

² Weights for each category is a function of the number of indicators used in rating that category divided by the total number of indicators for that pillar.

Table 2. Illustrative examples of stakeholder letters, overall integrative complexity score, and dialectical complexity score.

Scoring unit	DCS	ECS
Our Health, Safety and Environment employees' leadership in finding ways to reduce the amount of solid waste created at our facilities around the world, which has resulted in recycling almost 90 percent of the waste that the Company creates. (2012 Cummins Inc)	0	1
ITW's enterprise strategy encompasses our commitment to being a socially responsible company and this commitment is as strong as ever. It continues to be one of our core values. (2012 Illinois Tool Works)	0	1
Community Essentials defines McGraw Hill Financial's commitment to build thriving communities by developing and connecting our employees and enhancing the environment. (2013 S&P Global Inc)	0	1
Apache Corporation is making solid strides in promoting socially responsible business practices while growing a profitable global exploration and production company for the long-term benefit of our shareholders. (2012 Apache Corporation)	1	0
Five years ago, we set ambitious goals to reduce our environmental footprint while significantly growing our business. (2012 Boeing Co)	1	0
But to be sustainable over time, our operations must make economic sense. We continued to make good progress toward our 2020 sustainability goals during this 2012–2013 reporting period. In two of our four goals, however, we've faced some challenges. (2013 Waste Management Inc)	1	0
From water intake to return, Xylem helps to address the present-day needs of our stakeholders without compromising the ability of future generations to meet their own needs. (2014 Xylem Inc)	1	1
Because our business has potential impacts on consumers, the economy, and society, we are conscious of our responsibility to the environment and to the communities where our employees live and work. That's why this Corporate Sustainability Report is built around the concept of "collaboration." In our report, we showcase the ways we work with our stakeholders to achieve a greater positive impact. Collaboration is one of Ryder's five core values that our people embrace and embody, along with expertise, trust, innovation, and safety. (2013 Ryder System Inc)	1	1
These major shifts in the world's consumption patterns create big challenges for society – creating stress in resource availability and sometimes compromising the quality of those resources. Growth represents a tremendous opportunity for Newell Rubbermaid, but with that opportunity comes big responsibility. We recognize that as our business grows, our impact will grow unless we take steps through our brands and our business systems to mitigate as much of our growth-driven impact as possible. (2012 Newell Brands Inc)	1	1

Table 3. Descriptive statistics of stakeholder letters coded.

	Mean	S.D.	Min	Max
Number of people who signed off on the letter	1.090	0.440	1	6
Number of paragraphs	8.771	5.677	1	56
Total words	592.235	431.826	56	4,473

n = 625

Table 4. Business-to-consumer classification (Lev et al., 2010).

Label	Standard Industrial Classification Codes	Coded
Business-to-consumer	1. Consumer goods: 0000 – 0999, 2000 – 2399, 2500 – 2599, 2700 – 2799, 2830 – 2869, 3000 – 3219, 3420–3429, 3523, 3600–3669, 3700–3719, 3751, 3850–3879, 3880–3999, 4813, 4830–4899, 5000–5079, 5090–5099, 5130–5159, 5220–5999, 7000–7299, 7400–9999; 2. Finance: 6000–6999	1
Business-to-business	1. Basic industries: 1000–1299, 1400–1499, 2600–2699, 2800–2829, 2870–2899, 3300–3399; 2. Capital goods: 3400–3419, 3440–3599 excluding 3523, 3670–3699, 3800–3849, 5080–5089, 5100–5129, 7300–7399; 3. Construction: 1500–1599, 2400–2499, 3220–3299, 3430 – 3439, 5160 – 5219; 4. Energy: 1300–1399, 2900–2999; 5. Transportation: 3720–3799 excluding 3751, 4000–4799; 6. Utilities: 4800–4829 excluding 4813, 4900–4999; 7. Others: all other SIC codes.	0

Table 5. Resource-intensive classification (US Department of Labor, n.d.).

Label	Standard Industrial Classification Codes	Coded
Resource-intensive	1. 01–09: Agriculture, Forestry, And Fishing 2. 10–14: Mining 3. 15–17: Construction 4. 20–39: Manufacturing 5. 40–49: Transportation, Communications, Electric, Gas, And Sanitary Services	1
Less resource-intensive	1. 50–51: Wholesale Trade 2. 52–59: Retail Trade 3. 60–67: Finance, Insurance, And Real Estate 4. 70–89: Services 5. 91–99: Public Administration	0

Table 6. Summary statistics and pair-wise correlation table.

Variable	Mean	S.D.	1	2	3	4	5	6	7
1. Financial performance	0.060	0.102							
2. Environmental performance	71.682	14.799	0.0635						
3. Social performance	70.923	14.820	0.1467*	0.4883*					
4. Paradoxical frame	0.146	0.174	0.0121	-0.0232	0.0054				
5. Stakeholder recognition	0.168	0.619	0.0449	0.1426*	0.1603*	-0.0449			
6. Stakeholder ties	3.675	3.271	-0.0458	0.0625	0.0675	0.0726	0.0025		
7. Board attention	0.262	0.440	-0.0001	0.0857*	-0.0419	-0.0531	0.0732	0.0971*	
8. Elaborative complexity	0.879	0.132	-0.0412	-0.0565	-0.0259	0.2023*	-0.0162	0.0149	-0.0536
9. Firm size	62.902	88.172	0.1498*	0.2740*	0.3238*	-0.0122	0.0958*	0.0936*	0.1017*
10. Leverage	1.022	2.397	-0.0154	-0.1210*	-0.0828*	0.0112	-0.0361	0.0425	0.0213
11. Slack	2152.025	2989.935	0.0925*	0.2585*	0.3399*	0.0485	0.0854*	0.1789*	-0.0347
12. Solvency	1.204	1.228	-0.2881*	-0.1529*	-0.2511*	0.0586	-0.0023	0.0192	0.1206*
13. R&D intensity	0.038	0.648	0.1429*	0.1118*	0.1671*	-0.0054	0.0288	-0.0982*	-0.1302*
14. Advertising intensity	0.013	0.025	0.1708*	0.0961*	0.1956*	-0.0432	-0.0257	-0.0235	-0.0309
15. Quality of governance	0.889	0.523	-0.0739	0.0779	0.0671	0.0270	-0.0008	0.1147*	0.1372*
16. Distance-to-consumer	0.374	0.484	0.1986*	0.0107	0.1187*	-0.0519	0.0731	0.0243	0.1172*
17. Resource-intensity	0.776	0.417	-0.1076*	-0.1803*	-0.1066*	0.0655	-0.0278	0.1251*	-0.0110

Variable	8	9	10	11	12	13	14	15	16
9. Firm size	-0.0539								
10. Leverage	-0.0071	0.0063							
11. Slack	-0.0199	0.4015*	-0.0634						
12. Solvency	-0.0464	-0.1529*	0.1421*	-0.2742*					
13. R&D intensity	0.0559	-0.1519*	-0.0926*	0.1854*	-0.3613*				
14. Advertising intensity	-0.0258	0.0730	-0.0046	0.0875*	-0.1239*	-0.0095			
15. Quality of governance	-0.0160	0.0356	0.0534	0.0328	0.0756	-0.0241	-0.1393*		
16. Distance-to-consumer	0.0414	0.1866*	-0.0080	0.0282	-0.1468*	-0.0620	0.4488*	-0.0076	
17. Resource-intensity	-0.0874*	-0.3656*	-0.0027	-0.0076	0.1925*	0.0536	-0.0326	0.0320	-0.2742*

n = 625, significance level: * p < 0.05

Table 7. First-stage probit regression for self-selection correction.

Dependent variable	Presence of stakeholder letter
Presence of MBA	0.412* (0.212)
Firm size	0.011*** (0.002)
Leverage	-0.002 (0.009)
Slack	0.000 (0.000)
Solvency	0.064 (0.063)
R&D intensity	0.454 (1.326)
Advertising intensity	-0.904 (3.568)
Quality of governance	4.945** (1.770)
Business-to-consumer	-0.321 (0.260)
Resource-intensive	1.329*** (0.297)
Constant	-5.829*** (1.583)
N	1,201

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 8. Likelihood ratio test and Wald test for self-selection correction.

Dependent variable	Financial performance	Environmental performance	Social performance
N	1,194	1,171	1,171
Pseudo-R ²	0.093	0.094	0.094
Likelihood ratio test	Chi-square: 153.05 (p < 0.0001)	Chi-square: 152.60 (p < 0.0001)	Chi-square: 152.60 (p < 0.0001)
Wald test	Chi-square: 139.83 (p < 0.0001)	Chi-square: 76.72 (p < 0.0001)	Chi-square: 86.25 (p < 0.0001)

Table 9. Intraclass correlation coefficients for variables.

Variable	ICC(1)
Financial performance	0.2735
Environmental performance	0.8695
Social performance	0.8559
Paradoxical frame	0.2354
Stakeholder recognition	0.9133
Stakeholder ties	0.8235
Board attention	0.8840

Note: All continuous independent and moderating variables have been winsorized at 1% and 99% levels.

Table 10. Hybrid model with financial performance as dependent variable.

Dependent variable	Model 1		Model 2		Model 3	
	Within	Between	Within	Between	Within	Between
Elaborative complexity	-9.388*	-0.746**	-9.304 *	-0.745**	-10.459 **	-0.700**
	(3.949)	(0.248)	(3.762)	(0.256)	(4.028)	(0.237)
Firm size		0.000		0.000		0.000
		(0.000)		(0.000)		(0.000)
Leverage	-0.001	0.002	-0.001	0.002	-0.001	0.002
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
Slack	0.000	-0.000	0.000	-0.000	0.000*	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Solvency	0.070	-0.021***	0.073	-0.022***	0.075	-0.022***
	(0.041)	(0.004)	(0.040)	(0.004)	(0.039)	(0.004)
R&D intensity		0.134*		0.128*		0.133*
		(0.063)		(0.064)		(0.063)
Advertising intensity	-2.179*	0.313*	-2.189*	0.320*	-2.308*	0.304*
	(1.072)	(0.131)	(1.075)	(0.138)	(1.096)	(0.134)
Quality of governance	0.344	-0.149	0.346	-0.138	0.419	-0.127
	(0.290)	(0.149)	(0.291)	(0.149)	(0.295)	(0.149)
Distance-to-consumer		0.028**		0.027**		0.027**
		(0.010)		(0.010)		(0.009)
Resource-intensive		-0.008		-0.005		-0.001
		(0.019)		(0.020)		(0.020)
Inverse mills ratio	0.158	-0.034	0.164	-0.027	0.194	-0.017
	(0.115)	(0.056)	(0.112)	(0.056)	(0.109)	(0.056)
Control for endogeneity	35.643*	-2.994**	35.648*	-3.010**	39.714**	-2.843**
	(15.046)	(1.005)	(14.320)	(1.034)	(15.334)	(0.969)
Paradoxical frame			0.003	0.027	0.057	0.006
			(0.037)	(0.027)	(0.051)	(0.049)
Stakeholder recognition			-0.018	0.004	-0.016	-0.006
			(0.014)	(0.005)	(0.016)	(0.006)
Stakeholder ties			0.003	-0.001	0.005	-0.001
			(0.003)	(0.001)	(0.004)	(0.002)
Board attention			-0.006	0.008	0.006	0.004
			(0.008)	(0.008)	(0.014)	(0.011)
Paradoxical frame x stakeholder recognition					-0.072** (0.027)	0.112* (0.043)
Paradoxical frame x stakeholder ties					-0.009 (0.008)	-0.001 (0.007)
Paradoxical frame x board attention					-0.062 (0.050)	0.035 (0.051)
Constant		-0.098		-0.101		-0.095
		(0.055)		(0.057)		(0.054)
Firm FE	Y	N	Y	N	Y	N
Year dummy	Y	Y	Y	Y	Y	Y
N		624		624		624

* p < 0.05, ** p < 0.01, *** p < 0.001

Notes: All continuous variables are winsorized at the 1% and 99% levels. T-statistics reported on every second line are based on the heteroscedasticity robust standard errors.

Table 11. Hybrid model with environmental performance as dependent variable.

Dependent variable	Model 1		Model 2		Model 3	
	Within	Between	Within	Between	Within	Between
Elaborative complexity	-3.373 (528.283)	-37.303 (60.960)	-92.824 (520.796)	-57.567 (65.790)	-92.798 (523.907)	-55.893 (67.538)
Firm size		0.039 (0.022)		0.037 (0.023)		0.037 (0.023)
Leverage	-0.262 (0.237)	-0.967 (0.653)	-0.261 (0.214)	-0.974 (0.632)	-0.240 (0.204)	-0.958 (0.640)
Slack	-0.000 (0.000)	0.001** (0.000)	-0.000 (0.000)	0.001** (0.000)	-0.000 (0.000)	0.001** (0.000)
Solvency	-0.596 (1.016)	-0.026 (0.641)	-0.668 (1.020)	-0.219 (0.634)	-0.610 (1.039)	-0.242 (0.631)
R&D intensity		19.599 (11.489)		20.018 (11.582)		20.096 (11.702)
Advertising intensity	40.992 (78.962)	76.843* (31.798)	38.492 (81.351)	82.481* (32.231)	36.078 (79.892)	84.380* (34.230)
Quality of governance	10.525 (25.913)	53.319* (26.354)	10.868 (26.301)	53.663 (27.629)	13.322 (26.898)	53.337 (27.706)
Distance-to-consumer		-4.010* (1.882)		-4.866* (1.927)		-4.947* (2.014)
Resource-intensive		-3.382 (3.647)		-3.248 (3.783)		-3.267 (3.825)
Inverse mills ratio	6.152 (10.914)	7.008 (10.186)	6.288 (11.368)	8.611 (10.564)	7.332 (11.589)	8.474 (10.673)
Control for endogeneity	23.979 (2016.754)	110.744 (236.923)	368.376 (1988.366)	189.521 (255.042)	369.545 (2000.335)	182.977 (262.355)
Paradoxical frame			-1.952 (1.967)	0.786 (5.689)	-1.056 (2.872)	3.870 (8.520)
Stakeholder recognition			0.662 (1.095)	2.840** (0.860)	0.688 (1.127)	2.986** (1.128)
Stakeholder ties			0.052 (0.239)	0.139 (0.275)	0.104 (0.251)	0.267 (0.409)
Board attention			4.031*** (1.199)	2.976 (1.730)	3.029 (1.546)	2.872 (2.245)
Paradoxical frame x stakeholder recognition					-1.832 (2.787)	-1.453 (12.024)
Paradoxical frame x stakeholder ties					-0.408 (0.509)	-0.841 (2.009)
Paradoxical frame x board attention					5.139 (4.885)	1.970 (14.839)
Constant	79.275*** (12.237)		83.289*** (13.056)		83.214*** (13.439)	
Firm FE	Y	N	Y	N	Y	N
Year dummy	Y	Y	Y	Y	Y	Y
N		624		624		624

* p < 0.05, ** p < 0.01, *** p < 0.001

Notes: All continuous variables are winsorized at the 1% and 99% levels. T-statistics reported on every second line are based on the heteroscedasticity robust standard errors.

Table 12. Hybrid model with social performance as dependent variable.

Dependent variable	Model 1		Model 2		Model 3	
	Within	Between	Within	Between	Within	Between
Elaborative complexity	59.967 (332.059)	16.050 (70.110)	-209.694 (333.816)	-24.819 (73.503)	187.900 (333.937)	-21.694 (72.479)
Firm size		-0.032 (0.021)		-0.037 (0.021)		-0.037 (0.021)
Leverage	-0.526*** (0.139)	-0.085 (0.219)	-0.467*** (0.137)	-0.099 (0.246)	-0.481** (0.148)	-0.132 (0.247)
Slack	0.000 (0.000)	0.001* (0.000)	0.000 (0.000)	0.001 (0.000)	0.000 (0.000)	0.000 (0.000)
Solvency	0.053 (0.793)	-1.138 (0.657)	-0.239 (0.794)	-1.210 (0.666)	-0.244 (0.818)	-1.112 (0.663)
R&D intensity		20.644 (12.675)		20.549 (12.422)		21.203 (12.557)
Advertising intensity	-51.097 (85.790)	118.925*** (34.150)	-54.193 (88.316)	123.289*** (34.023)	-55.913 (88.206)	117.406*** (35.680)
Quality of governance	19.002 (26.860)	-41.274 (23.229)	26.088 (24.993)	-41.079 (22.893)	26.764 (24.995)	-40.505 (23.114)
Distance-to-consumer		1.971 (1.979)		1.900 (2.008)		2.188 (2.053)
Resource-intensive		-11.400** (3.613)		-11.869*** (3.604)		-12.005** (3.697)
Inverse mills ratio	9.466 (11.287)	-32.194*** (8.666)	12.167 (10.290)	-32.535*** (8.818)	12.407 (10.310)	-32.607*** (9.070)
Control for endogeneity	-227.8931 (1268.472)	-69.053 (272.879)	-802.387 (1275.955)	82.097 (285.496)	-719.632 (1276.204)	70.611 (281.757)
Paradoxical frame			5.545** (1.938)	2.852 (4.919)	5.969* (2.868)	-5.209 (7.620)
Stakeholder recognition			4.884*** (1.455)	3.297*** (0.754)	5.134*** (1.371)	3.667*** (1.007)
Stakeholder ties			-0.232 (0.183)	0.317 (0.239)	-0.245 (0.220)	-0.060 (0.339)
Board attention			0.528 (2.799)	-2.056 (1.950)	1.189 (3.140)	-1.973 (2.687)
Paradoxical frame x stakeholder recognition					-2.322 (2.613)	-4.200 (9.771)
Paradoxical frame x stakeholder ties					0.098 (0.568)	2.494 (1.446)
Paradoxical frame x board attention					-3.364 (4.729)	-4.306 (12.452)
Constant		74.084*** (14.580)		83.501 *** (15.234)		82.389 *** (15.028)
Firm FE	Y	N	Y	N	Y	N
Year dummy	Y	Y	Y	Y	Y	Y
N		624		624		624

* p < 0.05, ** p < 0.01, *** p < 0.001

Notes: All continuous variables are winsorized at the 1% and 99% levels. T-statistics reported on every second line are based on the heteroscedasticity robust standard errors.

APPENDICES

Appendix 1. Methodology for TR scores calculation

(Extracted from TR ESG Methodology dated May 2018).

Formula for category score calculation

$$\text{score} = \frac{\frac{n. \text{ of companies with a worse value}}{+} + \frac{n. \text{ of companies with the same value included in the current one}}{2}}{n. \text{ of companies with a value}}$$

Step by step illustration of category scoring example

Step 1: Calculate percentile ranking for “Estimated CO2 Equivalents Emission”.
This indicator has negative polarity, and the lower the value the better. This step is repeated for all indicators under the same category.

Description	Aqua America Inc	American States Water Co
No. of companies with worse value	14	13
No. of companies with same value	1	1
No. of companies with value	15	15

Company Name	Rating (Sorted)	Percentile Score Formula	Percentile Scores
Aqua America Inc	0.00009438	$(14+(1/2))/15$	0.9667
American States Water Co	0.00015559	$(13+(1/2))/15$	0.9000
United Utilities Group PLC	0.00016684	$(12+(1/2))/15$	0.8333
California Water Service Group	0.00017066	$(11+(1/2))/15$	0.7667
Aguas Andinas SA	0.00017236	$(10+(1/2))/15$	0.7000
Consolidated Water Co. Ltd.	0.00017997	$(9+(1/2))/15$	0.6333
Severn Trent PLC	0.00019745	$(8+(1/2))/15$	0.5667
Inversiones Aguas Metropolitanas SA	0.00020508	$(7+(1/2))/15$	0.5000
Metro Pacific Investments Corp.	0.00021981	$(6+(1/2))/15$	0.4333
American Water Works Company Inc	0.00022414	$(5+(1/2))/15$	0.3667
Beijing Enterprises Water Group Limited	0.00027149	$(4+(1/2))/15$	0.3000
Manila Water Company Inc	0.00028717	$(3+(1/2))/15$	0.2333
Guangdong Investment Ltd	0.0002975	$(2+(1/2))/15$	0.1667
Companhia de Saneamento de Minas Gerais	0.00074917	$(1+(1/2))/15$	0.1000
Companhia de Saneamento Basico-Sabesp	0.00079476	$(0+(1/2))/15$	0.0333

Step 2: Obtain average “Emissions” category score for each company.

Average scores for individual companies are then obtained by averaging all indicators’ percentile scores within the same category. The sample calculation is provided for the company *United Utilities Group PLC*.

Indicator Title	Percentile Scores
Estimated CO2 Equivalents Emissions	0.8333
Policy Emissions	0.7000
Targets Emissions	0.9000
Biodiversity Impact Reduction	0.7667
Emissions Trading	0.9333
Environmental Partnerships	0.7667
Environmental Restoration Initiatives	0.8000
Climate Change Commercial Risks Opportunities	0.7333
NOx and SOx Emissions Reduction	0.4667
e-Waste Reduction	0.4667
Staff Transportation Impact Reduction	0.5000
VOC or Particulate Matter Emissions	0.4667
Environmental Expenditures Investments	0.3667
Averaged emissions score	0.6692

Step 3: Calculate percentile ranking for “Emissions” category.

The average scores for all companies are then sorted from higher to lower, and TR once again applies the percentile scores formula to derive the emissions category score.

Company Name	Averaged Emissions Score (Sorted)	Percentile Score Formula	Emissions Category Scores
United Utilities Group PLC	0.669230769	(14+(1/2)/15	0.9667
Severn Trent PLC	0.61025641	(13+(1/2)/15	0.9000
Companhia de Saneamento Basico-Sabesp	0.564285714	(12+(1/2)/15	0.8333
Aqua America Inc	0.564102564	(11+(1/2)/15	0.7667
American States Water Co	0.558974359	(10+(1/2)/15	0.7000
Manila Water Company Inc	0.556666667	(9+(1/2)/15	0.6333
American Water Works Company Inc	0.556410256	(8+(1/2)/15	0.5667
Aguas Andinas SA	0.554444444	(7+(1/2)/15	0.5000
California Water Service Group	0.51025641	(6+(1/2)/15	0.4333
Companhia de Saneamento de Minas Gerais	0.420512821	(5+(1/2)/15	0.3667
Inversiones Aguas Metropolitanas SA	0.412820513	(4+(1/2)/15	0.3000
Metro Pacific Investments Corp.	0.407692308	(3+(1/2)/15	0.2333
Consolidated Water Co. Ltd.	0.384615385	(2+(1/2)/15	0.1667
Beijing Enterprises Water Group Limited	0.358974359	(1+(1/2)/15	0.1000
Guangdong Investment Ltd	0.34717949	(0+(1/2)/15	0.0333

Step 4: Calculate pillar scores based on category weights disclosed in Table 1

Appendix 2. Coding Protocol for Stakeholder Letters.

1. Following how stakeholder letters are originally presented, each paragraph will be treated as a scoring unit.
2. Do not score opening or closing sentences that do not carry any meaningful content when such sentences exist as an independent paragraph. Please indicate “x” in Coding Data Tracker excel spreadsheet for paragraphs not scored.
 - a. For example, an opening sentence may be “*Welcome to our 2014 CSR report*” and a closing sentence may be “*Thank you for reading our report*”. These shall not be scored.
 - b. If opening and closing phrases exists within a larger paragraph that carries meaningful content, a score should be given to the paragraph. For example, “*When it comes to health—for our business, our people, our communities and our planet—we know our actions can have tremendous impact. I look forward to joining you in making those actions count.*” contains a closing phrase. However, the first sentence has meaningful content. Hence, the whole paragraph should be scored.
3. Do not score paragraphs that are focused on having the audience read sections of the sustainability report. This is not meaningful content for the purposes of this research study. Please indicate “x” in Coding Data Tracker excel spreadsheet for paragraphs not scored.
 - a. For example, there is no need to score “*I encourage you to visit the environment section of this CSR, as well as our corporate website, to learn more about our programs, successes and challenges. The 5-Year summary Performance Table also contains environmental metrics that complement the narrative sections of the report.*”.
4. Some stakeholder letters are presented as a “Q&A section with the executive”. Do not score the questions, and only score the answers from the executive. Paragraph titles should not be scored as well.
5. Some reports have two letters, one from the CEO and another from a second executive. Score both letters within the word document provided.
6. In some stakeholder letters, examples of their CSR are listed as bullet points.
 - a. For cases when bullet points are short and have minimal content, they should be scored as a whole. Single score should be given in this example “*As we build on our strong foundation and continue to transform to meet the needs of the future, we are driven by three priorities:*
 - *Accelerating our pace of progress on the One Ford plan*
 - *Delivering product excellence with passion*
 - *Driving innovation in every part of our business*”
 - b. For cases when each bullet point is long and elaborated, they should be scored as independent paragraphs. Separate scores for each paragraph should be given

in this example – “In FY2015, Seagate remained focused on key priorities. Highlights include:

- *Our ongoing work in the area of product sustainability. We conducted one product life cycle assessment (LCA) in FY2015. The objective is to understand our products’ cradle- to-grave impact in critical areas such as climate change, fossil depletion and water depletion. Additionally, at the end of FY2015 all Seagate- produced heads and media were validated to be conflict-free.*
- *Optimizing operations to reduce greenhouse gas (GHG) emissions, resource usage and the generation of waste. The company generated slightly less amounts of hazardous waste than in the previous fiscal year, and Seagate sent no hazardous waste to landfills in FY2015 for the second year in a row. We are proud that in FY2015 Seagate remained on a sustainable path.”*

Other guidelines for scoring content:

1. Given the research topic of this project, when stakeholder letters contrast between financial, environmental, and social performances, these should be interpreted as DCS.
2. Similarly, tensions between short-term gains/profits/performance and long-term gains/sustainability/performance should be coded for having DCS, in light of the research topic.

Appendix 3. List of Keywords Search for Environmental and Social Awards.

1. Sustainable	24. Safety
2. Sustainability	25. Minority
3. Ethics	26. Ethnic
4. Ethical	27. Community
5. Responsible	28. Justice
6. Responsibility	29. Peace
7. Stewardship	30. Civilian
8. Philanthropy	31. Civic
9. Philanthropist	32. Relief
10. Citizen	33. Volunteer
11. Citizenship	34. Children
12. Advocacy	35. Youth
13. Advocate	36. Social
14. Good	37. Human rights
15. Environment	
16. Green	
17. Nature	
18. Earth	
19. Ecology	
20. Diversity	
21. Humanitarian	
22. Humanity	
23. Health	

COOPETITION PARADOX IN CORPORATE SUSTAINABILITY: THE ROLE OF DISCURSIVE TEXTS AND COACTIVE VICARIOUS LEARNING

ABSTRACT

Managerial sensemaking on corporate sustainability is a socially situated process that occurs within and between individuals. In light of the ambiguous, dynamic, and complex nature of corporate sustainability, decision makers engage in social learning to inform their sensemaking of corporate sustainability. While current literature largely examines social learning as a one-way passive learning process, decision makers often engage in coactive vicarious learning of educating while learning from their stakeholders in reality. Grounded in qualitative analyses of conference observations and interviews, this study investigates the interrelatedness between coactive vicarious learning and decision makers' sensemaking of the coopetition paradox in corporate sustainability. I first provide empirical evidence of how coactive vicarious learning occurred within the context of corporate sustainability. Next, I present key discursive texts that developed through this learning process and consider how these texts directed managerial attention towards corporate sustainability. Finally, I examine the role of these discursive texts in shaping decision makers' sensemaking of the coopetition paradox in corporate sustainability. My study highlights how stakeholders can shape collaborative and competitive efforts among for-profit firms on sustainability issues by leveraging upon discursive texts to disrupt dominant narratives and practices in maximizing firm outcomes.

Keywords: Corporate sustainability, paradoxes, managerial sensemaking, social learning, phenomenology

Stakeholders across the world progressively agree that corporate sustainability is no longer an activity that happens solely at the periphery of the firm (Aguilera, Florackis, & Kim, 2016). Nowadays, stakeholders expect greater transparency and accountability on corporate social and environmental sustainability from firms and their decision makers (Marquis & Toffel, 2011). In this changing environment, organizational decision-makers have to make sense of their firms' developing contexts and respond strategically (Gioia & Chittipeddi, 1991). However, sensemaking processes around sustainability are complex and involve confronting tensions that arise from competing stakeholder demands, presenting a 'paradox' (Hahn, Preuss, Pinkse, & Figge, 2015). Understanding how decision makers uniquely interpret and respond to paradoxes in corporate sustainability – “contradictory yet interrelated elements that exist simultaneously and persist over time” (Smith & Lewis, 2011, p. 382) – can provide insight into why firms differ in their sustainability actions.

Existing literature has examined three stages in the sensemaking process, namely scanning, interpreting, and responding (Daft & Weick, 1984; Hahn, Preuss, Pinkse, & Figge, 2014). Through this process, decision makers make meaning out of their experiences and develop cognitive maps of their environment (Ring & Rands, 1989). This in turn affects the strategic decisions that decision makers make for their firms in response to the contexts that their firms are operating in (Gioia & Chittipeddi, 1991). However, there are two important research gaps within this literature. First, while embracing and working through paradoxes allow decision makers to meet competing demands for social, environmental, and financial performances simultaneously (Hahn, Figge, Pinkse, & Preuss, 2018), not all decision makers are able to accept paradoxes. Instead, some decision makers may respond defensively by denying the presence of contradictions or display anxiety when faced with paradoxes (Smith & Lewis, 2011).

The process through which decision makers make meaning out of organizational paradoxes is an area left open for research; yet, it plays a critical role in influencing how decision makers respond to such tensions (Schad, Lewis, Raisch, & Smith, 2016). Gaining insight into the managerial sensemaking process with respect to paradoxes in corporate sustainability will aid scholars to develop strategies for decision makers to resolve these complexities (Moustakas, 1994; Westphal & Zajac, 2013).

The second research gap relates to the role of social learning in individuals' sensemaking processes. Scholars have established that decision makers draw on prior experience and understanding to inform their current sensemaking processes, which in turn inform future sensemaking processes. In the context of corporate sustainability, however, past experience and historical information may be insufficient for the sensemaking process because sustainability is a relatively new, ambiguous, and dynamic concept (Aranda, Arellano, & Davila, 2017). Thus, a second area of research is to identify what processes decision makers draw on for sensemaking around sustainability. I address this gap by examining social learning as a critical process for sensemaking of sustainability-related paradoxes. In the context of sustainability, decision makers draw dominantly on information from others through vicarious learning (Aranda et al., 2017; Cyert & March, 1963). Vicarious learning refers to "changes in the stock of knowledge associated with interorganizational learning, where learning accrues through observations of other organizations' experiences" (Aranda et al., 2017, p. 1193). By integrating social learning with managerial sensemaking processes, I outline how decision makers interpret paradoxes in corporate sustainability that allows them to engage and take committed action.

With these research gaps in mind, I conducted a phenomenological study of firms in Singapore to understand their sensemaking of paradoxes in corporate

sustainability. This phenomenological approach is grounded in a social constructionist epistemology (Creswell & Poth, 2018). My aim was to identify how decision makers engage in social learning on sustainability issues, while also exploring the implications of social learning for firms' responses to paradoxes in corporate sustainability. The guiding research question was: *What is the role and impact of social learning on decision makers' sensemaking of paradoxes in corporate sustainability?* I collected observations from seven sustainability-related business conferences and conducted interviews with 19 decision makers of firms who published sustainability reports to gain insight on decision makers' social learning and sensemaking processes. My analyses revealed that decision makers engaged in contemporaneous educating of while learning from their peers and stakeholders on corporate sustainability. I identified collaborations and conversations as key mechanisms that facilitated a two-way learning process, which resulted in a change in business practices and decision makers' stance towards corporate sustainability. As coactive vicarious learning occurred, key discursive texts – both spoken and written – emerged to co-orientate decision makers towards taking substantive action on corporate sustainability. These discursive texts directed managerial attention towards the broader society's interests and the need to take joint action on corporate sustainability. In doing so, tensions between individual versus collective interests and actions were reinforced and made increasingly salient to decision makers, affecting how decision makers navigated the coopetition paradox in corporate sustainability.

My study makes two contributions. First, I provide empirical evidence of coactive vicarious learning occurring within the context of corporate sustainability. While Myers (2018) introduced the theoretical concept of coactive vicarious learning, my study shows how decision makers and stakeholders engaged in a two-way active

learning process on corporate sustainability. In particular, I highlight two key mechanisms – collaborations and conversations – of coactive vicarious learning that induced a change in business practices and individual stances towards corporate sustainability respectively. Second, I add to the paradox literature by demonstrating how discursive texts emerged from coactive vicarious learning, which in turn influenced decision makers' sensemaking of the coopetition paradox in corporate sustainability. I draw attention to the role of stakeholders in shaping discursive texts within the field to disrupt dominant narratives and practices regarding maximizing firm outcomes. As a whole, my study provides a more nuanced understanding of the role of discursive texts in connecting field-level coactive vicarious learning with individual managerial sensemaking of the coopetition paradox in corporate sustainability.

SENSEMAKING OF PARADOXES IN CORPORATE SUSTAINABILITY

Organizational decision makers are constantly confronted with paradoxes that persist over time, such as contradicting elements of collaboration and competition, exploration and exploitation, individual and collective, and financial and environment/social objectives (Putnam, Fairhurst, & Banghart, 2016; Schad, Lewis, Raisch, & Smith, 2016). In exemplifying the complexities and contradictions that confront decision makers in organizations, Smith and Lewis (2011) identified four categories of organizational paradoxes, namely performing, belonging, learning, and organizing paradoxes. These paradoxes reflect core elements and activities of organizations, which are organizational goals, identity, knowledge, and processes respectively (Smith & Lewis, 2011). Yet, the interdependent nature of the opposing elements within paradoxes and its persistence over time make it difficult for decision makers to choose between the elements (Lewis, 2000; Schad et al., 2016). In fact, there

is no easy resolution to paradoxes, and scholars posit that decision makers have to work through paradoxes on an ongoing process (Lüscher & Lewis, 2008).

Like other organizational elements, paradoxes are inherent within corporate sustainability management as a result of competing demands and contradictions of sustainability that exist across different levels of analyses (Hahn et al., 2018). At the organizational level, corporate sustainability entails achieving economic prosperity, environmental integrity, and social equity, or a so-called triple bottom line firm performance approach (Bansal, 2005). This presents decision makers with *performing paradoxes*, which refer to a plurality of conflicting demands to attend to as firms' stakeholders may seek divergent outcomes of organizational success (Smith & Lewis, 2011). *Learning paradoxes* surface as pursuing corporate sustainability requires firms to radically depart from current sustainability practices while building on existing routines and systems as means to address their sustainability issues (Kolk & Pinkse, 2008). Firms have to constantly develop and adapt their corporate sustainability policies, plans, and practices in response to changing stakeholder expectations and environments. *Belonging paradoxes* arise as the embedding of individuals in organizations, and organizations in the wider system result in competing memberships, values, and roles between the individual and the collective. Finally, *organizing paradoxes* surface as decision makers choose competing structures and organizational designs to address corporate sustainability within their firms (Smith & Lewis, 2011). As decision makers are faced with paradoxes in corporate sustainability, they have to decide on how to respond to these paradoxes and lead their firms forward. I turn to the literature on managerial sensemaking to consider how decision makers experience and make sense of paradoxes in order to understand why decision makers differ in their actions on corporate sustainability.

Managerial Sensemaking

In deciding on the course of action for their firms' sustainability strategy, decision makers need to make sense of the external and internal environments that their firms are operating in. Furthermore, they need to develop an understanding of the current capabilities and resources that their firms have in order to respond to these environments (Gioia & Chittipeddi, 1991). Existing literature refer to these processes as managerial sensemaking, which is defined as "the process through which individuals work to understand novel, unexpected, or confusing events" (Maitlis & Christianson, 2014, p. 58). Sensemaking allows decision makers to organize the information that they have gathered (Thomas, Clark, & Gioia, 1993), make meaning out of the information cues, and develop cognitive maps of their business environment (Ring & Rands, 1989). Sensemaking also happens in corporate sustainability. In fact, Basu and Palazzo (2008) conceive corporate sustainability as an ongoing process of sensemaking through which decision makers "think about and discuss relationships with stakeholders as well as their roles in relation to the common good" (p. 124).

Sensemaking occurs as a sequence of three stages, namely scanning, interpreting, and responding (Daft & Weick, 1984). *Scanning* entails decision makers selectively gathering information from the environment that they deem relevant and consistent with their cognitive frames (Hahn et al., 2014; Weick, 1995). In this stage, decision makers will first select the range of strategic issues to attend to and determine the extent of detailed information to collect on those strategic issues. Next, decision makers assign labels and meaning to the information as a means of *interpreting* it (Porac & Thomas, 2002). Decision makers engage in cognitive work by drawing on their previous experiences and cues from their current contexts to revise or form new interpretive schemes (Whiteman & Cooper, 2011). In this stage, decision makers assess

the level of control that they may have in effecting change on those issues, as well as classify these issues as positive or negative (Hahn et al., 2014). Finally, in *responding* to their firms' environments, decision makers will decide on their firms' strategic action and retain their interpretative schemes as a guide for future sensemaking (Whiteman & Cooper, 2011). While decision makers alone do not determine firms' outcomes, they play a major role in firms adopting different strategies and implementing them across their organizations (Hambrick, 2007; Hambrick & Mason, 1984).

Decision makers' sensemaking processes can be influenced by various factors. At the individual level, Hahn et al. (2014) examined how decision makers' cognitive frames can affect their sensemaking processes. In particular, the authors propose that cognitive frames affect the breadth and depth of decision makers' scanning process on corporate sustainability issues. In addition, cognitive frames influence decision makers' perceived control and valence over these issues. For example, having prior experience allows decision makers to develop tacit knowledge that facilitates spontaneous adjustments as they navigate future events (Schön (1991). In addition, sensemaking occurs as decision makers interact with others in a network of social relationships (Maitlis & Christianson, 2014; Westphal & Zajac, 2013). Through these social interactions, decision makers negotiate and mutually construct meaning of cues from the outside. As decision makers interpret external environments collectively, they also incorporate these shared meaning into their individual sensemaking process (Gephart, Topal, & Zhang, 2010).

Actors within decision makers' social network can influence their sensemaking processes. In particular, sensegiving – the process in which “actors attempt to influence the sensemaking and meaning construction of others towards a preferred redefinition of organizational reality” (Gioia & Chittipeddi, 1991, p. 442) – provides insight into how

collective sensemaking is accomplished. Simply stated, sensegiving “links individual sensemaking processes across actors” (Whiteman & Cooper, 2011, p. 891). Sensegiving can happen between individuals, such as ecological sensemaking (Whiteman & Cooper, 2011), within teams (Meyerson, Weick, & Kramer, 1996), and between leaders and their organizational members (Gioia & Chittipeddi, 1991; McNulty & Pettigrew, 1999). Stakeholders may also engage in sensegiving to organizational members when they perceive an issue with important consequences for themselves or the focal organization, or if they perceive that the focal organization’s leaders lack competence regarding that issue (Maitlis and Lawrence (2007). While stakeholders may intentionally seek to shape decision makers’ sensemaking processes, our understanding of how decision makers receive stakeholders’ sensegiving remains limited. Given that decision makers’ sensemaking processes unfold in the context of social relationships, the following section considers the role and impact of social learning as an underlying mechanism in decision makers’ sensemaking processes.

Social Learning in Managerial Sensemaking

Social learning theory provides insight into how individuals learn from one another in deciding how they should behave (Bandura, 1977). Individuals are active information processors who engage in cognitive processes that determine what information they attend to and retain in guiding their future action (Bandura, 2001). In addition to past experiences, individuals learn vicariously by observing the behavior of others, as well as the consequences of those behaviors (Argote, 2013; Bandura, Ross, & Ross, 1961). While the term ‘social learning’ broadly describes individuals learning when they are in social contexts, existing literature on vicarious learning has centered on how individuals selectively attend to the behaviors of others that they deem relevant and of functional value. Motivated by a perceived importance for themselves to model

these behaviors, individuals remember and imitate these observed behaviors as part of the social learning process (Bandura, 1977). In essence, individuals actively engage their cognition to evaluate and determine what they learn from their social contexts (Bandura, 2001).

Bandura (1986) developed social learning theory into social cognitive theory to consider the agency of individuals in effecting change on their environments. Specifically, social cognitive theory viewed individuals as both “producers as well as products of social systems” (Bandura, 2001, p. 15), and that individuals can proactively shape their social contexts. This work extended the discussion from individuals as passive observers and learners from their social environment to one that considers the dynamic interplay between individuals and their environments that results in adaptation and change (Bandura, 1986). Social cognitive theory also expands on the notion of human agency by examining how individuals engage in collective agency as a means to achieving their goals (Bandura, 2001). As individuals may not always be able to directly effect change on social contexts and institutional practices, they may group together and act on shared beliefs, knowledge, and skills to enact change (Bandura, 1997). This is particularly critical in situations when individuals are unable to achieve their goals on their own and require socially interdependent efforts to do so (Bandura, 2001). On the whole, it is the bi-directional influence between social contexts and human agency that drive behaviors at the individual and collective levels (Bandura, 2001).

Drawing from these theories inform our understanding of how decision makers make sense and receive the sensegiving of others on corporate sustainability issues in three aspects. First, decision makers do not necessarily accept the sensegiving of others (Maitlis & Christianson, 2014). Instead, decision makers’ observation of others’ behaviors, and more importantly, the consequences of those behaviors, provide a

valuable source of information that may validate or refute sensegiving from others (Sonenshein, 2010). Second, sensemaking and sensegiving are processes that occur dynamically and in tandem with one another. Decision makers actively engage in sensegiving to influence their stakeholders' views on corporate sustainability, altering how stakeholders respond to tensions in corporate sustainability. At the same time, stakeholders are reciprocally seeking to influence how decision makers themselves make sense of paradoxes in corporate sustainability (Myers, 2018). Hence, managerial sensemaking and sensegiving processes are not linear. Instead, these processes are intertwined and constantly evolve as decision makers and stakeholders interact and learn from one another. Finally, decision makers may group together to make sense and respond to a common experience that is novel, unexpected, and confusing (Maitlis & Christianson, 2014). Corporate sustainability is a complex problem for firms to resolve, and requires socially interdependent efforts to navigate the tensions that arise. As such, for decision makers to effectively work through paradoxes in corporate sustainability and enact change at individual and system levels, they need to work together with other firms and stakeholders (Smith & Lewis, 2011). Thus, my study aims to elucidate the role and impact of social learning on how decision makers experience and make sense of paradoxes in corporate sustainability.

METHODOLOGY

Research Setting

I conducted a field study in Singapore using primary data collected from observations of sustainability-related conferences held in the country and interview data from decision makers. During the time frame of the study, regulations, technology, and norms around corporate sustainability were changing at the global and national levels. Within Singapore, the Singapore Stock Exchange introduced regulations on mandatory

sustainability reporting for publicly listed companies effective from 2018 onwards (Singapore Exchange, 2016). Some Singaporean companies had produced sustainability reports before the new regulation was implemented; others were faced with the challenge of issuing their first sustainability report. Decision makers were primarily guided by a set of core principles and objectives, rather than a list of detailed rules, on how they should report on sustainability processes and outcomes. Thus, while publishing a sustainability report was mandatory, the extent and content of it remained at decision makers' discretion. Furthermore, in February 2018, the Singapore government also announced the introduction of carbon tax starting from 2019 onwards, with future intentions to increase its price (Tan & Toh, 2018). In combination, these regulations sent a signal to both public and private companies across Singapore on the need for greater transparency and accountability over their corporate sustainability. As a result, decision makers were undergoing early stages of managerial sensemaking around corporate sustainability and designing a corporate strategic response.

As regulations on issues related to corporate sustainability developed, the increased investor interest on corporate sustainability and changing consumer demands for sustainable products surfaced as an indication of the changing societal norms on corporate sustainability. With the reality of cross-border environmental and social impacts arising from climate change, there was a growing sense of urgency for corporations to take action on sustainability issues. On one hand, publicly listed companies felt increased pressures to improve their corporate sustainability performance as decision makers believed that it could affect firm financial evaluation by the market. On the other hand, stakeholder expectations on corporate sustainability performance were varied, changing, and uncertain. In particular, what constituted as an acceptable and expected standard of corporate sustainability performance remained a

process that is negotiated between firms and stakeholders (Nason, Bacq, & Gras, 2018). Hence, the ever-changing global and national landscape for corporate sustainability triggered the need for decision makers to go beyond the boundaries of their firms to learn about corporate sustainability. This unique context allowed me to investigate into how social learning influences decision makers' sensemaking of the developments in corporate sustainability, as well as its impacts on firms' development of sustainability policies and practices.

Data Collection

Conference observations. Seven business conferences held in Singapore between May and November 2018 were selected based on a few criteria. First, they had to be either sustainability-related conferences or sustainability was a key theme within the conference. Second, conferences had to be held in Singapore to ensure a common setting for the narratives and discussions around sustainability. Third, conferences had to be open to the public albeit upon formal registration. This allowed me to access the conferences legitimately and collect data by observing their natural settings. The conference sessions were audio-recorded and sessions that were relevant to corporate sustainability were transcribed into text. More information on the data collected and the number of pages transcribed are detailed in Table 1, and I provide information on the conferences in Table 2.

Insert Tables 1 and 2 here

The goal of collecting observations from these conferences was to gain an understanding of the field-level developments on corporate sustainability. Conferences were critical field-configuring events in Singapore that brought together “people from diverse organizations and with diverse purposes... periodically, or on a one-time basis,

to... construct social networks, ... share and interpret information” on corporate sustainability (Lampel & Meyer, 2008, p. 1026). Such field-configuring events were critical discursive spaces for forging new collective beliefs and developing shared cognitions among competing interests groups (Hardy & Maguire, 2010). The narratives arising from these conferences represented the external reality that decision makers were exposed to and learning from at the field-level. The narratives centered around developing trends, norms, policies, and practices on corporate sustainability shared from a range of stakeholder perspectives including government policymakers, academic researchers, industry practitioners, and civil society organizations. Corridor talk occurring during these field-configuring events, such as informal discussions held during networking sessions, also provided insights into the transmission of experiences, information, and personal thoughts between decision makers from different organizations. While all conferences were informative to this study, conferences that were longer in duration or had a larger number of conference speakers contributed more to the study.

Semi-structured interviews. To complement the findings from conference observations, in-depth semi-structured interviews were conducted over a period of seven months in 2018. The interviewees were mainly recruited via purposeful sampling based on a pre-determined set of criteria. First, interviewees had to be from a firm that had published or would be publishing a sustainability report in compliance with the new regulation. Second, interviewees had to be in charge of their firms’ sustainability reporting or oversee their firms’ sustainability strategy and its implementation. I recruited interviewees during the business conferences by approaching panel speakers or conference delegates whom I knew would be attending these conferences. I also gained access to contact details of individuals working on sustainability at other firms

through networking and asking participants for referrals. Finally, one interviewee was recruited by sending an electronic mail to the contact address obtained from the firm's sustainability report. Through these approaches, I sent 27 individuals an invitation to participate in the study and interviewed 19 interviewees. Prior to contacting these interviewees, there was no previous contact or personal relationship with the interviewees or their organizations.

Singapore has a culture of high power distance, in which power is centralized and hierarchy is respected (Hofstede Insights, n.d.). To manage the power imbalance between senior corporate executives and myself as a PhD student, I obtained a recommendation letter from the Sustainable Earth Office of the university endorsing this research study. This letter indicating the university's support was critical for me in gaining legitimacy with these senior corporate executives. Participants were also informed that they would receive a summary report detailing the key findings of the study for their reference. I also phrased interview questions in a neutral and open-ended manner, and kept any sensitive questions to the middle segment of the interview after a rapport had been established with interviewees.

The interview questions probed interviewees on their companies' approach to sustainability, strategic changes implemented regarding sustainability, pressures faced from key stakeholders, sustainability targets, methods of learning on sustainability issues, and outlook on how sustainability would develop in the industry and the region. Thirteen interviews were conducted face-to-face; almost all interviews were audio recorded except one where I took notes. Another five interviews were conducted over Skype or Zoom meetings and were audio-recorded, in cases where individuals were not physically based in Singapore. Nevertheless, these individuals were key organizational leaders that oversaw the sustainability activities of their firms. The interviews were all

conducted in English, lasted between 30 to 90 minutes, and transcribed into text. A summary of the data collected and the number of pages transcribed are detailed in Table 1.

Sample of interviewees. Of the 19 interviewees, 14 were decision makers and two were board directors from publicly listed firms. The remaining three interviewees were decision makers from privately held firms. I approached the board directors in order to gain insight into the corporate governance of sustainability issues. One director sat on the board of multiple publicly listed firms, while the other director was the original founder of the firm and current board chair. These two perspectives provided insights on boards' oversight of firms' corporate sustainability. Among the interviewees, 53% were male and 84% were in senior and top management positions. Details on the level of management and the type of position of the interviewees are listed in Table 3. Excluding the director who sat on the board of multiple firms, I gathered insights on 17 firms as two interviewees were from the same company. Five companies were first time sustainability reporters, while three companies had issued 10 or more annual sustainability reports. As of 31 December 2018, three companies had a market capitalization of more than S\$10 billion¹, four firms ranging from S\$1 to S\$10 billion, while seven companies were less than S\$1 billion. The three remaining firms were privately held and did not have market capitalization data available for comparison. Nevertheless, one firm disclosed its annual revenue of more than S\$7 billion in 2017, while two firms directly employed around 7,600 and 1,645 employees during 2017. Details on the industries of the sampled firms are listed in Table 4.

Insert Tables 3 and 4 here

¹ Exchange rate of US\$1:S\$1.366 as of 31 December 2018

Interviewees who had longer tenure in corporate sustainability or whose companies had voluntarily issued sustainability reports before the change in regulation were more insightful on coopetition tensions in corporate sustainability. In addition, these interviewees were more active in their stakeholder engagement on corporate sustainability issues. As such, these interviewees were more informative than others and provided greater contribution to the study. For research transparency disclosure (Aguinis & Solarino, 2019), one company delisted from SGX after this study.

Data Analysis

I used NVivo version 10 to capture and systematically code all interview and observation data, as well as detailed memos of my experience while conducting the field study. Adapting Smith (2014)'s four stages of data analyses, the section below describes how theoretical interpretations were developed from the raw data. Although the analyses are depicted as stages, the process was iterative as I moved back and forth between the data and existing literature.

Stage I: Develop detailed descriptions. The first round of coding was guided by Smith and Lewis (2011)'s four categories of organizational paradoxes and Basu and Palazzo (2008)'s dimensions of the sensemaking process on corporate social responsibility. An *in vivo* approach was adopted by coding as closely as possible to the terms that conference participants and interviewees used (Charmaz, 2006). As the topics covered in the conferences were very broad, only those portions that were relevant to my research question were coded using a sentence-by-sentence coding approach. New codes were generated as coding of the transcripts for two conferences and 19 interviews progressed. To ensure completeness in the coding, transcripts coded prior to the creation of the new codes were re-coded to include the new codes. No new codes created for the remaining transcripts of five conferences. Even though the remaining five conferences

covered a variety of topics on sustainability and involved various stakeholder groups on panel discussions, the data were consistently coded to existing codes as no additional insights were observed. As such, I ascertained that I had reached theoretical saturation from the data I collected. At this stage, the initial codes were numerous and varied because the transcripts and field notes were coded as closely to the data as possible.

Stage II: Identify key themes. In the second stage, three key themes emerged as similar codes were organized and condensed into categories. First, several Stage I codes were on how interviewees and conference speakers collaborated with peers and other stakeholders to share knowledge, experience, and resources on corporate sustainability issues. At the same time, another set of codes captured how engaging in corporate sustainability created a competitive advantage for the interviewees and conference speakers. Accordingly, I grouped these codes under ‘collaborations on corporate sustainability’ and ‘competition on corporate sustainability’ respectively. A second theme emerged as I grouped codes that captured the multiple avenues through which interviewees and conference speakers were learning on corporate sustainability under a second-order theme of ‘learning on corporate sustainability’. In the course of engaging their stakeholders, interviewees were sharing their firms’ sustainability practices, challenges, and realities as a way of correcting their stakeholders’ perceptions of corporate sustainability. I grouped this set of initial codes under ‘educating on corporate sustainability’. The final key theme that surfaced was a myriad of codes that captured different categories of paradoxical tensions and the responses that interviewees and conference speakers had towards the tensions. As an illustration, I grouped Stage I codes capturing tensions between ‘between organizations – individual versus collective interests’ and ‘within company – individual versus collective interests’ under ‘belonging tensions’.

Stage III: Situate themes within existing literature. In this stage, I engaged in theoretical coding by connecting my observations to existing constructs in the literature. In this stage, I referred to existing terms used in the literature to form aggregate dimensions for my second-order codes. There were aspects of the data that stood out and required a more extensive literature review. For instance, upon identifying the practice of learning while educating stakeholders, I explored the literature on social learning to understand if social learning was discussed as a one-way or a two-way process. A recent review by Myers (2018) introduced a new concept of coactive vicarious learning, which is defined as “a discursive learning process where individuals intentionally share and jointly process a model’s work experience(s) in interpersonal interactions to coconstruct an emergent, situated understanding of the experience(s)” (p. 613-614). In this review, vicarious learning was proposed to be a coactive process, where individuals engage in discursive interactions that facilitated interpersonal learning. Drawing on this literature, I organized second-order themes of ‘learning on corporate sustainability’ and ‘educating on corporate sustainability’ under the aggregate dimension of ‘coactive vicarious learning’.

Another aspect of the data that required a more extensive literature search pertained to narratives that reinforced belonging and organizing tensions. I identified communication theory that focuses on ‘texts’ as a key input and output of communication within and between firms (Koschmann, Kuhn, & Pfarrer, 2012). In particular, communication is defined as “a process in which contextualized actors use symbols and make interpretations to coordinate, and control both their own and others’ activity and knowledge, which are simultaneously mediated by, and productive of, ‘texts’” (Kuhn, 2008, p. 1232). In this stream of literature, ‘texts’ are the primary unit of analysis in conversations between decision makers and their stakeholders (Hardy &

Maguire, 2010). Accordingly, codes regarding narratives that reinforced belonging and organizing tensions were organized under the aggregate dimension of ‘discursive texts.’ The data structure is detailed in Table 5.

Insert Table 5 here

Stage IV: Integrate findings to build a conceptual model. Data on (a) coactive vicarious learning, (b) discursive texts, and (c) coopetition paradox were integrated into a conceptual model to describe the overall phenomenon. In particular, I sought to identify relationships connecting the themes from Stage III with reference to existing literature. For example, I drew connections between *belonging tensions* regarding individual versus collective interests and *organizing tensions* regarding individual versus collective actions with the coopetition paradox as experienced at the organizational level of analyses. In addition, I conducted cross-theme analyses to identify potentially meaningful patterns between the codes. For instance, I ran a query within NVivo to compare the theme of learning and teaching on corporate sustainability with two initial nodes ‘collaborations as collective sensemaking’ and ‘conversations in managing sustainability’. Through this query, I noted that collaborations and conversations were two important mechanisms that facilitated the two-way exchange between decision makers and their stakeholders.

Validity of findings. Following prior studies such as Kaplan, Milde, and Cowan (2017) and Kaplan and Orlikowski (2013), I chose not to double code the data as I was not developing a new construct or theory (Gioia, Corley, & Hamilton, 2013). Instead, I adopted the following methods for data analyses that sought to increase the trustworthiness of the findings, including:

- a. Collecting multiple sources of data from conference observations and interviews that included multiple stakeholders to triangulate perspectives;
- b. Disclosing my interview protocol in Appendix Table 1;
- c. Adapting from Smith (2014) and Kaplan and Orlikowski (2013) to detail more information on my analytical activities and coding decisions in Table 6;
- d. Providing further illustrative quotes to substantiate my coding in Appendix Table 2;
- e. Adopting the transparency criteria as recommended by Aguinis and Solarino (2019) in Appendix Table 3.

The output of these analyses describes the role of discursive texts in connecting field-level coactive vicarious learning with individual managerial sensemaking of the coopetition paradox in corporate sustainability.

 Insert Table 6 here

FINDINGS

I first present my findings regarding coactive vicarious learning occurring between and among corporate decision makers and stakeholders on corporate sustainability. I then present my findings on two categories of discursive texts and examine how these discursive texts facilitated managerial sensemaking of developments in corporate sustainability. Finally, I highlight two paradoxical tensions that fueled the coopetition paradox in corporate sustainability. I conclude by integrating these findings to describe the role of discursive texts arising from coactive vicarious learning in reinforcing the coopetition paradox in corporate sustainability.

Coactive Vicarious Learning on Corporate Sustainability

Social learning in corporate sustainability went beyond vicarious learning from peers to include stakeholders within the broader ecosystem, such as regulators, non-

governmental organizations, and external consultants. Decision makers had to navigate an environment that is uncertain, complex, and ever-changing in the context of corporate sustainability. Notably, stakeholder demands and expectations were varied and constantly evolving, triggering a need for decision makers to seek out these performance expectations from their stakeholders. As I interviewed decision makers and observed interactions occurring at business conferences, it appeared that decision makers constantly interacted with their firms' peers and stakeholders to determine what is legitimate corporate behavior regarding sustainability. At times, decision makers were aware of the misperceptions that stakeholders had on corporate sustainability and actively sought to correct these misperceptions. Stakeholders were also actively consulting decision makers in developing sustainability standards and performance expectations. As a result, decision makers were engaging in two-way interactive process of learning while educating their stakeholders on corporate sustainability.

Learning from peers and stakeholders. Decision makers obtained private information on a timely basis by directly interacting with one another and their stakeholders. These *personal interactions* shaped decision makers' responses to their firms' sustainability challenges, as they referenced from each other's experiences and sustainability actions. For example, one decision maker recounted that as he was discussing internally with his team on "an energy issue, and I picked up and spoke to... someone I knew over at [peer company name] just to kind of get a sense of what they do... that's kind of the, the conversation that happens and where you get a lot of learning" [#4]. Another decision maker described how they "compare notes, for example, on, so how are you dealing with some of the NGOs? Where are you at with your discussions with them? So, but this is on a very informal basis and it depends on the relationships that you... have with your peers" [#6]. Also, as part of the sustainability

reporting guidelines, companies reached out to their stakeholders to understand “what are the material topics... the areas where the company may have an impact and the areas that may impact our ability to do business” [#15]. These personal interactions between decision makers and their firms’ stakeholders influenced the range of sustainability topics that they attended to in their strategy formulation, implementation, and reporting.

Complementing this relational approach to social learning, decision makers leveraged upon publicly available information – such as company reports, media news, and company presentations on public platforms – to *actively observe* their peers’ strategy and actions. One decision maker shared that her firm has “a routine of frequent... checking based on the information published by other companies” [#3], while another noted that “everybody in the industry does, they're all seeing what we’re all doing and we are trying to keep like at the same level” [#8]. Decision makers also learned new insights regarding corporate sustainability through indirect platforms of industry associations, as well as sustainability-related forums and associations. These platforms – such as Global Compact Network of Singapore and World Business Council on Sustainability Development – served as field-configuring discursive spaces through which a range of stakeholders shared their knowledge, experience, and practices on corporate sustainability. Interestingly, learning from stakeholders also occurred symbolically through compliance with reporting frameworks and reading research reports. With the constant requests for increased disclosure, a decision maker shared that “each time we’re being asked for some kind of data, then we realize that this is a concern, or of interest to external stakeholders” [#8]. Decision makers referred to several frameworks – such as the Global Reporting Initiative, Carbon Disclosure Project, and Science Based Targets Initiatives – as their learning references. Collectively, decision makers learnt about the expected and acceptable standards of

corporate sustainability by personally interacting and actively observing their firms' peers and stakeholders.

Learning among stakeholders. While it may seem that decision makers were drawing from their stakeholders to inform themselves, stakeholders in the field did not have perfect information on corporate sustainability. Instead, stakeholders were also in a dynamic learning process and reaching out to each other to learn and develop sustainability expectations that they eventually required of the companies. As one conference speaker shared about the “Asian Investor Groups for Climate Change, which is a group of 22 institutional investors... we meet and we talk about best practices, and that is where we learn from each other” [CF3]². As the investors discuss and learn from each other, they embark on initiatives such as the “Climate Action 100, where we try to engage with a hundred most polluting companies to try to sort of evolve them to be better” [SSE]. Another example was the “Sustainable Banking Network, which is a group of 35 regulators from emerging markets... and what they are trying to do from the top down is to understand what are the preconditions to develop financing in their respective countries... These are regulators from Bangladesh learning what regulators in Sri Lanka have done, or regulators in Philippines have done. So this is really peer-to-peer learning network among the regulators” [SSE]. This illustrated why stakeholder expectations were uncertain and constantly evolving, given that the learning and exchanging of ideas amongst stakeholders occurred in tandem with the enactment of their demands on firms' corporate sustainability.

Educating stakeholders. Since stakeholders did not have perfect information on corporate sustainability, they also were susceptible to misperceptions on sustainability issues. Decision makers expressed that they educated and informed their stakeholders

² Refer to Table 3 for name of conference from which quote was extracted.

on corporate sustainability issues, especially when stakeholders had misinformation on their corporate sustainability. One decision maker expressed his frustration, “how do we get the NGOs to... have a more balanced view of the sector. Because, how do we get the European Union to understand that trying to ban palm oil imports into, into Europe will create 20 million hectares of deforestation in Brazil for soybean to replace it, because they don't want to think about that” [#7]. In fact, stakeholders themselves explicitly sought after decision makers’ views and inputs into developing standards for sustainability performance. For example, a global standard setting body “looked to industry working groups” as it developed sustainability standards, “where market participants could give feedback on their take, using their expertise to give us comments on what they thought” [ASRS]. The conference speaker shared that his organization was “developing a sector advisory group... to have a broad-based sector approach to give feedback on our standards going forward” and opened an invitation for decision makers to “apply to be part of that process, if you want to be more actively engaged in what we are doing” [ASRS]. Similarly, a Singapore government official announced that “an industry-led Corporate Governance Advisory Committee will be established... (to) promote good corporate governance practices, as well as monitor international trends and recommend updates to the Code where appropriate” [SID].

Mechanisms of coactive vicarious learning. I identified two key mechanisms through which coactive vicarious learning between decision makers and their stakeholders occurred. Firstly, *collaborations* between peer companies or cross sector partnerships were avenues through which decision makers and their stakeholders engaged in collective sensemaking. As decision makers shared their experiences on collaborating with other organizations, some decision makers expressed how they tried to navigate new territories as a collective. For example, a decision maker shared about

an industry alliance that brought together “about top 20 Singaporean companies who are involved in this agri-commodities supply chain... (to) have this frequent discussion about what are the relevant topics to this group of people, to this group of network, the 20 over companies... (and) the recent resolution decided by this GAA group (was) food loss and waste” [#3]. Decision makers were aware of the ambiguities within corporate sustainability, and that they were uncertain on how to approach issues that were emergent, complex, and diverse. Consequently, they reached out to other firms facing similar sustainability issues to collectively make sense of their organizational challenges. Through collaborative efforts within partnerships and alliances, decision makers collectively assessed the relevance and priority of different sustainability issues.

As collaborations facilitated sharing of knowledge and resources between decision makers and stakeholders, sustainability norms and practices were also being shaped concurrently. A conference speaker shared that “through collaboration with industry partners, new knowledge and solutions created in water, energy, land management, and food resilience can offer new business and economic opportunities” [GCNS]. This is evident in how one company reached out to “academics and professionals all around the world to... come up with the best approach to remediate” a piece of polluted land [#15]. As firms collaborated on sustainability issues, new norms and practices were implemented to raise the level of sustainability within the field and individual firms. At times, decision makers collaborated with regulators and industry partners to develop regulatory and normative standards on corporate sustainability in Singapore. For example, banks in Singapore came together to develop responsible financing guidelines for the Association of Banks in Singapore, which “suggested that we would at least create them for the eight sensitive sectors”. This brought banks “together in terms of figuring out what should our position be on some of these things...

And there has been some, some progression on how we should think about certain sectors” [#4]. On the other hand, collaborations were critical in creating and implementing sustainability practices within firms, such as the efforts by Southeast Asia Alliance on Sustainable Palm Oil to “help the smaller companies, the SMEs (small-medium enterprises) to switch to sustainable palm oil, we encourage them to switch to sustainability” [#19]. As a whole, collaborations brought decision makers together on common platforms to learn and work through complex sustainability issues that required expertise and resources beyond a single firm.

The second mechanism that facilitated coactive vicarious learning was the *conversations* that occurred between and among decision makers and stakeholders. Unlike collaborations that require some form of commitment and action from the companies, conversations represent the dialogue that occurred contemporaneously with decision makers’ navigation of corporate sustainability. This may be an informal conversation between individuals, such as decision makers discussing over the phone “to kind of get a sense of what they do... that’s kind of the conversation that happens and where you get a lot of learning” [#4]. Conversations also occurred during conferences, where decision makers exchanged thoughts and perspectives with stakeholders during panel discussions and open networking breaks. One of such debates that arose during a panel discussion was whether “business does not do good, and all it is interested in is maximizing profits”, or if “business is both a force for good and a force for evil” [SID]. Notably, conversations played a significant role in inducing change on corporate sustainability by transmitting new approaches and envisioning of corporate sustainability. A decision maker “remember organizing a cocktail party with the NGOs, and the director of plantation, and the director of mills... when they talked to each other for the first time... At first, they were like very not talking, but when they

start talking to the NGOs, then they suddenly realized, dawned upon them” the challenges of corporate sustainability [#10].

Conversations were critical in persuading firms that were laggards in corporate sustainability to embark on their own sustainability journey. A decision maker acknowledged that it “has been a journey where a lot of socialisation has been required, so we engage these farmers who have no reasons to take the sustainability journey... and we got them to agree on this journey to get them RSPO-certified” [SDSWR]. Even at the national level, government ministries and companies “started talking about carbon tax in 2010, 2011, and it took us quite a while to reach this state” of enacting carbon tax in 2019 [SSE]. Conversations were also necessary to ensure that various departments within a firm recognized the importance of corporate sustainability and worked towards a common sustainability goal. One decision maker discussed with colleagues within an international financial institution about climate-related risks, who “felt a little bit attacked... but as we walked them through on what the different options might be, all of a sudden, we never talked to our credit department before about climate, and now we can have that conversation” [SSE]. While collaborations led to a positive change in firms’ sustainability practices, conversations softened individuals’ stance towards corporate sustainability and enabled decision makers to build consensus within their firms and with their stakeholders on the importance of corporate sustainability.

As a whole, collaborations and conversations influenced how decision makers and stakeholders collectively made sense of corporate sustainability. Although collaborations and conversations facilitated coactive vicarious learning in different ways, both mechanisms ultimately resulted in a shift towards recognizing the value of corporate sustainability within the field. On one hand, systems, frameworks, and business processes were developed through the mutual exchange of knowledge and

sharing of resources. Decision makers and stakeholders developed certification systems, investment guidelines, and production processes that coordinated and controlled corporate action on sustainability. On the other hand, conversations between decision makers and stakeholders facilitated coconstruction of corporate sustainability. These conversations disseminated new perspectives and standards of corporate sustainability, thereby facilitating a shift amongst firms towards working on sustainability issues. Accordingly, coactive vicarious learning between and among decision makers and stakeholders shaped individuals' sensemaking processes, including how they take action in response to sustainability issues. I depict coactive vicarious learning on corporate sustainability with revolving arrows between stakeholders and companies in Figure 1.

Insert Figure 1 here

Development of Discursive Texts on Corporate Sustainability

In this section, I identify key *texts* that emerged from the coactive vicarious learning process between decision makers and stakeholders. These texts were used to co-orientate decision makers and their firms towards taking substantive action on corporate sustainability. Co-orientation is negotiated through dialogue and refers to the coordination of belief, action, and emotions among individuals towards a specific issue (Taylor & Robichaud, 2004). As decision makers and stakeholders interacted with one another, various texts emerged in attempts to highlight the developing need for action on corporate sustainability and brought them to the awareness of other decision makers. Yet, in doing so, the tensions between individual versus collective interests and actions were reinforced and made increasingly salient to decision makers. Following Kuhn (2008), the texts observed are presented in two categories: (i) *figurative texts*, or abstract representations of the common and valued elements of the group and the discourse in

the environment, and (ii) *concrete texts*, or signs and symbols inscribed in some relatively permanent form, such policy/technical documents, laws, and instruction manuals.

Figurative texts. The first text focused on having a higher goal in corporate sustainability that emphasized the collective interests of society. Decision makers and stakeholders appealed to having a higher goal for corporate sustainability, such as cooperating “for the good of society” [#1] and “to carry the voice of the vulnerable... further demand for a planet, where not just the ASEAN community, but all communities around the world could truly prosper” [SDSWR]. Conference speakers also referenced to “the higher agenda (such as) climate change, water”, calling for action on “how we can support those initiatives, and not just doing things that are close to us” [ASRS]. This raised the salience of collective interests and that the role of business in society was no longer merely to maximize profit at the expense of the environment and human wellbeing.

While having a higher goal in corporate sustainability appealed to the collective interest, the second text of framing sustainability goals as business goals focused on the business case for corporate sustainability. In particular, environmental, social and governance dimensions were no longer “called non-financial anymore, because everything we do about the environment, about social, governance, everything has an impact on financial performance” [GCNS]. One conference speaker shared that “there is a strong element of performance improvement through sustainability” and that “it actually develops and performance enhancement of operations” [SDSWR]. While this text attempted to convince decision makers to act on their corporate sustainability, the focus on the economic benefits that sustainability has brought raised the salience of individual companies’ interests. For example, a conference speaker highlighted that

having superior sustainability performance “can actually open financing streams through green bonds, and green loans” [SRF], attracting investors and financing institutions to the companies. Altogether, the first two texts provided different motivational reasons for firms to act on corporate sustainability by emphasizing both individual firms’ and the collective’s interests.

The third text attempted to counter the increasing short-term perspective on firm performance in the market by encouraging decision makers and stakeholders to adopt a long-term and forward-thinking approach. Notably, “economics has a short-term focus, and natural resource planning requires, and sustainability requires a long-term perspective and a direction that is not provided by the market alone” [S3]. To shift towards a long-term perspective on firm performance, the Task Force for Climate-related Financial Disclosures introduced the use of scenario analysis and planning using a 2 degree increase scenario “to stress test business strategy, their policies... so that business can really ask themselves what if something happens that is quite calamitous and disastrous” and if their businesses are resilient to face these scenarios [SSE]. As one decision maker quipped, “if you do not have a sustainable business model, sustainable business practices, such that you... can gain a lot now, but then one day you get into trouble for pollution or don’t know what. I mean, itself is not a going concern situation” [#16]. This text connected the notion of caring for the interest of the broader society today as beneficial for the firms’ interest in the future. In doing so, this text highlighted the possibility of achieving both individual firms’ and collective interests simultaneously by applying a different temporal orientation towards corporate sustainability.

The final text encouraged decision makers to adopt an ecosystem view by emphasizing that solving global sustainability challenges “does need market, it does

need society, it does need government to all get in step together to accelerate this path towards net zero emissions” [SDSWR]. One conference speaker shared her company faced resource limitations as a small-medium enterprise, yet she remarked that “alone (her organization) can’t do it but it is part of another organization where we found the opportunity to” contribute to society [GCNS]. Given the complexities and magnitude of corporate sustainability, decision makers were aware of their firms’ limitations and recognized that other firms and stakeholders may hold complementary knowledge and resources. As such, a decision maker emphasized that sustainable development “goal number 17, collaboration partnership is key to drive sustainability and sustainable development” [#2]. By drawing attention to the broader social system, decision makers became aware of the need to collaborate with one another in addressing sustainability challenges.

Concrete texts. As decision makers and stakeholders worked on developing systems and frameworks, the presence of regulations on corporate sustainability was a key text that compelled decision makers to act on their firms’ sustainability issues. In comparing Singapore with other countries in Europe, a decision maker commented that “Singapore is unique in this sense... where I have never seen the regulators take such... proactive approach in... bringing people together” [#4]. The government played a role in dictating “this is how we do it, essentially to put private interest second to public interest” [SID]. When asked by an audience member on how to respond to managements that were not interested in corporate sustainability, a conference speaker responded that “you regulate, pure and simple” [ASRS]. Given that for-profit companies are driven to seek self-interests, “more and more countries will come on and... being to put out the requirements for countries and companies to internalize the negative externalities and costs” [GCNS]. With the growing presence of regulations on corporate sustainability,

decision makers were increasingly made aware to consider the collective interests of the broader society and the environment in their decision-making.

Several conference speakers and interviewees leveraged upon a second text of tying managements' key performance indicators (KPIs) to their firms' sustainability outcomes as a means of having decision makers consider goals beyond profit maximization. One conference speaker shared that "there is a certain percentage of pay cut of the executive directors of the company if there is even a single fatality" at the firms' operations [ASRS], while another shared that a chief executive officer's financial compensation had "a coefficient which can be zero or one, depending on how the company has achieved its environmental and social goals" [SID]. Both the presence of regulations and KPIs elevated the significance of collective interests, in a field where firms competed to protect their own interests. Consequently, while these texts sought to encourage greater corporate action on sustainability issues, they reinforced decision makers' experience of competing demands between individual versus collective interests.

Discursive Texts and Sensemaking of Coopetition Paradox in Corporate Sustainability

The emerging texts shifted decision makers' attention towards the importance of corporate sustainability and increased their buy-in to actively work sustainability issues. This in turn shaped how decision makers approached cooperating while competing with their firms' peers on corporate sustainability. Reflecting this shift in managerial attention towards corporate sustainability, collaborations among companies to work on sustainability issues were also on the rise. Such collaborations were critical in bringing "more resources together, more ideas together", and as a result, "the impact is different... your outreach is different" [#2], thereby increasing the scale and speed of

companies responding to the demands of corporate sustainability. Nevertheless, some decision makers revealed the intense competition that they faced on corporate sustainability as it is “much more reputational than anything”, and “whether it is with customers, or access to markets, or even, for example, when we are dealing with our bankers, they do compare our performance across the environmental, social, and governance standards” [#6]. On one hand, decision makers viewed open sharing of information among peer companies as critical to improving their firm’s corporate sustainability and meeting the demands of sustainable development. Yet, at times, the information shared were “regarded as commercial sensitivities as well”, and if “we reveal the supply chain information... it is so sensitive that... we will lose our relevance in the whole supply chain” [#3]. As a result, a decision maker felt that “there is still also a lot of room for improvement in term of knowledge sharing within the industry” and that they were “not able to do that with the other company, or other companies in... the similar industry” [#6].

Two distinct organizational tensions appeared to be fueling the coopetition paradox in corporate sustainability. First, *belonging tensions* relates to individual firms’ interests as opposed to the collective interests of the industry and society. Several individuals shared that a key challenge in corporate sustainability was that “we are not sufficiently internalizing the costs”, such as “emissions and greenhouse gases... that we emit, we don’t get charged for it, we don’t see the effects of it on us immediately, but it affects all of us in the world” [GCNS]. This underscored the impression “that business is run by greedy and self-centered people... this tension is actually increasing between business and society” [SID]. The emerging texts arising from coactive vicarious learning – such as appealing to a higher goal while highlighting the business case for sustainability – disrupted a dominant narrative of maximizing economic profits. By

drawing managerial attention beyond a single focus on financial performance, these discursive texts highlighted the need for decision makers to consider the broader society's interests even as their firms competed to outperform financially. As one interviewee shared, "all our money is our money. So as a business entrepreneur, as a responsible citizen, so this is why I say the word mixed feeling" [#12] towards collaborating on corporate sustainability. Accordingly, belonging tensions between individual and the collective interests surfaced when decision makers identified both as an individual and as part of a broader society.

Second, *organizing tensions* relates to how decision makers structure and lead their firms' corporate sustainability within the larger system. Unlike belonging tensions that focus on the tensions between individual versus collective *interests*, organizing tensions consider the tensions between individual versus collective *action*. In particular, the global sustainability crisis "is a problem that only can be solved collectively" and "therefore we have to be able to act together" [S3]. While the challenges within corporate sustainability required collective corporate action, individual firms were either relegating this responsibility to other firms or chose to act in silos to preserve their firms' competitive advantage. As one conference speaker lamented, companies "need to recognize that most of these global challenges take more than one company to solve" [GCNS] and "if we are going to make any change, we better start thinking about radical changes within our own companies" [SID]. Discursive texts on adopting an ecosystem view challenged for-profit firms' dominant manner of operating independently to achieve outperformance. Since "many (firms) haven't got the resources to go and research these in depth for all the different issues" [#4], the discursive texts highlighted the need for decision makers to work with others in solving their own firms' sustainability issues. In addition, shifting decision makers' perspectives towards an

ecosystem view raised their awareness of the collective environmental and social challenges beyond the boundaries of their firms. These texts highlight the need for firms to co-orientate with one another in order to work collaboratively on corporate sustainability. As such, organizing tensions between individual and the collective actions surfaced when decision makers chose to collaborate while competing with their firms' peers.

Unlike other contexts that entail coopetition between firms to outperform financially, challenges within corporate sustainability required decision makers to consider both the interests of their firms and society. Decision makers were increasingly aware of the need to collaborate with other firms and stakeholders and act substantively in addressing global sustainability challenges. At the same time, decision makers remained conscious of the need for their firms to maintain a competitive advantage and strive for financial outperformance. When faced with the coopetition paradox in corporate sustainability, decision makers sought to make sense of how they should interpret and respond to the tensions of cooperating while competing with their firms' peers. Given that the context and demands for corporate sustainability were constantly evolving, decision makers reached out to their peers and stakeholders to explore opportunities for collaborations while ensuring that their firms remained competitive on their corporate sustainability. Decision makers' attempts to make sense of the coopetition paradox in corporate sustainability in turn triggered their engagement in social learning, resulting in a dynamic process of coactive vicarious learning on corporate sustainability. I depict the tensions within the coopetition paradox in corporate sustainability and its interrelatedness with coactive vicarious learning within Figure 1.

Summary of Findings

At the broader system level, decision makers are confronted with macro developments on corporate sustainability that presented strategic challenges for their firms. These developments resulted in decision makers having to attend to their firms' financial, environmental, and social performance dimensions simultaneously. In order to navigate this changing landscape of corporate sustainability, decision makers sought to learn from their peers and stakeholders to determine what is legitimate corporate behavior regarding sustainability, as well as how they can respond to their firms' sustainability challenges. At the field-level, decision makers actively observed and engaged their peers and stakeholders in a discursive learning process to update and inform themselves on sustainability issues. Notably, field-configuring events – such as sustainability-related forums and conferences – provided a critical discursive space for decision makers and stakeholders to engage on sustainability issues. Through this mutual learning process, decision makers gained knowledge on a range of sustainability issues that enabled them to interpret and respond to the specific sustainability challenges faced by their firms. Yet at the same time, decision makers educated their peers and stakeholders on corporate sustainability issues, which enabled stakeholders to develop their performance expectations. This resulted in coactive vicarious learning, during which sustainability standards and expectations developed and changed over time. Consequently, decision makers were simultaneously influenced by and influencing the joint processing of the common experience of corporate sustainability.

As decision makers and stakeholders engaged in coactive vicarious learning, discursive texts emerged from these field-level interactions that shaped how decision makers approached corporate sustainability at the organizational-level. These discursive texts were used to co-orientate both decision makers and stakeholders by directing their

attention towards acting substantively on corporate sustainability. Specifically, the texts raised the salience of collective interests to individual decision makers and motivated them to act substantively on sustainability issues. While firms typically competed to ensure their economic prosperity, challenges in corporate sustainability required firms to share their knowledge and resources and work collectively so as to increase the scale and speed of their strategic responses. Accordingly, the discursive texts arising from the coactive vicarious learning reinforced decision makers' experience of belonging and organizing tensions on interests and actions in corporate sustainability. All in all, the overall outcome of coactive vicarious learning is not merely in increasing decision makers' knowledge on corporate sustainability, but also in substantially influencing how decision makers navigated the coopetition paradox in corporate sustainability.

DISCUSSION

In this essay, I sought to understand the role and impact of social learning on decision makers' sensemaking of paradoxes in corporate sustainability. Through observing field-configuring events and interviewing decision makers on corporate sustainability, I explored my research question in the context of Singapore where regulations, technology, and norms on corporate sustainability were developing. I examined how coactive vicarious learning occurred between decision makers and stakeholders, and identified collaborations and conversations as key mechanisms of this learning process. I drew attention to key discursive texts that emerged from the learning process and directed managerial attention towards taking joint action on corporate sustainability. In emphasizing the broader society's interests and the value of corporate sustainability for firms, these discursive texts reinforced belonging and organizing tensions and shaped decision makers' sensemaking of the coopetition paradox in corporate sustainability.

In doing so, I provided empirical evidence of coactive vicarious learning occurring within the context of corporate sustainability. I built upon Myers (2018)'s theoretical work by showing how decision makers and stakeholders engaged in a two-way active learning process on corporate sustainability. I elucidated two key mechanisms – collaborations and conversations – of coactive vicarious learning that induced a change in business practices and individual stances towards corporate sustainability respectively. I also contributed to the paradox literature by demonstrating how discursive texts emerged from coactive vicarious learning, which in turn influenced decision makers' sensemaking of the coopetition paradox in corporate sustainability. Finally, my study has practical implications for stakeholders at large in understanding how they can shape collaborative efforts among for-profit firms on sustainability issues by leveraging upon discursive texts to disrupt dominant narratives and practices in maximizing firm outcomes (Hardy & Maguire, 2010).

Implications for Organizational Research on Social Learning

As corporate sustainability developed, emergent and ambiguous issues triggered sensemaking processes that caused decision makers to question their assumptions of how they should behave (Maitlis & Christianson, 2014). Existing literature centers its focus on how individuals learn from their experience (i.e. experiential learning) (Kolb, 1984) and from their peers (i.e. vicarious learning) (Bandura, 1977), which serve as templates to guide their actions and strategic decision-making. In this stream of literature, vicarious learning is largely conceived as one-way in which “the model is a non-participant in the learner's processing of their observations” (Myers, 2018, p. 611). Yet, in reality, vicarious learning takes place in a broader social context, which entails personal interactions and sharing between individuals from different organizations. This two-way interpersonal process through which learners and the models (i.e. other

individuals that learners seek to learn from) interact influences how they jointly form an understanding of the experience (Myers, 2018). As such, we do not yet know how social interactions within vicarious learning influences managerial sensemaking of developments in corporate sustainability, especially when decision makers have to navigate paradoxes in corporate sustainability.

My study contributes to the literature on social learning in two ways. First, I provided empirical evidence on Myers (2018)'s theoretical concept of coactive vicarious learning within the context of corporate sustainability. While Myers (2018) focused on the interactions between individuals within an organization, my study found similar interactions between individuals of different organizations – both from their peers and stakeholders at large – when faced by a common issue like corporate sustainability. As a means of navigating the dynamism and ambiguity presented by their contexts, decision makers and stakeholders at large intentionally engaged each other to share their knowledge and experience on corporate sustainability. Two key mechanisms – collaborations and conversations – of coactive vicarious learning were essential in inducing positive change on business practices and decision makers' stance towards corporate sustainability. Through these mechanisms, new systems, standards, and perspectives were disseminated amongst firms and stakeholders, which resulted in a shift towards recognizing the value of corporate sustainability. Accordingly, coactive vicarious learning occurring between and among decision makers and stakeholders influenced how individuals formed an emergent, situated understanding of the developments in corporate sustainability.

My study makes a second contribution to the literature on social learning by elucidating the role of stakeholders in guiding individuals on corporate sustainability issues. Within behavioral theory of the firm, scholars often consider information from

historical performance and the performance of peers as the primary inputs into how firms form and adjust their performance reference points (Argote & Greve, 2007; Cyert & March, 1963). This body of literature primarily focuses on firms' financial performance. However, unlike financial performance targets, reference point criterion for sustainability issues are often ambiguous and is dynamically formed as an "outcome of a negotiation process between a firm and its stakeholders" (Nason et al., 2018, p. 262). Because corporate sustainability involves social (third-party) effects (Schuler & Cording, 2006), stakeholders play a critical role in how a firm acts on its environmental and social dimensions. My findings showed that stakeholders themselves may not have perfect information on corporate sustainability and needed to reach out to decision makers to learn and develop sustainability expectations. Hence, stakeholder expectations were uncertain and constantly evolving, since the learning and exchanging of ideas amongst stakeholders and decision makers occurred in tandem with the enactment of their demands on firms' corporate sustainability. Nevertheless, stakeholders facilitated a discourse on corporate sustainability by engaging decision makers in a mutual learning process, which in turn encouraged decision makers to cooperate with their peers while competing to outperform on corporate sustainability. Accordingly, stakeholders played a crucial role in directing decision makers to take concerted collective action on corporate sustainability (Nason et al., 2018).

Distinguishing and Linking Coactive Vicarious Learning and Collective Sensemaking

Although coactive vicarious learning and collective sensemaking involve multiple individuals interacting to construct a common understanding, there are theoretical differences between these two processes. Firstly, coactive vicarious learning is focused on trying to make a shared meaning out of individuals' experiences, so that

these shared understandings can be used as individuals' repertoires for responding to future situations (Myers, 2018). In other words, individual experiences are a key focus in the coactive vicarious learning process. On the other hand, collective sensemaking is focused on trying to make a shared meaning of the cues from individuals' environment (Maitlis & Christianson, 2014). As novel, unexpected, or confusing events occur in the environment, individuals may turn to each other to determine (a) whether, as well as to what extent, they should attend to these events (i.e. scanning stage), (b) their sense of control in effecting change on the issue and their evaluation of the issue as positive or negative during the interpretation stage (i.e. interpreting stage), and (c) whether they should approach or avoid the issue faced (i.e. responding stage) (Hahn et al., 2014). Hence, developments in the environment are a key focus in collective sensemaking.

Second, coactive vicarious learning results in a change in individuals' knowledge that occurs as a function of that experience. This knowledge can include declarative knowledge (i.e. factual information) and procedural knowledge (i.e. knowledge of how to perform or operate) (Argote, 2013). By contrast, collective sensemaking results in individuals collectively developing cognitive maps of their environments (Ring & Rands, 1989) and taking actions that could alter the very environment under consideration (Porac, Thomas, & Baden-Fuller, 1989). As an illustration of this difference, an increase in substantive action on corporate sustainability may be due to a regulatory change (i.e. collective sensemaking) or a function of individuals' experience resulting in greater competency (i.e. coactive vicarious learning). Finally, while the interpersonal interaction within coactive vicarious learning seeks to develop a shared understanding of an experience and possible applications of this understanding, interpersonal interaction within sensemaking (i.e. sensegiving) attempts to influence "others towards a preferred redefinition of

organizational reality” as a way of consensus-building (Gioia & Chittipeddi, 1991, p. 442).

My study illustrated how coactive vicarious learning influenced the concurrent sensemaking and sensegiving processes between decision makers and their stakeholders. In particular, coactive vicarious learning resulted in increased knowledge that informed how individuals interpreted the developments in the environment. For example, a decision maker may learn from a peer decision maker on how to structure a loan with a financial institution that is tied to sustainability performance indicators so as to receive favorable loan interest rates. This information may guide the decision maker to perceive the developments on corporate sustainability as an opportunity for business growth instead of a risk or a cost to the company. Hence, this decision maker may develop a greater sense of control in winning competitive bids for such sustainability-linked loans and a positive valence towards corporate sustainability during the interpretation stage of sensemaking. In sharing his/her experience on structuring a sustainability-linked loan, the peer decision maker may be engaging in sensegiving by attempting to influence the focal decision maker to act on corporate sustainability issues. Hence, coactive vicarious learning influences the sensemaking and sensegiving processes by informing individuals through the mutual sharing and joint processes of experiences. As presented in my analyses, discursive texts arising from the coactive vicarious learning between and among decision makers and stakeholders reinforced belonging and organizing tensions in corporate sustainability. Consequently, this affected how decision makers make sense and respond to the coopetition paradox in corporate sustainability.

Implications for For-profit Companies in An Era of a Sustainability Crisis

The dominant view towards the purpose of for-profit organizations in society has been based on the traditional notion of shareholder profit maximization (Carroll & Shabana, 2010; Friedman, 1970). Both in the field of strategic management research and in practice, firms have been typically assessed on a single performance dimension – namely financial performance – as a measure of its success or failure. However, in light of the urgent sustainability crisis, stakeholders have been increasingly pressurizing firms to consider their environmental and social impacts as equally valid measures of firm performance (Surroca, Tribó, & Zahra, 2013). Scholars have also called for new measures of firm performance to incorporate a stakeholder perspective and capture the broader social and environmental impacts of firms (Barney, 2019; McGahan, 2019). Nevertheless, it has been an uphill task in shifting the mindsets of decision makers, board of directors, shareholders, and strategic management researchers to consider economic, environmental, and social objectives simultaneously and with equal importance. As Hoffman (2015) describes, the climate change debate is a cultural issue that individuals intentionally or unintentionally avoid. In addition, a modest corporate response towards sustainability may be an issue of psychological distance, in which individuals do not perceive it as a priority for for-profit companies (Sacchi, Riva, & Aceto, 2016).

My study highlighted the importance of two mechanisms – collaborations and conversations – in facilitating a change in business practices and individual stances towards corporate sustainability. As previously discussed, coactive vicarious learning is central to how decision makers and stakeholders at large coconstruct an intersubjective meaning on sustainability issues that drives their individual and collective action (Maitlis & Christianson, 2014). Collaborations and conversations that facilitate this

dynamic learning process are particularly valuable avenues for inducing substantive change on corporate sustainability. As Hoffman (2015) explains, individuals are influenced by values and norms of groups to which they belong. This directly influences how individuals make decisions, as they are more likely to endorse the position of the group that they trust. Beyond sharing of knowledge and resources, collaborations or cross-sector partnerships allow the forming of cooperative relationships between decision makers and stakeholders. In fact, Hoffman (2015) explained that the messenger bearing the message of climate change is as important as the message itself. These cooperative relationships can enable individuals who may be skeptical or hesitant on corporate sustainability to accept the texts and receive sensegiving from other individuals in the group more openly.

Together with ongoing conversations, my findings show that collaborations provided an avenue for constructive discussions and debates on corporate sustainability to occur (Koschmann et al., 2012). In doing so, environmental and social performance dimensions became salient and central to the discourse on measuring firm performance. Accordingly, stakeholders at large can use collaborations and conversations as means to engage individuals who may have already started on their sustainability journey, as well as intentionally engaging individuals who may be at the periphery of sustainability networks and do not view corporate sustainability as a necessity. Notably, the literature within the communicative theory of the firm highlights the value of texts in conversations in co-orienting firms and stakeholders as they engage in interdependent activities (Koschmann et al., 2012). Texts themselves can exert an influence over managerial practice by providing a common frame or understanding of a particular experience (Cooren, 2004; Kuhn, 2008). By engaging in ongoing conversations and collaborations, both management scholars and decision makers may no longer see

environmental and social impacts as separate from financial objectives over time. Instead, they may come to see the interrelatedness between economic, environmental, and social objectives and seek out ways to address them simultaneously (Hahn et al., 2014).

In attempts to encourage greater action on corporate sustainability, advocates for environmental and social issues have increasingly drawn on the narrative of “a business case for sustainability” (Carroll & Shabana, 2010). This figurative text adopts an instrumental logic that focuses on how companies can benefit financially from engaging in corporate sustainability (Gao & Bansal, 2013). Underlying this text is a notion that firms can pursue social goods, but only when they also improve the companies’ financial position (Kaplan, 2019). Indeed, this is a recurrent text among decision makers and stakeholders that I have observed in my data. Notably, this figurative text is used to convince and persuade companies that are skeptical or hesitant to embark on their sustainability journey by emphasizing on the financial benefits of corporate sustainability. Correspondingly, management scholars have also sought to find empirical evidence between corporate social responsibility and financial performance as a means to support for corporate action on social and environmental issues (Eccles, Ioannou, & Serafeim, 2014; Orlitzky, Schmidt, & Rynes, 2003).

While the “business case for sustainability” may have some rhetorical benefit, Kaplan (2019) questioned the effectiveness of this narrative by highlighting that it “may not actually motivate decision makers to act, ... and it may create moral struggles for the people who feel that they must make the business case in order to justify social action” (p. 4). As one interviewee shared, “I think it's very easy to make a business case for social responsibility. We don't believe that you have to make that business case... because you shouldn't have to choose to do the right thing” [#15]. In fact, having a

business case frame may limit the radical actions that decision makers need to take to address the urgent sustainability crisis (Hahn et al., 2014). Accordingly, Kaplan (2019) calls for greater empirical examination on the conditions that may make the “business case for sustainability” useful, and to move beyond the business case by adopting a paradoxical approach towards firms’ triple bottom line.

Implications for Stakeholders in Influencing Corporate Sustainability

In highlighting this contention over the text of the “business case for sustainability”, I draw attention to how stakeholders can positively or negatively influence the sensemaking processes of decision makers, as they affect the text around corporate sustainability that decision makers are exposed to. Stakeholders may send signals to focus on the business case for corporate sustainability by emphasizing the economic value that it brings. Such a perspective focuses on corporate sustainability as a means to achieving the end goal of financial prosperity, and not perceiving it as something inherently worth pursuing (Hahn, Figge, Pinkse, & Preuss, 2018). In other words, the text intended to encourage greater corporate contributions to sustainable development may unintentionally steer decision makers away from taking bold and radical action on corporate sustainability (Hahn et al., 2014; Intergovernmental Panel on Climate Change, 2018). Accordingly, stakeholders need to consider carefully their approach to influencing decision makers towards corporate sustainability. Instead of pushing for a business case frame, stakeholders can consider how they may encourage paradoxical thinking towards economic, environmental, and social objectives among decision makers, even if these objectives may appear contradictory (Hahn et al., 2014; Smith & Lewis, 2011). Stakeholders can also consider emphasizing the importance of ethics in corporate decision-making, so as to move beyond a sense that climate change challenges are too big a problem to be solved by individuals (Hoffman, 2015).

My study has practical implications for stakeholders at large in understanding how they influence managerial sensemaking on the coopetition paradox in corporate sustainability. Given that sustainable development at the system-level requires the collective effort of individual firms, encouraging and maintaining an ecosystem culture of collaborations is necessary to drive substantive corporate sustainability (Hahn et al., 2018). These collaborative efforts are critical because the complexities and scale of sustainability issues at the societal level supersede that of a single firm's capacity to address (Stadtler, 2018). In fact, collaborative efforts among organizations are crucial to enact widespread change that is needed to halt the trajectory of global warming (Intergovernmental Panel on Climate Change, 2018). Nevertheless, Stadtler (2018)'s study on cross-sector partnerships cautioned that inter-firm competition can be detrimental to a cross-sector partnership if its collaborative and competitive elements are not integrated effectively. As Stadtler (2018) described, the effectiveness of institutional actors in integrating the collaborative and competitive elements within corporate sustainability can affect whether firms are successful in their "tightrope walk" towards greater sustainability outcomes.

My study elucidated two separate organizational tensions – belonging tensions on interests and organizing tensions on actions – fueling the paradox of cooperating and competing among firms on sustainability issues. By providing clarity on the types of organizational tensions that may threaten the success of cross-sector partnerships, stakeholders have to give careful thought as to how they amplify individual versus collective interests, as well as individual versus collective action (Gioia & Chittipeddi, 1991; Maitlis & Christianson, 2014). As paradox theory proposes, stakeholders should not view these tensions as dilemmas that require an either-or choice (Smith & Lewis, 2011). Instead, stakeholders can consider how they may encourage paradoxical

thinking, as embracing paradoxical tensions and working through them will allow both decision makers and their stakeholders to harness the potential of paradoxes to drive sustainability (Hahn et al., 2014; Smith & Lewis, 2011). Consequently, stakeholders must consider carefully how they can integrate both individual and collective interests and actions within corporate sustainability to ensure firms maximally contribute to the overall sustainable development of both social and natural systems (Stadtler, 2018).

CONCLUSION

In light of the global developments on corporate sustainability, organizational decision makers have to make sense of their firms' changing contexts and respond strategically to their stakeholders. In order to do so, decision makers engaged in coactive vicarious learning through collaborations and conversations with their peers and stakeholders on corporate sustainability. Through this learning process, emerging discursive texts coordinated and controlled joint action on corporate sustainability. Yet, these texts reinforced belonging and organizing tensions that fueled the coopetition paradox in corporate sustainability. Accordingly, decision makers have to navigate the complexities of cooperating while competing with their firms' peers on corporate sustainability. This in turn triggered decision makers' need to engage in social learning in order to seek out new knowledge and strategies to enable a simultaneous pursuit of cooperation and competition. As a whole, my study provides a more nuanced understanding of the role of discursive texts in connecting field-level coactive vicarious learning with individual managerial sensemaking of the coopetition paradox in corporate sustainability.

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FIGURE

Figure 1. The Role of Discursive Texts in Connecting Coactive Vicarious Learning and Managerial Sensemaking of Coopetition Paradox in Corporate Sustainability.

TABLES

Table 1. Summary of data collected.

Source of data	Types of data collected	Number of single-spaced pages transcribed
Conferences	<ul style="list-style-type: none"> • Transcripts of conference sessions • Field notes containing background information of conferences and conference speakers, as well as my initial thoughts, observations, and reflections from attending the conferences • Publicly available PowerPoint slides of conference speakers 	<ul style="list-style-type: none"> • 356 pages • 21 pages • 16 sets of slides
Interviews	<ul style="list-style-type: none"> • Transcripts of interviews • Field notes containing background information of interviewee and company, as well as my initial thoughts, observations, and reflections from the interviews 	<ul style="list-style-type: none"> • 166 pages • 16 pages

Table 2. List of business conferences attended.

Conference	Organizer	Date	Description of conference
1 S3	Academic institution	3 – 4 May 2018	The theme of event was “Incentives and Motivations for Sustainability”. It consisted of three panel sessions focused on three pillars of sustainability solutions: (1) Technology and Innovation; (2) Laws and Governance; and (3) Economics and Financial Incentives. (http://www.sustainapore.sg/events/s3_2018.html)
2 SDSWR	Non-profit and independent think tank	18 May 2018	The theme of the event was “Climate Action: Seeding Green Growth and Resilience in ASEAN”. It focused on sustainability efforts through policies and practices in the agroforestry and resource sector. (http://www.siiainline.org/5th-singapore-dialogue-on-sustainable-world-resources-sdswr/)
3 SSE	Local chapter of the United Nations Global Compact Network	5 – 6 June 2018	The aim of the event was to facilitate business opportunities as identified by the SDGs to help create a low carbon future. The event had three thematic areas – circular economy, food and agriculture, and connectivity. (https://www.sustainablesolutionsexpo.com)
4 SID	National association of directors	7 September 2018	Themed as “Rebooting Globalization and Governance in an Era of Disruption”, panel sessions discussed governments’ and regulators’ role in shaping operating environments of companies, and how companies and their boards can respond to challenges and opportunities presented by the ensuing disruption. (https://www.sid.org.sg/Web/Events/SID_Directors_Conference.aspx)
5 ASRS	Sustainability consulting firm	2 – 3 October 2018	Themed as “Sustainability Reporting: Beyond Transparency”, the aim of the event was to explore how businesses can gain a competitive edge through sustainability reporting by communicating effectively to stakeholders. (https://csrworks.com/summit/)
6 GCNS	Local chapter of the United Nations Global Compact Network	19 November 2018	Themed as “Building Better Businesses”, the summit focused on exploring latest sustainability trends and insights on building resilient businesses and unlocking profitable business opportunities. (https://gcnssummit.com)
7 SRF	Academic institution and a non-profit organization	22 November 2018	The forum consisted of a presentation on the state of sustainability reporting in ASEAN and Singapore, as well as a panel discussion by knowledge experts and industry leaders on insights regarding sustainability reporting. (https://bschool.nus.edu.sg/Events/2018/11/opportunities-in-an-era-of-tensions/index.html)

Table 3. Descriptives of interviewees

S/N	Level of Management	Type of Position	Position Title
1	Mid-level	Sustainability	Manager, Group Sustainability
2	Top management	Sustainability	Chief Sustainability Officer
3	Senior-level	Sustainability	General Manager, Sustainability, Palm and Rubber
4	Top management	Sustainability	Chief Sustainability Officer
5	Senior-level	Sustainability	Senior Manager (Sustainability and Corporate Social Responsibility), Group Corporate Relations
6	Top management	Sustainability	Director of Sustainability & External Affairs
7	Top management	CEO	Chief Executive Officer and Executive Director
8	Senior-level	Sustainability	Head, Sustainability Communications
9	Senior-level	Corporate Secretarial and Corporate Social Responsibility	Group Head, Corporate Secretarial Services and Corporate Social Responsibility
10	Senior-level	Corporate Communications	Corporate Communications Manager
11	Top management	Finance	Chief Financial Officer
12	Top management	CEO	Chief Executive Officer and Executive Chairman
13	Senior-level	Sustainability	Head of Management Control
14	Board	Corporate Secretarial	Regional Managing Director
15	Senior-level	Sustainability	Group Sustainability Director
16	Board	Governance	Board Director
17	Board	Governance	Chairman and Founder
18	Senior-level	Finance	Group Financial Controller
19	Senior-level	Marketing	Group Marketing Director

Table 4. List of industries included according to the Global Industry Classification Standards.

Industry Group	Industries	Number of companies
Banks	Banks	1
Capital Goods	Construction and Engineering	1
	Industrial Conglomerates	1
	Trading Companies and Distributors	1
Commercial and Professional Services	Commercial Services and Supplies	1
	Professional Services	1
Consumer Services	Hotels, Restaurants and Leisure	2
Food, Beverage, and Tobacco	Food Products	5
Food and Staples Retailing	Food and Staples Retailing	1
Materials	Paper and Forest Products	1
Real Estate	Real Estate Management and Development	1
Telecommunication Services	Diversified Telecommunication Services	1

Table 5. Data structure of first-order concepts and second-order themes.

First-order Concepts	Second-order Themes	Aggregate Dimensions
High levels of collaboration Low levels of collaboration Failed collaboration	Collaboration on corporate sustainability	Coopetition Paradox
Sustainability as a competitive advantage Factors increasing competition High levels of competition Low levels of competition	Competition on corporate sustainability	
Between organizations – Individual vs. collective interests Within organization – Individual vs. collective interests Emphasis on being first or top company	Belonging tensions	
Between organizations – Individual vs. collective action Within organization – Hierarchical engagement Organizing the supply chain	Organizing tensions	
Learning from sustainability forums and associations Learning from industry forums and associations Learning from experience Learning from external consultants Learning from reporting frameworks Learning from peers – observation Learning from peers – interaction Learning from reading and research Learning from internal experts Learning from non-governmental organizations Learning from customers	Learning on corporate sustainability	Coactive Vicarious Learning
Direct educating of stakeholders Direct educating of peers Influencing stakeholders through sustainability forums Influencing stakeholders through industry associations Influencing stakeholders through reporting Misperceptions on sustainability	Educating on corporate sustainability	
Collaborations as collective sensemaking Conversations in managing sustainability Purpose of collaborations Purpose of conversations	Mechanisms	
Value of corporate sustainability Buy-in from stakeholders Business practices	Change in corporate sustainability	
Appeal to a higher goal Frame as business case for sustainability Adopt a long-term and forward thinking Adopt an ecosystem view	Figurative texts	Discursive Texts
Presence of regulations Align goals using KPIs relating to sustainability	Concrete texts	

Table 6. Data analysis: Stages of analytical process.

1. Develop detailed descriptions to generate initial insights	<ol style="list-style-type: none"> 1. Created initial codes following Basu and Palazzo (2008)'s dimensions of sensemaking process and Smith and Lewis (2011)'s categories of organizational paradoxes. 2. Proceeded to generate additional initial codes using an in vivo approach. 	178 initial codes
2. Identify key themes emerging from initial codes	<ol style="list-style-type: none"> 1. Clustered codes with similar themes into second-order categories. 2. Reorganized second-order categories into key themes and removed second-order categories and initial codes that were not central to key themes. 	10 second-order categories across four themes
3. Situate themes within existing literature	<ol style="list-style-type: none"> 1. Iterated with literature on paradoxes, coactive vicarious learning, and communication theory of the firm, and incorporated existing literature to aggregate into dimensions. 2. After regrouping of codes regarding belonging and organizing tensions in stage four, I removed 'organizational paradoxes' aggregate dimension, as remaining codes were not central to the key themes. 	<ul style="list-style-type: none"> • Three aggregate dimensions of 'coopetition paradox', 'coactive vicarious learning', and 'discursive texts'.
4. Integrate findings to build a conceptual model	<ol style="list-style-type: none"> 1. Identified relationships connecting themes with reference to existing literature. 2. Conducted cross-theme analyses to identify potentially meaningful patterns between codes. 	Model connecting coactive vicarious learning with managerial sensemaking of coopetition paradox in corporate sustainability.

APPENDICES

Appendix 1. Interview protocol.

Theme A – On sensemaking of the new regulatory environment

1. Can you share the process of planning for corporate sustainability at your company?
2. What are some of the organizational and cultural changes that the made to ensure the sustainability goals are achieved?
3. Could you share with me the pressures from your key stakeholders that your company faces regarding corporate sustainability?
 - a. Could you share examples of how stakeholder engagements have influenced your company's corporate sustainability plans and performance targets?
4. How does your company decide the extent of disclosure regarding corporate sustainability challenges and criticisms that it faces from its stakeholders?

Theme B – On sustainability targets and performance relative to peers

1. Which companies do you benchmark your firm's sustainability performance against?
2. Can you describe how your company's current sustainability performance has affected your relationships with your company's peers?
 - a. Can you share an experience in which you competed with peers on corporate sustainability?
 - b. Can you share an experience in which you collaborated with peers to address corporate sustainability issues?
 - c. How do you manage the tensions between corporate sustainability being a competitive advantage for your company, as well as an opportunity for collaboration with your peers?

Theme C – Social learning mechanisms

1. How do you personally remain up to date about the sustainability performance and practices of other companies?
2. Has the knowledge of other companies' sustainability performance and practices influenced your company's sustainability plans and practices? How so?
3. How does your company's management prioritize various strategic issues that are competing for managerial attention?
4. What do you think is the overall sentiments among companies in your industry regarding corporate sustainability?

Appendix 2. Further examples of illustrative quotes.

1. Coopetition paradox: Collaboration on corporate sustainability

First-order concept	Illustrative quote
High levels of collaboration	<ul style="list-style-type: none"> “On the business front, the Southeast Asia Alliance for Sustainable Palm Oil (SASPO) continues to gather momentum. Earlier this year, 10 major brands such as Crystal Jade, TungLok Group and F&N committed to joining the Alliance – bringing the total number to 81 brands and over 200 F&B outlets” [SDSWR] “And now we are collaborating, as being in SASPO in fact, we help the smaller companies, the SMEs to switch to sustainable palm oil, we encourage them to switch to sustainability.” [#19]
Low levels of collaboration	<ul style="list-style-type: none"> “Cooperation definitely no, I don't think we work with anybody on this, or sustainability, I don't think we even think, or have even thought about that as using that as collaborative.” [#11] “No, so far, no. I can say no because my, so far... My so-called my joint ventures are not listed companies, so they don't really, they don't really like, like particular on this sustainability, yeah.” [#18]
Failed collaboration	<ul style="list-style-type: none"> “we had this kind of failed attempt at an industry coalition, which is called IPOP. Unfortunately, it was saddled with lots of accusations of monopoly and cartel, and things like that, so basically it had to go, you know.” [#8] “the five companies like got together to talk about something on deforestation, yet it got slammed internally and also seen as a... a kind of imposing... So-called external international pressure upon the domestic politics, yeah.” [#10]

2. Coopetition paradox: Competition on corporate sustainability

First-order concept	Illustrative quote
Sustainability as a competitive advantage	<ul style="list-style-type: none"> • “So that's why we relate green to productivity, to health, it becomes your selling point, it becomes your differentiator. And it will become, it will make your product appealing okay” [#2] • “There was a particular company, in Papua New Guinea, it happened to be, that had a distinct competitive advantage around sustainability. And that company used it to sell themselves, the owners of that company use that competitive advantage to sell that business at a very high valuation.” [#7]
Factors increasing competition	<ul style="list-style-type: none"> • “if you are shipping palm oil into Europe, the, the sustainability requirements of the European consumer at the moment is quite, it's higher than if you are shipping to China, for example.” [#7] • “The second reason is access to markets, increasingly in some of the investor markets, consumers are... that there is an increasing number of consumers who are demanding responsible products, that is creating value through accessing those markets.” [SDSWR]
High levels of competition	<ul style="list-style-type: none"> • “I think a lot of companies, the bigger brands especially, but increasingly many, many companies are now competing with one another to have the best, most responsible reputation in the world.” [ASRS] • “some sectors really are becoming so fiercely competitive. And, and if we are trying to solve these SDGs, and if there are plenty of other people to finance this, it's not my job to go and provide the lowest possible price just to say, hey I did a green project, right?” [#4]
Low levels of competition	<ul style="list-style-type: none"> • “I think we don't, I don't always like think about, like oh how I am I better than my competitors.” [#5] • “Because at the end of the day, as an industry, we are not really competing with each other in that sense. Because palm oil is, it's a, it's a commodity product.” [#7]

3. Coopetition paradox: Belonging tensions

First-order concept	Illustrative quote
Between organizations – Individual vs. collective interests	<ul style="list-style-type: none"> • “I just want to start first with, in the world that is increasingly about protecting our own turf, about doing what is right for ourselves, I am really glad to see that we are able to gather today in this room, full of individuals who are reaching out to make connections and thinking of the greater good versus my good.” [GCNS] • “He had created a quote, which actually talks about sustainability, where it says the world has enough for the needs of men, but not enough for the greed.” [ASRS]
Within organization – Individual vs. collective interests	<ul style="list-style-type: none"> • “And the important thing is actually to share that vision and that mission with our people on the ground.” [#9] • “So I worked the numbers, wow I was so excited because we can do it. When I went back and I shared with the whole team, nobody could understand what we were trying to do, because all of them have operated in the normal business environment where costs matter.” [#17]
Emphasis on being first or top company	<ul style="list-style-type: none"> • “Yeah, we are finalists in quite a few categories, and then we won the best supply chain. So this year we will be featured in their, whatever, program, you know.” [#8] • “we are very happy to say that among all private developers, we have achieved the highest number of platinum levels.” [S3]

4. Coopetition paradox: Organizing tensions

First-order concept	Illustrative quote
Between organizations – Individual vs. collective action	<ul style="list-style-type: none"> • “And that’s why even though we are privately owned, but because of the high profile nature of the, of course, of our industry, as well as the customers that we buy with, we have to address some of these issues that the industry often is criticized.” [#10] • “I suppose my, my only reservation is I am, I am too impatient for the rest of the world to catch up. I want, I want more people to be doing it, you know.” [#15]
Within organization – Hierarchical engagement	<ul style="list-style-type: none"> • “Meaning environment, social, and governance KPIs. All the way from the CEO to his direct reports, and then it, it then gets further cascaded down.” [#5] • “Meaningful change comes from vertical alignment with new principles: Boards of Directors must align on change, managers at all levels must buy in, governance must extend beyond the boardroom” [SID]
Organizing the supply chain	<ul style="list-style-type: none"> • “So when we are working to revise our supply chain, or we’re, at the moment we are eliminating single-use plastic, it's not that we turn to our, our suppliers and say, hey we are not going to buy plastics off you anymore. Instead we are working with them and saying, look we are going to switch from plastic, help us find something that we can get from you as an alternative.” [#15] • “I like to answer the last question on the supply chain. I think a number of companies, the big companies work closely with their supply chains and then try to help them to come up with maybe a smaller version of the report.” [SRF]

5. Coactive vicarious learning: Learning on corporate sustainability (Top three codes selected for illustration)

First-order concept	Illustrative quote
Learning from sustainability forums and associations	<ul style="list-style-type: none"> • “Our staff attend trainings held by Global Compact Network Singapore (GCNS) and we always keep ourselves updated to the developments in sustainability reporting.” [#1] • “And finally the CPLC itself has launched a carbon pricing helpdesk, where if you join the coalition and you are a partner, basically you can call up, and we will sit down with you and go through with you each one of these questions that you have, and help give advice about how you can go forward.” [SSE]
Learning from industry forums and associations	<ul style="list-style-type: none"> • “RSPO, they have a sustainability college. That’s the one that I joined. So I mean, it’s by online actually.” [#10] • “ISCA, the committee is represented by of course the big four, and plus I think... the ISCA people, plus I think us only. So, so of course the big four are more updated, so they will say something.” [#16]
Learning from experience	<ul style="list-style-type: none"> • “We have a lot, we have a lot of issues, we have a lot of history dealing with the issues, a lot of experience [laughs] building up dealing with the issues, right.” [#8] • “Well, usually we learn most when we make mistakes right? [Laughs] When you are told, when you receive a letter that you make mistakes, then you definitely learn the fastest way right.” [#12]

6. Coactive vicarious learning: Educating on corporate sustainability

First-order concept	Illustrative quote
Direct educating of stakeholders	<ul style="list-style-type: none"> “one thing that garnered a lot of conversation from us is when we launched our climate change strategy... because... only a few companies have, have launched it right. So I think I got a lot of questions on internally, oh who drove it? Who was your senior management sponsor? How did you get it done?” [#5] “Now each time I go to the SASPO meeting, I explained to the new, the newcomer, what are the different... And they find me very knowledgeable, but I am like everybody, I have to learn first” [#19]
Direct educating of peers	<ul style="list-style-type: none"> “someone was asking questions about labor conditions on palm plantations, I said to him are you, are you, it's a particular NGO, so I said, you are concerned about labor, are you? Yeah. Then I said, why do you never ask about the other crops? Why are you not concerned about workers in cocoa? Why are you not concerned about our rubber workers? Because I am. And of course, they don't have an answer.” [#7] “that's why we need to go back to the Indonesian government and say, hey look, there is this pesticide that we need to change because globally they say it's better, you know, things like that.” [#10]
Influencing stakeholders through sustainability forums	<ul style="list-style-type: none"> “we also engage the board of other sister companies within [name of company] group. Every year I host an annual sustainability forum. This is the fourth year, we have done four years already.” [#2] “And during our discussion today, we are going to talk about our respective experience on scenario analysis, which I think the members on the panel are quite experienced with.” [SSE]
Influencing stakeholders through industry associations	<ul style="list-style-type: none"> “we are working with the Phuket Hotels Association, which brings together all of us to then share examples of what we have been doing, to share the successes and the failures. And then to help drive some of this change.” [#15] “So they will invite CFO from various industries and then share their views on this. I think that time before this thing was implemented, they actually hold quite a, a few of these workshops, I think so, so they want to hear from, from, from the CFOs and others, and see how this affects.” [#18]
Influencing stakeholders through reporting	<ul style="list-style-type: none"> “And so we started producing sustainability reports in 2006, so that we could not only share what we were doing but also it's a, it's a way to try to evangelize our philosophy in the hopes that others would follow suit.” [#15] “But it also shows that there are industry leaders in various sectors that are leading the way to push their peers towards a greater and better reporting.” [SRF]
Misperceptions on sustainability	<ul style="list-style-type: none"> “There is a misperception in the market that there are billions and billions of dollars of green assets just waiting to be financed and it's all really, really good business.” [#4] “You know we are an agribusiness, and everybody always... I don't know why people think that agribusinesses, big agribusinesses must be bad.” [#8]

7. Coactive vicarious learning: Mechanisms

First-order concept	Illustrative quote
Collaborations as collective sensemaking	<ul style="list-style-type: none"> • “I think the industry has come forward and come together to work, work together and try to see how we can use our experience from other commodities, or use the experience from other companies or other supply chains like Tyre manufacturers or automobile manufacturers, GM Motors, BMW.” [#3] • “There is a working group under the SGX, that has tried to bring some people together to get started on this journey together. It is actually quite useful because we all face the same problem.” [SSE]
Conversations in managing sustainability	<ul style="list-style-type: none"> • “We have the dialogue, climate dialogue with our Green Building Council, World Green Building Council, Asia Pacific Green Building Council, we have academics, people who come.” [#2] • “The other thing is that now we’re, we’re hoping that we can drive the conversation on impact, making sure that companies would start focusing on impact, and measuring their impact, and, and really adopting the sustainable development goals.” [#6]
Purpose of collaborations	<ul style="list-style-type: none"> • “...what GCNS is doing, you are seeing what... Business Council for Sustainable Development. What they are doing... they’re trying to bring companies together to work on supply chain issues.” [#4] • “RSPO has a greenhouse gas emissions spreadsheet that we use to measure the greenhouse gas emissions of all our plantations... we were in the task force that came up with that data and spreadsheet.” [#7]
Purpose of conversations	<ul style="list-style-type: none"> • “we just want to share information to make sure that our stance, and our reply, and our actions are all aligned with one another... so that everybody would get that... we won’t be stepping on one another’s toes, we won’t be saying something that is out of line.” [#9] • “the discussion takes place at this committee, so the various views can then be put forth and the various decisions that are taken are then taken across the entire government.” [SSE]

8. Coactive vicarious learning: Change in corporate sustainability

First-order concept	Illustrative quote
Value of corporate sustainability	<ul style="list-style-type: none"> “when this first started three decades ago, the narrative there was, let’s disclose the risk, so there is risk mitigation. I think the narrative has now changed that it’s not just risk mitigation anymore, but it is about value creation.” [SSE] “Working from an investor mindset, disclosure, so it is great that the board is awakening and having discussions.” [SRF]
Buy-in from stakeholders	<ul style="list-style-type: none"> “also for us to lobby for those companies that are not in, in the RSPO to bring them in.” [#9] “we talked a lot with ministers and with prime ministers... we actually talk about economic benefits, and votes, and risks... and suddenly all the politicians in the room amazingly wake up and has this focus about them.” [S3]
Business practices	<ul style="list-style-type: none"> “we actually collaborated... (on) this high carbon stock approach. And we actually worked on that with Greenpeace and the Forest Trust... and HCS has now been adopted not only in agribusiness, but also forestry.” [#8] “One way to take partnership forward also is an example I can cite from Philippines, in the area of Mindanao. There is a lot of high conservation value area. Eight investors have decided to work together to take what we called the landscape approach... what are those areas where they would like to put plantation activity, and what could be those do-s and don’t-s.” [SDSWR]

9. Discursive texts: Figurative texts

First-order concept	Illustrative quote
Appeal to a higher goal	<ul style="list-style-type: none"> “it is really definitely about being purpose driven, because just, just last year, the group has actually really articulated a, a purpose, which is improve people's lives through the sustainable management of resources.” [#6] “I just want you to step back for a minute and remember why we are here. It is not about reporting, it is what we do with this information to make the world a better place. That is why we are all here” [ASRS]
Frame as business case for sustainability	<ul style="list-style-type: none"> “And I can also combine green to attractive selling features, for example I can build a green wall, which also makes your project more attractive.” [#2] “Whether or not it is a, you know, climate change goal, but it is a business goal.” [#5]
Adopt a long-term and forward thinking	<ul style="list-style-type: none"> “For my company, we decide on what we want to achieve in the future and work backwards to determine what we must do every year as milestones.” [#1] “But boy oh boy, we are still doing this short-term thinking. And why are we not really thinking about what's going to happen in some of these parts of the world? Because there’s going to be nightmares for our children and our grandchildren.” [S3]
Adopt an ecosystem view	<ul style="list-style-type: none"> “Okay well, I wish that we have an, an ecosystem, a larger ecosystem that pulls the ideas, resources together.” [S3] “And as I said earlier, it does need market, it does need society, it does need government to all get in step together to accelerate this path towards net zero emissions.” [SDSWR]

10. Discursive texts: Concrete texts

First-order concept	Illustrative quote
Presence of regulations	<ul style="list-style-type: none"> • “I actually felt that the regulations gave people like me an extra push to get more management support, right.” [#5] • “But if we want to meet some of these sustainable development goals, it may be necessary to introduce regulation. And that would perhaps override some of these older, persistent norms that are carried through.” [S3]
Presence of KPIs relating to sustainability	<ul style="list-style-type: none"> • “It's integrated in the balanced scorecard of the organization as a whole, and then cascaded into the, the balanced scorecards of senior management, then the individual department's KPIs. So that's, so it's not anymore a big challenge for us to evangelize on it, you know, internally.” [#6] • “So if we really want to push the green bond market, we have to create policies and incentive schemes to reward that behavior, because that is important, that is a great way to sort of change it.” [SSE]

Table 3. Transparency criteria as developed by Aguinis and Solarino (2019).

ID	Transparency criterion	Description	Location of disclosure in essay
1	Kind of qualitative method	The particular qualitative methodology used in the study (e.g. action research, case study, grounded theory).	Detailed in my introduction: “ <i>With these research gaps in mind, I conducted a phenomenological study of firms in Singapore to understand their sensemaking experience on paradoxical tensions in corporate sustainability. This phenomenological approach is grounded in a social constructionist epistemology (Creswell & Poth, 2018).</i> ”
2	Research setting	The physical, social, and cultural milieu of the study.	Detailed under ‘research setting’ section.
3	Position of researcher along the insider-outsider continuum	The researcher's relationship with the organization and study participants; the closer the relationship, the more the researcher is an insider rather than an outsider.	Detailed under ‘data collection’ section, I described how I recruited my interviewees. I also included a statement “ <i>Prior to contacting these interviewees, there was no previous contact or personal relationship with the interviewees or their organizations.</i> ”
4	Sampling procedures	The procedures used to select participants or cases for the study.	Detailed under ‘data collection’ section.
5	Relative importance of the participants/cases	The study's sample and the relative importance of each participant or case.	<p>Detailed under ‘data collection’ section.</p> <p>- Regarding conferences, “<i>While all conferences were informative to this study, conferences that were longer in duration or had a larger number of conference speakers contributed more to the study.</i>”</p> <p>- Regarding interviewees, “<i>Interviewees who had longer tenure in corporate sustainability or whose companies had voluntarily issued sustainability reports before the change in regulation were more insightful on coopetition tensions in corporate sustainability. In addition, these interviewees were more active in their stakeholder engagement on corporate sustainability issues. As such, these interviewees were more informative than others and provided greater contribution to the study.</i>”</p>
6	Documenting interactions with participants	The documentation and transcription of the interviews and all other forms of observations.	Detailed in Table 1 Summary of data collected.

ID	Transparency criterion	Description	Location of disclosure in essay
7	Saturation point	It occurs when there are no new insights or themes in the process of collecting data and drawing conclusions.	Detailed under ‘Data analysis – Stage I: Develop detailed descriptions’ section: <i>“Even though the remaining five conferences covered a variety of topics on sustainability and involved various stakeholder groups on panel discussions, the data were consistently coded to existing codes as no additional insights were observed. As such, I ascertained that I had reached theoretical saturation from the data I collected.”</i>
8	Unexpected opportunities, challenges, and other events	Unexpected opportunities, challenges, and events that occur during all stages of the research process.	No unexpected opportunity, challenges, or changes in market conditions occurred during the research process. One major event occurred as detailed under ‘data collection’ section: <i>“For research transparency disclosure (Aguinis & Solarino, 2019), one company delisted from SGX after this study.”</i>
9	Management of impower balance	The differential exercise of control, authority, or influence during the research process.	Detailed under ‘Data collection’ section. <i>“To manage the power imbalance between senior corporate executives and myself as a PhD student, I obtained a recommendation letter from the Sustainable Earth Office of the university endorsing this research study. This letter indicating the university’s support was critical for me in gaining legitimacy with these senior corporate executives. Participants were also informed that they would receive a summary report detailing the key findings of the study for their reference. I also phrased interview questions in a neutral and open-ended manner, and kept any sensitive questions to the middle segment of the interview after a rapport had been established with interviewees.”</i>
10	Data coding and first-order codes	The process through which data are categorized to facilitate subsequent analysis (e.g., structural coding, descriptive coding, narrative coding).	Detailed under ‘Data analysis – Stage I: Develop detailed descriptions’ section.
11	Data analysis and second- and higher-order codes	The classification and interpretation of linguistic or visual material to make statements about implicit and explicit dimensions and structures (Flick, 2014) and it is generally done by identifying key relationships that tie the first order codes together into a narrative or sequence (e.g., pattern coding, focused coding, axial coding).	Detailed under ‘Data analysis – Stage II: Identify key themes’ and ‘Stage III: Situate themes within existing literature’ sections.

ID	Transparency criterion	Description	Location of disclosure in essay
12	Data disclosure	Raw material includes any information collected by the researcher before any manipulation (i.e., analysis).	Illustrative examples in Appendix Table 2. More raw materials available upon request.

CONCLUSION

Corporate sustainability issues are complex and rife with paradoxical tensions – tensions that arise from contradictory yet interrelated elements that exist simultaneously and persist over time. While decision makers constantly face paradoxical tensions in navigating their firms' corporate sustainability, they differ in how they interpret and respond to these paradoxical tensions. In turn, this affects how firms vary in their corporate sustainability actions and performance outcomes. In this series of three essays, I set out to explore (1) how managerial cognitive frames influence firms' strategic behaviors in response to paradoxical tensions in corporate sustainability, (2) if and when managerial cognitive frames result in superior corporate sustainability performance, and (3) the role of social learning in managerial sensemaking of paradoxical tensions in corporate sustainability.

In my first essay, I theorized about a business case frame and a paradoxical frame will drive different firm behaviors across four categories of paradoxes. I draw upon existing management theories and concepts to propose the strategic behaviors that decision makers engage in within each category of paradox: performing (goals), learning (knowledge), belonging (identity), and organizing (processes). Specifically, I leverage on the literature on behavioral theory of the firm (goals), organizational learning (knowledge), organizational identity (identity), and embedded/peripheral corporate sustainability (processes) to predict how firms with different managerial cognitive frames will respond differently. Notably, the two cognitive frames drive different managerial behaviors, which have their own advantages and disadvantages to decision makers and their firms. As such, the value of applying a paradoxical frame in driving superior corporate sustainability performance remains unknown.

To examine if a paradoxical frame can be more beneficial or harmful for firms, my second essay sought to establish the impact of a paradoxical frame on corporate sustainability performance. I adopted a cognitive-linguistic approach to measure CEOs' paradoxical frame towards corporate sustainability. I coded stakeholder letters within annual sustainability reports of S&P 500 firms over the period of 2012-2014 to measure CEOs' paradoxical frame. I found that applying a more or a less paradoxical frame did not have significant effect on financial and environmental performances in the subsequent year. Instead, CEOs' paradoxical frame had a significant positive within-firm effect on corporate social performance. I also examined the role of stakeholders in moderating the relationship between CEOs' paradoxical frame and corporate sustainability performance. I found evidence that stakeholder recognition of CEOs' environmental and social efforts, as well as a greater number of stakeholder ties, strengthened the relationship between CEOs' paradoxical frame and corporate sustainability performance. These findings indicate the role of stakeholders in moderating the impact of CEOs' paradoxical frame on corporate sustainability performance.

My third essay dives deeper into examining the interactions between decision makers and their firms' stakeholders on corporate sustainability issues. I adopted an inductive approach using conference observations and interviews to examine the interrelatedness between coactive vicarious learning and decision makers' sensemaking of the coopetition paradox in corporate sustainability. I first provided empirical evidence of how coactive vicarious learning occurred within the context of corporate sustainability. Next, I presented key discursive texts that developed through this learning process and considered how these texts directed managerial attention towards corporate sustainability. Finally, I examined the role of these discursive texts

in shaping decision makers' sensemaking of the coopetition paradox in corporate sustainability. My study highlights how stakeholders can shape collaborative and competitive efforts among for-profit firms on sustainability issues by leveraging upon discursive texts to disrupt dominant narratives and practices in maximizing firm outcomes. As a whole, my essays draw attention to the role of decision makers and stakeholders at large in working together to navigate through the complexities arising from paradoxical tensions in corporate sustainability.

In light of these findings, I turn to the current debate within management literature about the objectives of for-profit firms and the boundaries of firms' responsibilities to their stakeholders. With the eminent threat of climate change, calls to reexamine current approaches to economic development has been increasing (Figueres et al., 2017; Intergovernmental Panel on Climate Change, 2018). Yet, radical change has been impeded, partly due to the dominant business case approach that views environmental or social activities as instrumental tools to drive superior corporate financial performance (Kaplan, 2019). This approach limits decision makers to fulfilling the demands of stakeholders that directly affect firms' financial bottom-line (Hahn, Preuss, Pinkse, & Figge, 2015). Perhaps the first step to move beyond the business case perspective is to define, if not redefine, which stakeholders that for-profit firms are responsible to (McGahan, 2019). Indeed, if there are no specified boundaries, decision makers are likely to be overwhelmed by the scope of stakeholder considerations and react defensively instead (Schad, Lewis, Raisch, & Smith, 2016). Nevertheless, reexamining the scope of stakeholders that firms are responsible to is critical in moving away from unsustainable business practices that perpetuate at the detriment of society and the natural environment.

Redefining the objectives of for-profit firms and the boundaries of firms' responsibilities to their stakeholders is likely to be a highly contested process – one that involves changing power and political structures within organizations and society (Hoffman, 2015; Kaplan, 2008). Similar to the dynamism observed in essay 3, I expect this process to require multiple stakeholder groups interacting closely and repeatedly with organizational decision makers over time in order to coordinate and co-orientate firms towards substantive corporate sustainability. As reflected throughout my essays, stakeholders at large play a key role in shaping how decision makers and their firms navigate paradoxical tensions in corporate sustainability. With increasing complexities within corporate sustainability, it is pertinent for management scholars and practitioners to consider a more systemic approach that recognizes the interdependencies between economic, social, and environmental foundations of sustainable development (Whiteman, Walker, & Perego, 2013). With only 9 years left to stem catastrophic climate change at the time of this thesis submission, both private and public sectors have to collectively enact rapid and radical change across society (Intergovernmental Panel on Climate Change, 2018). I am thankful for the opportunity to be part of this conversation through my interactions with practitioners and fellow academics in the course of my research journey.

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