



Ethical Sensemaking in Impact Investing: Reasons and Motives in the Chinese Renewable Energy Sector

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Abstract

This article explores impact investing within the renewable energy sector. Drawing on ethical decision making and sensemaking, this article contributes to an enhanced understanding of the complex ethical sensemaking process of impact investors when facing plausible situations in a world of contested truths. Addressing the ethical tensions faced by impact investors with mixed motives, this study investigates the way decision makers use context-specific reasons to make sense of and shape the renewable energy investment (REI) process. This represents an initial attempt to understand ethical sensemaking in impact investing made within the renewable energy (RE) sector using a multi-stakeholder approach. Our findings show that prosocial, personal, reputational, and economic motives are the main drivers of REI, with prosocial and personal motives being value-based, and reputational and economic motives being evidence-based. We find three different modes of ethical sensemaking (pragmatic, retrospective, and forecasting), allowing for the construction of the four motives noted above. These motives are based on the context-specific reasons of impact investing decision makers in the RE sector. This article contributes to the academic discourse on ethical sensemaking with some key processes involved in ethical decision making, and a better understanding of the underlying motivations of impact investing in the RE sector.

Keywords Ethical sensemaking · Impact investing · Renewable energy investment

Introduction

Impact investing, considered a subset of socially responsible investment or ethical investment (Sparkes & Cowton, 2004), reflects investors' growing consciousness of the positive and negative social and environmental impacts of businesses (Ransome & Sampford, 2010). Although the literature does not provide a consensus with regard to a definition for impact investing (Höchstädter & Scheck, 2015), a widely used definition sets out impact investing

as an investment made with the intention to generate positive, measurable social and/or environmental impacts alongside a financial return (Global Impact Investing Network (GIIN), 2019; Hebb, 2013). A recent report estimated that the global market for impact investing has conservatively reached US\$502 billion in assets, managed by over 1340 organisations (Mudaliar & Dithrich, 2019). Impact investing is a promising field, attracting interest from academia, governments, non-governmental organisations (NGOs), commercial companies, foundations, and other types of organisations and individuals. The dominant ideas in this area are related to standardised solutions, data, and measurement to inform decision making, and self-sufficient, scalable social businesses (Hehenberger et al., 2019). Publications on the topic of impact investing come from diverse perspectives but are largely descriptive, lacking a substantial core of theory and data (Alijani & Karyotis, 2019; Daggars & Nicholls, 2016; Nicholls, 2010).

This article considers the critical role that sensemaking plays in the ethical dimension of impact investing decisions. In the face of unprecedented social and environmental issues such as climate change and public health, and the rise of

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impact investing and socially responsible investment to address these challenges, it is critical that we examine the ethical dimensions of impact investing, not just the strategic dimensions, in order to maintain the integrity of this movement. Ethical decision making is complex and dynamic, operating at the nexus of competing discourses and interests that involve actors' active processing of information. Individuals vary in their capacity to engage in ethical decision making, where competent ethical decision makers must have the ability to retrieve, reflect, evaluate, synthesise relevant information (Connelly et al., 2004). Ethical sensemaking is a valuable approach for ethical decision making (e.g. Brock et al., 2008; MacDougall et al., 2015; Thiel et al., 2012). Sensemaking refers to the process through which people work to understand issues that are ambiguous and violate their expectations, which involves bracketing cues from the environment and creating meanings through interpretations and actions (Maitlis & Christianson, 2014). The shift, from traditional investment practices that promote investors' value capture behaviours to one that emphasises value creation for a broader set of stakeholder groups (Santos, 2012), frequently requires impact investors to engage in ethical sensemaking (Sonenshein, 2009).

Impact investing spans a wide array of asset classes, including infrastructure and clean technology (Hebb, 2013). Half of the impact investors surveyed by the GIIN reported 'affordable and clean energy' as a major target activity (Mudaliar & Dithrich, 2019). Renewable energy investment (REI) can be seen as a systemic type of impact investing with a mix of the motives that create blended value (Nicholls, 2010). REI's core business processes represent an integrated achievement of economic, environmental, and social outcomes, where involved RE organisations develop sustainably themselves and also contribute to the sustainable development of society as a whole (Schaltegger & Wagner, 2011). REI has the potential to not only generate financial returns, replace fossil fuels, and mitigate greenhouse gas emissions but to also address pressing social issues such as energy security enhancement, improved health and environmental impacts, employment and regional development, energy poverty alleviation, and social cohesion (Delrio & Burguillo, 2008; Intergovernmental Panel on Climate Change, 2014; Ürges-Vorsatz & Tirado Herrero, 2012). A substantial level of investment in renewable energy (RE) is required to realise this potential. However, investment in RE and energy efficiency has declined globally since 2016, as well as in China (the world's largest emitter of greenhouse gases), with severe implications for emissions growth and the ability to achieve global climate goals (Korsnes, 2019; Lee & Zhong, 2014; Varro, 2018; Zhai & Lee, 2019).

Despite the complementarities between impact investing and REI, the literature on these two subjects has remained largely separate. Much of the research on REI has focused on

the economics of energy systems by adopting the assumption of full rationality and cannot adequately explain REI nor identify barriers to RE adoption (Şener et al., 2018; Safarzynska & van den Bergh, 2011; Yuan et al., 2011). Nevertheless, there is mounting evidence of the influence of non-financial factors on investor decisions, such as personal experiences and familiarity with RE, regulatory and institutional contexts, and risk appetite. An emerging stream of REI literature calls for a broader socio-psychological understanding of REI research (Masini & Menichetti, 2013; Safarzynska & van den Bergh, 2011; Sovacool et al., 2015; West et al., 2010).

In behavioural economics, the concepts of self-interested and utility-maximising agents as *homo-economicus* have been challenged by many social scientists who have drawn on social preferences and bounded rationality to suggest more-nuanced behavioural models that could account for the socio-cultural and contextual factors that are required (Fehr & Fischbacher, 2002; Kahneman, 2003; Simon, 1986). Far from being single-agent techno-economic evaluations of investment alternatives, REI and impact investing often unfold at the complex intersection of various types of stakeholders, including private firms, local communities, state actors, and foundations. Local context and investment policy are likely to be important, underscoring the need for qualitative and empirical research in regions outside of Europe and North America; currently, these regions are under-represented in the literature (Şener et al., 2018). This is especially relevant to the Chinese context, which has the highest level of REI internationally, with over 45% of the global total in 2017 (Louw, 2018). Therefore the research context of this study is China, enabling us to elucidate the issues concerning decision makers in the face of complex situations and uncertainties within one relatively homogeneous social-economic environment.

This article increases the understanding of impact investing decision-making processes in the RE sector, adopting the concept of ethical sensemaking in order to analyse personal accounts of a wide variety of stakeholders in China. Specifically, we explore the motives and rationales that drive stakeholders to engage in REI, as well as the way they justify their intentions and behaviour concerning any ethical tensions, their dependence on other stakeholders, and the wider institutional context. We ask, *what motivates impact investors to engage in the RE sector and how do they make sense of their intentions and behaviours?*

The research question is addressed through a close examination of the complex motives of REI decision makers from an ethical sensemaking perspective. We introduce the concept of 'reasons' leading to REI motives embedded in ethical sensemaking process in the ethical decision-making discourse while integrating insights from the literature on energy economics and impact

investing. We adopt a multi-stakeholder approach (Alijani & Karyotis, 2019; Jones, 1995; Mitchell et al., 1997), with primary data collected from REI investors, financing managers in the RE sector, government officials, commercial and development banks supporting RE projects, NGOs, and international organisations promoting REI development in China. These actors use different modes of ethical sensemaking to give meaning to their motives of engagement in impact investing in the RE sector while reconciling ethical tensions. This study utilises an abductive research approach with thematic analysis of in-depth interviews, secondary literature, government documents, and media reports to support the key findings.

This article contributes new theoretical tools of ethical sensemaking for examining the impact investing decision-making process with its underlying motivations. Specifically, our contribution is threefold; we contribute to the theoretical development of ethical sensemaking, to reasoning in sensemaking more broadly, and to the development of impact investing practice in the RE sector. First, we extend the sensemaking literature by offering a clearer framework to view the key processes involved in ethical sensemaking embedded in ethical decision making. This is achieved by developing three modes of ethical sensemaking that incorporate pragmatic, retrospective, and prospective thinking. Second, we incorporate reasoning into ethical sensemaking by departing from the traditional pursuit of accurate and rational causal relationships and instead, examine what characterises sensemaking—plausibility—in the overall theoretical development of ethical sensemaking with reasons. We asked participants targeted ‘why’ questions during our data collection following participants’ ethical sensemaking process with context-specific reasons that form their aggregated motives. Third, we explore the underlying motivations of impact investing practices and their manifestation in the RE sector. Understanding the ethical sensemaking processes sheds light on the key drivers for impact investing in the RE sector, unlocking capital and resources to the sector in a manner that can support the achievement of social and environmental co-benefits.

The structure of this paper is as follows. To begin, we position this study in the theoretical domains of ethical decision making and sensemaking with a discussion of ethical tensions in impact investing. We then introduce ethical sensemaking based on pragmatism, retrospection, and prospection, with context-specific reasons for decision making as an analytically useful and interesting concept for understanding REI. We then introduce the REI context in China and set out the methodological approach. Our findings and discussion are then presented, which are centred on the context-specific reasons and the ethical

sensemaking processes of stakeholders’ mixed motives in the REI field.

Theoretical Background

In this paper, impact investing is defined as an intentional investment that aims to bring positive and measurable social and environmental impacts to stakeholders along with a financial return (Daggers & Nicholls, 2016; GIIN, 2019; Wilson & Silva, 2015). Typically, impact investors take advantage of conventional financial metrics to target long-term returns by focusing on sustainability and social good. Impact investors have been broadly defined as being either non-concessionary investors who are unwilling to sacrifice financial returns for social goals, or concessionary investors who accept a lower return in order to achieve social objectives (Brest & Born, 2013). In this paper, we perceive impact investors as being both non-concessionary and concessionary investors, as long as they are socially and/or environmentally motivated, rather than socially/environmentally neutral. Similarly, we define impact investees (the organisations implementing impactful work on the ground by delivering both social and/or environmental and economic value) as organisations with an explicit social or environmental mission along with a viable and investable business model. This framing of impact investing emphasises intentionality, additionality, and measurability by highlighting the actors’ motives for the creation of blended value via such investments.

This theoretical background involves three topics. First, we evaluate the impact investing field within the ethical decision-making literature and how ethical tensions develop in the impact investing context. Second, we introduce ethical sensemaking with context-specific reasons as an approach to managing ‘plausibility’ and promoting ethical decision making, providing a useful lens through which we can examine impact investing in the RE sector. Finally, we refer to pragmatic, retrospective, and prospective sensemaking to resolve the tensions between truth and plausibility.

Ethical Decision Making with Ethical Tensions

The use of the term ‘ethics’ in the corporate sector is often an area of contention, given the historical exclusion of ethics from economic theory (Ransome & Sampford, 2010). Recent research in economic theory has called for a more pluralistic approach that includes consideration of ethics (Mir, 2018). It is not surprising that earlier commentators used the phrase ‘ethical investment’ to refer to the practice of impact investing because impact investors who seek to

apply normative criteria to their investments are taking a position on broad social responsibilities beyond financial imperatives, where impact investing can be seen as a form of social responsibility practice (Ransome & Sampford, 2010; Sparkes, 2001). We understand REI as an ethical behaviour with ethical intentions, undertaken by investors who sometimes face ethical tensions. Investing in RE projects generally brings positive environmental impacts with associated social impact, and impact investors are decision makers who are subject to bounded rationality and other principles prevalent in the decision-making literature (Selten, 2002; Simon, 1991). This paper addresses the ethical decision-making (EDM) process, which is influenced by impact investors' complex and mixed motives.

Research on EDM in firms has examined individual factors including personal attributes (e.g. gender, education and employment background) and values, organisational factors including codes of conduct and ethics culture (Loe et al., 2000). Aside from individual and organisational factors, EDM is also affected by issue-contingent models, affecting an issue's salience and vividness which forms the concept of moral intensity (Jones, 1991). Moral intensity is comprised of six components: the magnitude of consequences, social consensus, probability of effect, proximity, temporal immediacy, and concentration of effect, which influence the perceived importance of an ethical issue affecting behavioural intention and the EDM (Craft, 2013; Jones, 1991). In Jones's (1991) synthesis of a four-stage EDM model that uses Rest's (1986) model of awareness, judgement, intent, and behaviour as a foundation, the process begins with environment incorporating social, cultural, economic, and organisational factors, which directly influence the subsequent moral issue recognition, moral judgement, moral intent establishment, and moral behaviour engagement.

With regard to EDM in impact investing, impact investors often maintain plural extra-financial values that reflect their ethical views. Their investment criteria can be based on these values and the distinction between impact investing and purely financial criteria can be treated not as a factual approach to investing, but as an evaluative or normative approach (Ransome & Sampford, 2010). The factual approach serves as a foundation to our proposed evidence-based motives, while the evaluative or normative approach is the basis of our value-based motives, which also have associated evidence but are more subjective and prone to counter-arguments. Studies that have examined behaviours, such as environmentally-friendly consumer choice and donating behaviour, have shown that when values are cognitively activated and central to the self, they give meaning to, energise, and regulate value-congruent behaviours (Verplanken & Holland, 2002). Shared ethical values and generally accepted ethical principles can serve as guidelines for EDM (Provis, 2012). According to a report by the

International Energy Agency, five general ethical principles are involved in REI decision making: stewardship, participatory decision making, prudence and control, fairness and justice, and optimality (Bérubé & Villeneuve, 2002). Thus, REI is a field representing certain values on environmental and social sustainability while still meeting the requirements of commercial investment. It therefore represents a fertile sector for the growth of impact investing activity and research. However, these values and prosocial behaviours face trade-offs that lead to ethical tensions.

The decision situation in EDM is generally defined by three characteristics that link to sensemaking. It is recognised as (a) having ethical implications to evoke ethical standards, (b) having various decision alternatives, and (c) the making of an ethical decision depends on the forecasts of the likely outcomes (Mumford et al., 2008). In addition to the three characteristics, EDM has also been viewed as a form of sensemaking (Mumford et al., 2008). Ethical tension, with ethical implications, is therefore the first stage of EDM where the basic appraisal activities are evoked.

Most organisations and their managers encounter ethical tensions in the practice of sustainability (Haffar & Searcy, 2019). When facing ethical dilemmas and tensions, decision makers are clouded by many constraints and pressures imposed by both internal and external factors (MacDougall et al., 2015). This is especially complex in impact investing as it incorporates both social and commercial logics in a hybrid identity in which hybrid institutional logics creates legitimacy issues (Lehner et al., 2019). Aside from conflicting institutional logics, impact investors have various personal values and biases based on their experiences and expertise, including their general cognitive ability and personality-related variables, that influence their EDM performance (Mumford et al., 2006). Impact investors' economic incentives and prosocial behaviours can be either incompatible or complementary in different situations (Bowles & Polanía-Reyes, 2012), giving rise to ethical dilemmas when actors experience situations that require a trade-off between them. This is further complicated by various stakeholders' demands and pressures, where the natural environment stands alone as a primordial stakeholder in the context of REI (Driscoll & Starik, 2004).

However, there is currently little research in the impact investing field that explicitly addresses the EDM process and ethical tensions despite its potential importance for the field. Ethical principles could guide the selection of investment products and the allocation of investment portfolios for impact investors to increase outcome efficiency, and EDM research could contribute to the development of this field, which is prone to ethical tensions and dilemmas (Brest & Born, 2013; Haffar & Searcy, 2019; Lee et al., 2020; Muers, 2017). When REI managers are faced with paradoxical tensions that cannot be easily resolved by ethical principles,

how do they decide whether or how to engage in such reasoning? Sensemaking holds promise in this regard and is widely used in EDM as a valuable approach to complex decision making with refined knowledge or expertise of a specific context (Bagdasarov et al., 2016; Mumford et al., 2008).

Sensemaking and Context-Specific Reasons

The sensemaking approach is seen as a useful and valuable approach to EDM for studying the emergence of ethical issues in equivocal situations (Mumford et al., 2008; Reinecke & Ansari, 2015). The link between sensemaking and EDM is evident in behavioural research, where sensemaking has been studied as a strategy for improved EDM over time (Caughron et al., 2011; Mumford et al., 2008).

Sensemaking is the construction and production of plausible meanings in equivocal and uncertain situations (Weick, 1995, 2016). Weick's (1995) seminal work showed that sensemaking is driven by plausibility and characterised by retrospection, as an ongoing process as people discover their own intentions. Actors use sensemaking to reduce ambiguity when facing confusing events and situations not of their own making, where they engage in cognitive work to connect the plausible phenomena with their prior understandings and experiences, with other cues from the context, and with actions (Weick et al., 2005). However, sensemaking is not concerned with the pursuit of accuracy but rather, the way people interpret information to form their actionable knowledge (Bettis & Prahalad, 1995; Weick et al., 2005). Like sensemaking, impact investing has been studied from the perspectives of various disciplines and is characterised by uncertainty, interdependence, complexity, and being shaped by the interactions among the stakeholders. Therefore, we explore the way ethical sensemaking can inform EDM in the impact investing context with regard to sensemaking processes, plausibility, and context-specific reasons.

Sensemaking is the process of searching for and organising information with chosen representations to bring meaning (Russell et al., 1993). This process is one of the retrospective interpretation of a series of actions through enactment, selection, and retention. First, the actors' senses any anomalies, notices and brackets the changes in circumstances, then reduces the possible number of categorisations and meanings in the selection process with extracted cues, and finally retains a plausible story (Weick, 1979). This 'enactment-selection-retention' sequence is applicable to EDM, as it typically comprises a constructed and coordinated system of actions. In this way, informed EDM is facilitated via sensemaking processes, which include the identification of ethical tensions, analysis of causes and constraints, and effective forecasting of the ethical implications (Bagdasarov et al., 2016). Similarly, in an impact investing

context, sensemaking is an ongoing process in which investors notice and bracket the tensions in their investment decisions, understand and analyse what these tensions mean, create meanings for these tensions based on that analysis, and then decide how they are going to act. Therefore, sensemaking is used to help us understand the way managers rationalise their impact investing decisions and navigate the ethical tensions involved. It is worth noting that such tensions may not be resolved but rather, be comprehended better to form actionable knowledge through sensemaking, which aligns with sensemaking's core property of plausibility, instead of finding the single 'truth' per sé.

The basic properties of EDM and sensemaking overlap, with plausibility being the fundamental criterion of ethical sensemaking. As an alternative to the rational paradigm of EDM, ethics has been portrayed as a fabric produced through reflexive sensemaking in three emotional phases: emotional awareness, emotional 'unpacking', and emotional (dis)engagement (Diochon & Nizet, 2019). Emotion is similar to intuition, and is mixed with complex cognition, particularly in conflict-ridden EDM that is more susceptible to emotional reactions (Thiel et al., 2012). Emotions serve to motivate goal attainment and emotional regulation could promote ethical behaviours (MacDougall et al., 2015). Emotional regulation is the result of particular displays of an identity that involves enhancing, suppressing, or faking emotions to modify the emotional state (Hochschild, 2012). Whereas emotion and cognition have instant and affective reactions and they take place early in the sensemaking process. Quality information gathered through sensemaking processes can mediate the relationship between mental models and EDM quality (Bagdasarov et al., 2016), suggesting that experts are less reliant on processes like emotional regulation and framing due to their extensive experiential knowledge (MacDougall et al., 2015). We therefore use ethical reasoning because it can be simultaneously conscious and unconscious, deliberate and intuitive (Haidt, 2001; Sonenshein, 2007).

Sensemaking involves an 'arguing' process, where individuals reason their way forward with enlarged details to create a piece of reasoned discourse (Weick, 1995). Many scholars have argued that people use deliberate reasoning in equivocal and uncertain conditions (Sonenshein, 2007). Sensemaking has also been viewed as the process by which reasoning strategies have their beneficial effects on EDM (Caughron et al., 2011). Caughron et al. (2011) recognise that both personal biases and situational factors influence sensemaking by overemphasising or deemphasising some aspects of the problem. Mumford et al. (2008) have developed seven cognitive reasoning strategies for working through ethical problems as the practical strategies for dealing with personal biases and errors in ethical situations, which include recognising personal circumstances, anticipating consequences, considering others' perspectives,

seeking help, questioning your own judgement, dealing with emotions, and examining personal values. Many of these reasoning strategies developed by Mumford and colleagues directly relate to concepts in sensemaking such as broader perspective taking in ethical cognition, reflexivity, forecasting, information integration, and emotional regulation. Research has shown some evidence that pro-ethical reasoning strategies influence sensemaking and can promote EDM (Caughron et al., 2011).

The cognitive reasoning strategies by Mumford et al. (2008) are based on the theories of moral reasoning, which refers to the cognitive process of how people reason about ethical situations and has been widely studied and applied to improve EDM skills (Elm, 2019; Kohlberg, 1984; Rest et al., 2000). The reasoning process also relates to moral imagination, which encourages individuals facing intractable issues with moral implication to evaluate possibilities in a more creative manner (Werhane, 2002). People look for reasons in frameworks such as organisational premises and traditions to make sense of a disruption (Weick, 1995). Managers and organisational leaders are often encouraged to give reasons for their past work decisions and analyse the consequences of them for various stakeholders, with reasoning being the conscious processing (Thiel et al., 2012; Woiceshyn, 2011). However, reasoning is often imputed for *post hoc* explanations rather than for the explanation of causes. This is based on behavioural concepts, where the focus is on interpretation reinforced by the actions by which meanings materialise, rather than on rational evaluation and choice (Weick et al., 2005). We use the concept of ‘reasons’ to offer possible explanations in the REI decision-making process. Here these context-specific reasons are not a rationalist approach for value-based moral reasoning, as in the objectivist paradigm of EDM aiming for causal relationships (Hartman, 2008; Sonenshein, 2007, 2009); rather, they are an ethical sensemaking approach characterised by plausibility, with these reasons related to value- or evidence-based motives. However, ethical issues are inherently ambiguous and multifaceted involving multiple stakeholders; with only the tools of reasoning, individual actors can hardly manage them.

Pragmatism, Retrospection, and Forecasting in the Ethical Sensemaking Process

Leaders in the REI context first notice and bracket the tensions in their decision making where they become aware of the tensions such as investing in controversial portfolios including both RE and fossil-fuel projects, while maintaining the identity of a RE investor. In sensemaking research, this can be considered an ‘interruption’. In response to the interruption, these decision makers then connect bracketed phenomena with labels, their previous experiences and cues from the context, and their actions (Weick et al., 2005). By

this stage, the decision makers have selected a plausible story that is retained for prospective sensemaking and future actions.

Pragmatic ethical sensemaking has its roots in the epistemology of the wide-ranging pragmatism philosophy that informs metaphysics, logics, and ethics (James, 1890; Koopman, 2006; Sprinker & Rorty, 1983). Pragmatism in ethics sustains value creation for ethical behaviours with an action-oriented, problem-solving approach by challenging epistemological assumptions of truth and objectivity (Surie & Ashley, 2008). From a pragmatic perspective, knowledge and ideas emerge contingently and experimentally, and need to be useful to achieve purposes in a given social context (Barnes, 2008). The knowledge and ideas are adapted to offer practical advantages in equivocal situations (Baker & Schaltegger, 2015). According to this view, people are not able to find the ‘best’ solution for the ethical tensions they are facing by thinking (cognition) alone (Weick, 1995). An action-driven process of sensemaking with a ‘craftsman’ mind-set is needed as well (Graaf, 2019). Therefore, people act from a pragmatic attitude, balancing their limited cognitive processes with actions based on their best estimations of the practical consequences of them.

The two central and interrelated concepts within pragmatism are truth and sensemaking (Baker & Schaltegger, 2015), which can also be understood as accuracy and equivocality/plausibility. According to Foucault, truth is produced by multiple forms of constraints, and truth is what functions (Taylor, 1984). From a pragmatic viewpoint, the purpose of truth is to deal with problems, which links to sensemaking as individuals cognitively frame situations to know things as being true and meaningful (Dewey, 1988; Weick, 1995). Human action is central in truth, as individuals’ potent action and change constitute truth; at the same time, truth allows for a more positive relationship between people and their environment, with an empowering role of melioration (Baker & Schaltegger, 2015). We can therefore see that truth and sensemaking are understood, from a pragmatic perspective, by their usefulness in enabling action. This is similar to accuracy and plausibility, which was thought of as representing the dichotomy between truth (accurate reality) and sensemaking (equivocality).

In regard to retrospective sensemaking, self-reflection is central to all aspects of ethical sensemaking where actors reflect on one’s expertise and knowledge to frame a given ethical dilemma. The decision and following actions depend upon one’s requisite knowledge and experience to facilitate sensemaking. EDM emphasises the retrospective nature of sensemaking with hindsight where self-reflection is based on first-hand and vicarious knowledge and internal examination of one’s motives, biases, and cognitions (MacDougall et al., 2015). While sensemaking is conventionally perceived as being retrospective, in certain ethical contexts (such as

cross-sector social partnerships), actors use prospective sensemaking to envision the future and produce social benefits (Selsky & Parker, 2010). Forecasting is a key component of the EDM process given its close relationship to framing, emotion regulation, and mental models (MacDougall et al., 2015). Skilled forecasting with both negative and positive predictions based on present observations facilitates the overall information integration that leads to quality forecasts enhancing EDM performance (MacDougall et al., 2015; Thiel et al., 2012).

Despite the continued development of the ethical sensemaking literature, lacunae remain. Sensemaking has been examined as a strategy in the EDM process, with four strategies to help leaders make sense of complex ethical dilemmas in order to promote ethical behaviour: emotion regulation, self-reflection, forecasting, and information integration (Thiel et al., 2012). While these four strategies are useful tactics in EDM, Thiel et al. (2012) argued for an ‘accurate sensemaking’ to build causal mechanisms. This belies Weick et al. (2005, p. 415) concept of plausibility, where sensemaking is ‘continued redrafting of an emerging story’ and the pursuit of accuracy is only used to sustain motivation. The literature on the links between ethics and sensemaking either separates emotional and rational analysis in sensemaking (Diochon & Nizet, 2019) or focuses on retrospective or prospective sensemaking (Bagdasarov et al., 2016; Selsky & Parker, 2010), with some researchers using sensemaking as tools or strategies in EDM that aims for accuracy (Thiel et al., 2012).

It is clear that the use of ethical sensemaking to navigate ethical tensions is an important area of enquiry in impact investing; it is a promising theoretical terrain that awaits further exploration. It prompts our overarching research question of what motivates impact investors and how they make sense of their intentions and behaviours? We explore this question in the context of the renewable energy sector. Specifically, we use ethical sensemaking as the framework through which impact investors make sense of their impact investing motives, which are extracted from context-specific reasons. Our article contributes an integrative view of ethical sensemaking processes in EDM in the context of impact investing, which can be seen as a means to circumvent seemingly intractable problems in plausible situations. Such an integrative perspective incorporating reasoning, pragmatic, retrospective, and prospective sensemaking enables an enhanced understanding of ethical sensemaking beyond the separation between truth and plausibility. We now turn to outline our methodological approach to investigating the impact investing decision-making process in the REI context.

Methodological Approach

REI decision making is an emerging phenomenon and a nascent field of study with no solid core of theory or data. This research project adopted an abductive approach to develop a conceptual framework for REI decision making that is more rigorous than testing an ill-defined hypothesis based on an emerging framework. Located in the interpretivist/constructivist paradigm, qualitative semi-structured interviews were utilised as the primary data collection method.

Research Context

The context of the REI decision-making process is affected by underlying factors such as geographical boundary, social-cultural context, REI-related policy, and the environment. Therefore, the empirical data collection was limited to a relatively homogeneous context.

Mainland China was chosen as the context for our research project because of its rapid development and leading role in REI, as well as its need for a shift in sources of sustainable energy. According to Bloomberg New Energy Finance, although global REI remains volatile, with developed countries as significant REI contributors, REI in developing countries is growing at a much higher rate (Louw, 2018). The growth of REI is faster in developing countries than in OECD countries, with China being the dominant leader (Louw, 2018). Research has shown that in China, REI is a significant driver of economic growth with a long-run dynamic; in many other countries, there is no clear evidence of this relationship (Bhattacharya et al., 2016).

China’s growth has been remarkable, with continuous growth since 2011, surpassing the United States (US) and the European Union in 2013 (International Renewable Energy Agency & Climate Policy Initiative, 2018). Chinese REI reached US\$132.5 billion in 2017 (Louw, 2018). China is the largest investor in REI in foreign markets as well, with a US\$32 billion budget (Jiang & Woetzel, 2017). As the world’s largest emitter of greenhouse gases (Global Carbon Atlas, 2016), China needs new approaches to improving its air quality in the face of unprecedented social and environmental issues. While there are many studies on REI in the US and Europe, the situation in China is relatively under-researched (Şener et al., 2018).

Data Collection

This research used an exploratory interview approach to gain insights into REI investors’ decision-making processes. The bilingual lead author conducted 26 semi-structured interviews in Mainland China between May 2019 and September 2019. Interviews were conducted in either Mandarin or

English, depending on the preference of the interviewee. The sampling was designed to gather data from a diverse set of individuals. The 26 research participants were REI leaders (CEOs, directors, and senior managers) in three different sectors in China, and were selected individual stakeholders with high levels of relevant knowledge and experience in the REI field. The lead author was well aware of China-related contextual factors, with a sound understanding of the local institutional and cultural norms. For example, Chinese relational dynamics and *guanxi* directly influence data gathering in China and the authenticity of the answers to the research questions (Yin & Quazi, 2018). These complexities were taken into consideration during the research design process. For instance, the approach of directly inviting participation from government officials and senior managers was considered unlikely to be successful because of the lack of reciprocity between the researchers and research participants. We therefore adopted a snowballing approach, with referrals through a researcher-developed *guanxi* tree (tree of connections); this is the preferred method of data collection in China, accessing and utilising the connections among people (Kriz et al., 2014). Invitations to participants were sent through the researchers' professional connections, as well as through prominent professors from top universities in China to their industry connections and former students through two or three layers of referrals. Table 1 illustrates the interviewees' organisational associations.

The research participants came from 24 different organisations and eight types of RE-related organisations: commercial companies, SOEs, social enterprises, NGOs, banks (both commercial and development), government, energy advisory firms, and intergovernmental organisations. Most interviewees were based in Tier-one cities including Beijing, Shanghai, Shenzhen, Guangzhou, and other major cities in Central China (see Table 3 in the Appendix for more details).

We utilised theoretical sampling to select our research participants. Usually, non-random sampling tends to favour participants from organisations that are more visible or more easily contacted. However, given that these participants and cases were selected from various organisations across China, we believe that the dataset captured adequate variation among RE organisations in China.

The interview questions investigated the participants' background, *a priori* beliefs, perceptions of REI in China ('knowledge'), decision-making processes ('reasons' and

'objectives'), perceptions of institutional influences, stakeholder interactions, and investment portfolios (the interview protocol is attached in the Appendix). A Chinese version of the interview protocol was sent to all research participants prior to the interview date. The interviews averaged 1 h in length and were semi-structured, allowing emergent lines of inquiry to be explored during the interview. The semi-structured interview is recommended as an effective method for probing China-specific contextual features, rather than using survey data, which is subject to common method bias and social desirability bias (Yin & Quazi, 2018). To help reduce social desirability bias, confidentiality and anonymity were assured. In addition, observations of differences among the respondents' answers to the same questions, and questions about how they benchmarked their peers, were utilised. All interviews were audio-recorded and fully transcribed in the original language. These interviews were supplemented by an analysis of secondary sources of information regarding the participants' organisations, as well as other informal conversations with RE organisation leaders and staff throughout the fieldwork process.

Data Analysis

This research project utilised a method of analysis that was first introduced by Gioia et al. (2013), which assembles first-order and second-order codes to reveal the data structure (Gehman et al., 2018). To produce theoretical insights, the grounded themes and dimensions are linked back to the theoretical underpinning, following the recursive and iterative nature of abductive analysis (Timmermans & Tavory, 2012).

Thematic analysis was used to look for themes of meaning in the data, following the guidelines of the six phases of analysis offered by Braun and Clarke (2006). Axial coding was used to construct the emergent themes from the interview data using NVivo 12 software. The coding process was iterative, to condense descriptive codes to thematic codes within the transcripts: this involved transcribing, coding, and revisiting theory. The lead author coded the data three times and generated 84 nodes. Theoretical saturation was reached when new concepts could not be generated from the interview transcripts (Saunders et al., 2018). Transcripts were analysed in their original languages. The lead author translated the final codes and quotations verbatim into English, and later back-translated them to minimise the misrepresentation of meanings. As some Mandarin terms did not have

Table 1 Breakdown of research participants across three sectors ($n=26$)

Public	Private	Social
Government agency (1)	Venture capitalist and private equity fund (2)	Foundation/NGO (2)
State-owned enterprise (SOE) (6)	RE company (10)	Social enterprise (1)
Intergovernmental organisation (1)	Commercial bank (2)	Development bank (1)

an exact match in English, the most appropriate translations were used, along with detailed explanations. We referred to company websites, news media, and government policy papers for fact checking of research participants' answers. The co-authors were involved in interpreting and critiquing data analysis and coding.

Findings

Beyond investors and investees, the field of impact investing in the RE sector involves participants from adjacent fields such as RE production, financial markets, philanthropy, and policy. Ethical sensemaking is highly context-dependent and these actors have specific reasons and motives for engaging in the field. Figure 1 illustrates the data structure of the context-specific reasons for REI that were mentioned by our study's participants, highlighting the categories and themes from which we developed our framework. Direct quotations from the interviewees, illustrating the concepts shown in Fig. 1, are provided in Table 2 in the Appendix.

Motives for REI

All research participants with the relevant knowledge and information mentioned that they are motivated to work on sustainability-related issues both for long-term commercial success and for the benefit of generations to come. Despite these general motivations for engaging in more sustainability practices, such endeavours create challenges and ethical tensions, particularly with regard to some short-term costs, budget constraints, and the challenges of incorporating sustainability into everyday operational practices.

Our findings revealed that the main drivers of REI for our interviewees were the motives that we named 'prosocial', 'personal', 'reputational', and 'economic' based on the context-specific reasons, which are illustrated in Table 2 in the Appendix. We found a division within the four dimensions, with prosocial and personal motives being more value-based, and reputational and economic motives being more evidence-based. We classified prosocial and personal motives as being value-based because they are inherently ethical and sometimes equivocal, and can be counter-argued more easily than the others can. However, there could also

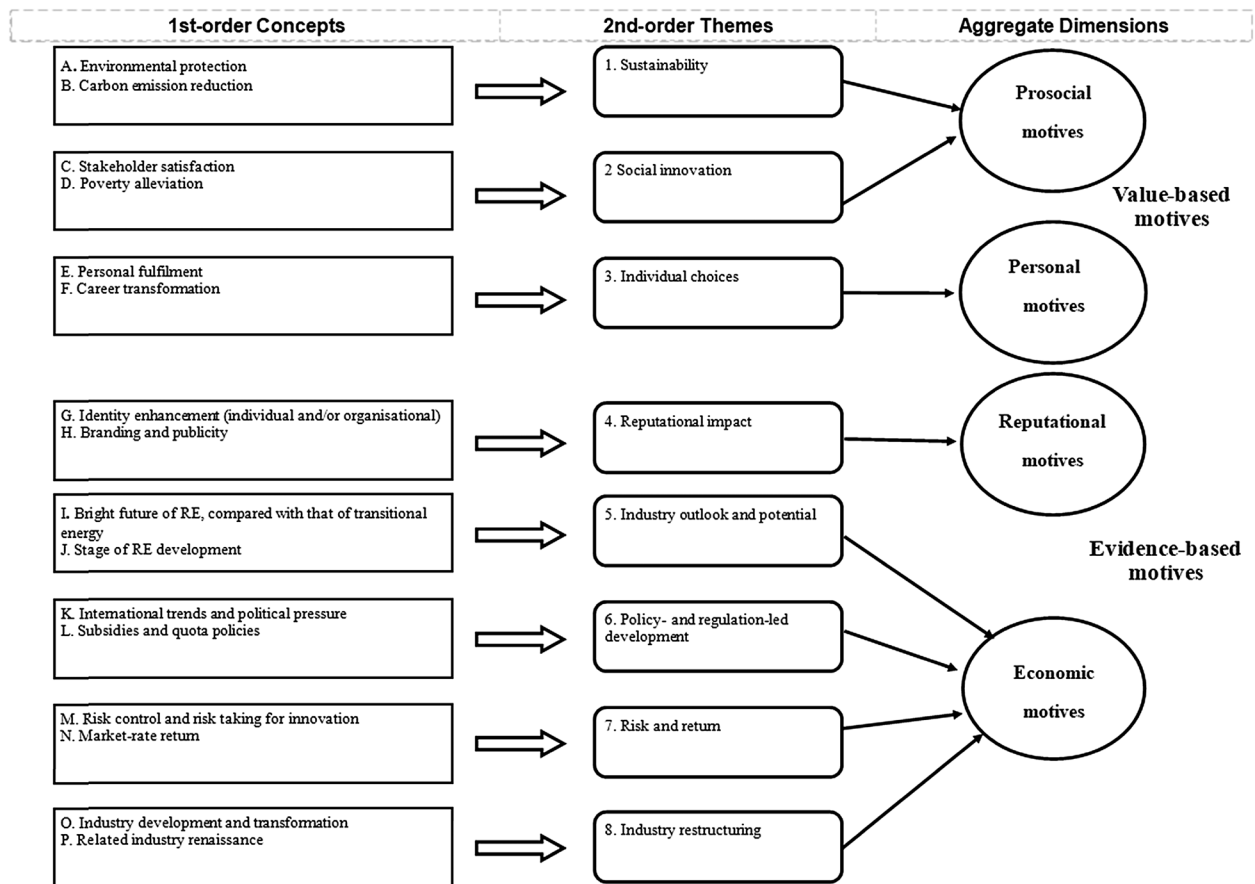


Fig. 1 Data structure of context-specific reasons for REI

be ‘evidence’ and information for rational accounts of these two value-based motives. Values are stable motivations that could guide the cognitive process, decision making, and actions. This dichotomy also illustrates pro-self-values as self-enhancement and prosocial motives as self-transcendence (Schwartz, 1992). The values are internal to the decision makers while the evidence-based motives are more external with established quantifiable measures. We classified reputational and economic reasons as evidence-based motives, allowing the leaders to use information in practice, with a ‘scientific’ method from a more positivist viewpoint. This view also relates to the practice of evidence-based management, which allows practitioners to connect the best available evidence of scientific theory, stakeholders’ insights and perspectives, and the context of the environment, to make responsible and ethical decisions (Briner et al., 2009; Graaf, 2019; Rousseau, 2006).

Each theme held two concepts that were context-specific reasons for REI engagement. These context-specific reasons were synthesised into aggregated themes and motives, and these motives formed the basis of the interviewees’ ethical sensemaking processes. Further to the illustrative data presented in Table 2 in the Appendix and the findings outlined in Fig. 1, additional complementary insights drawn from our interviews and analysis are presented here. These reasons and motives link to the cognitive reasoning strategies identified by Mumford et al. (2008) where personal motives are related to the reasoning strategy of recognising personal circumstances and examining personal values.

As in most qualitative research, the themes of our findings (see Fig. 1) were not mutually exclusive but rather, were interdependent and interconnected. For example, policy- and regulation-led development and the issue of carbon emissions were generally embedded in each other. Under the sustainability theme, which was also related to international trends and political pressure, many of our research participants referred to the Paris Agreement under the United Nations Framework Convention on Climate Change with regard to reasons related to the issue of carbon emissions. While carbon emissions policies and climate change knowledge can be influenced by social movements such as activists calling for climate action and climate justice (Jamison, 2010), these movements are less evident in the Chinese context because of its political structure. The Paris Agreement urged China to accelerate the shift to a low-carbon economy and the Chinese Government responded with many economic instruments and policies, from subsidies for RE production to carbon taxes. These international trends of carbon emissions reduction and political constraints of government responsibility can shape prosocial motives as well, with education programmes increasing people’s awareness of sustainability issues.

With regard to reputational motives, many of the research participants mentioned their intention to establish a stable organisational image in the industry, to promote the development of a REI ecosystem. This might not necessarily translate into financial returns, which distinguished this from economic motives. The other concept in this area, branding and publicity, was more about building connections and attaining attention, recognition, and support from the industry to enhance or shift identity. This was closely connected to long-term economic benefits. Reputational motives are related to identity work, where actors negotiate their image and reputation to shape their identities (Kreiner et al., 2006). An individual’s identity within an organisation shapes how they enact and interpret information, which also affects their images perceived by outsiders. Therefore actors have incentives to stabilise or destabilise their identities to affect how other stakeholders think of and treat them (Lehner et al., 2019).

The research participants possessed a comprehensive knowledge of REI, but not necessarily of impact investing *per se*, as many did not identify as impact investing professionals and they were unfamiliar with the terminology. However, most of the research participants were familiar with the term ‘green finance’. This aligns with China’s top-down green finance system, which is based on government guidance aiming to achieve ecological civilisation and where the public are familiar with the Environmental Protection Law (Wang, 2018). One research participant noted:

We have been proposing a word called green finance in recent years. Why the word ‘green finance’? It must be that our financing is not doing well. What is the reason? First, it has externalities. Therefore, if the regulation is not strict, this investment will be difficult. In theory, [those] who [are] polluting should be taking care of the pollution. But if you do not assign responsibility to [them], [they] will have no intention to invest. Therefore, this is a very important reason for the lack of investment willingness in the industry. Through environmental supervision, government attention, and industry supervision, we can solve problems of externalities (General Manager of the Strategic Investment and Financing Department of a listed environmental protection service company).

Instead of social innovation with a bottom-up approach, emphasis is given to government regulations driven by the need to manage the ecological consequences of rapid economic growth and to build a more sustainable growth model.

Ethical Sensemaking in the Face of Ethical Tensions

When navigating ethical tensions, investors interpret and respond in ways that reflect a holistic and collective

sustainability logic (Haffar & Searcy, 2019). When the above context-specific reasons and aggregated motives cannot sufficiently justify their decisions, leaders use ethical sensemaking to consolidate their reasons and motives to form an action-oriented discourse with a holistic sustainability logic. In our findings, the leaders used pragmatic, retrospective, and forecasting modes of ethical sensemaking in response to these ethical tensions.

Ethical tensions normally exist in dichotomous situations in which ambiguity persists. In practice, blended-value missions of impact investing require the deliberate incorporation of both social and commercial institutional logics, which creates ethical tensions (Agrawal & Hockerts, 2019; Viviani & Maurel, 2019). In impact investing, the ethical tensions derive from the pursuit of multiple-objective functions by a range of stakeholders; these objective functions and logics can be competing with each other in certain situations. We found that the ethical tensions in impact investing tend to be diffuse rather than manifesting in specific, concrete dilemmas in a certain moment or in a single investment decision. Ethical tensions also appear to be navigated rather than resolved. Such ethical tensions are particularly relevant in the RE sector.

Ethical tensions can be further complicated by institutional structures. This was exemplified by one interviewee who owns and runs an off-grid solar lighting solutions social enterprise, serving the bottom of the pyramid (BoP) communities in the Global South. This social enterprise demonstrated the interactions between conflicting commercial and social logics. The founder started this business ten years ago using the profit made from her commercial trading company to support the operation and initial expenses, with a strong commercial logic to make the business model work. Later it has developed a stronger social logic but faced intellectual property issues with its main Western competitor. Its mission is to lower cost for BoP communities with affordable energy, but in the pursuit of this mission, it ignored the intellectual property issues with its products' design. The breach of intellectual property law resulted in their withdrawal from the Lighting Global certification by the World Bank Group. Such ethical tensions among institutional logics and stakeholder groups stimulate actors' sensemaking processes.

...We were sued in the United States and were unable to appear in court. It ended as a default loss... [our competitor] filed a complaint against us at the World Bank based on the court's decision. Then the World Bank revoked all our World Bank qualification certifications, which resulted in us being unable to enter until today. To enter the World Bank [certification programme], we spent much efforts and about 100,000 dollars on all product testing... (Founder of a social enterprise).

A research participant working in a Hong Kong Stock Exchange listed RE company with a strong commercial logic, noted one of the company's RE projects that does not generate sufficient financial returns. This tension was justified by emphasising the long-term positive impact with various partners and reputational benefits. There is also an emotional element as the daughter of the company's founder had the idea for a specially shaped solar panel array to be built in a polluted coal-mining city to raise public awareness, particularly for youth, with ongoing educational projects with students visiting the site.

For us, we not only pursue efficiency, but also social responsibility. We believe that providing green energy to improve the current situation of pollution is what our company should do. Sustainability, I think, is indeed sustainable development, benign development, is about the long-term solution, not short-term... in terms of brand building and attracting the public's attention, we have done a lot of work. We cooperated with the United Nations Development Program, which involved educating youth about climate change from a young age... We are contributing to the seventh goal of the SDG, which is affordable and clean energy. We have cooperation cases with the Export-Import Bank and the China Development Bank. The Asian Development Bank and Japan's ORIX are both our shareholders. (General Manager and Production Director of a listed RE generation company).

The tensions among multiple-objective functions by a range of stakeholders were also manifested in the simultaneous investment in RE and fossil fuels. Even though our research participants invested extensively in RE and considered themselves ethical, impact, or green investors, a number of organisations still had a small portfolio in fossil fuels or were involved in fossil-fuel-related activities. Nevertheless they differ from traditional investors by maintaining their RE investor identity with only a minimal portfolio in fossil fuels if not 100% renewables. As an example, most of these RE investors are not investing further in fossil-fuel plants but rather focus on the cleaning or more efficient use of existing ones until they can find better alternatives. They also give more emphasis on innovation and technology development to lower costs in order to create economic incentives for energy consumers. The following quote shows the reasoning of one research participant who works in an environmental protection company that focuses on the cleaning of the existing fossil-fuel plants.

What everyone cares about is the increase in the proportion of renewable energy and natural gas, and also the clean-up of the large amount of [coal] thermal power stations. Foreign experts have neglected this

problem and keep saying that thermal power is a sunset industry. In fact, thermal power in China has reached the ultra-low emission level of natural gas [regarding air pollutants]... it is only a problem of carbon emissions. If carbon is taken away, China's coal burning thermal power will be very clean... (General Manager of the Strategic Investment and Financing department of a listed environmental protection service company).

Further ethical tension was found with regard to social innovation solutions and supporting policies such as incentives and subsidies with good intentions for RE development, which often led to unintended negative outcomes. Although China's RE policies have greatly contributed to the RE development, it has not been able to integrate RE into the national energy system with problems including fragmentation, obsolescence, and lack of operability (Liu, 2019). These negative outcomes included failed implementation of innovative business models and incentives being associated with the exploitation of the subsidy policies, as well as payment issues causing further negative outcomes for various stakeholders.

Research participants who still had a portfolio in fossil fuels elaborated on the complexity of this issue and the interdependent factors of addressing environmental problems. The quote below illustrates the pragmatic mode, with a broad approach to RE justifying engagement in fossil-fuel-related projects through the perspectives of conversion and pollution reduction:

This is our mission—to try and get people to focus on how you produce energy. But how do you produce it in a cleaner manner without destroying the infrastructure that you already have? We cannot have the coal-fired power plants in China shut down tomorrow, because we're not going to replace them with wind farms, that's not going to happen. This is a massive industrial undertaking. And it really must be done in a small-scale, broad-based approach. When we have investors and investor groups, many of them don't like to hear that. They want to say I produce, you know, photovoltaic cells Well, ... photovoltaic cells in and of themselves is not a solution. A solution is how do you adapt them to the problem you have? (Chairman of a RE NGO).

Our findings regarding the pragmatic mode of ethical sensemaking showed that these impact investors used whatever resources and knowledge they had at hand to reach their here-and-now decisions. The pragmatic sensemaking mode is action-oriented, infused with issues of sensegiving and persuasion (Weick et al., 2005). They explained the need of their involvement in fossil fuels in order to achieve pure REI by shifting the emphasis on the ethical tension itself to the

solution and feasible actions. The next quote shows the way ethical tensions were reconciled by one's pragmatic sensemaking ability, with a holistic view of the positive social outcomes and emphasising the consequences of social progress, rather than focusing on the tension itself:

We promote the development of the industry by considering the attributes of the society. We choose good technology and management, which is actually to promote the value of society Our return on investment is dependent on the specific region and project. Our economic return is about 10% to 12%, which is in line with our investment requirements. Of course, if the economic returns of the two projects are not much different, [but] there is a higher return on the social and environment aspects, we are sure to incorporate these factors, as our company's philosophy is to give emphasis to the social value (General Manager of the Strategic Investment and Financing department of a listed environmental protection service company).

In a related example, sensemaking from a pragmatic perspective was further elevated through a stakeholder perspective used by participants to make sense of their engagements that were irrelevant to RE:

Hydropower accounts for 70%, [other] new energy accounts for more than 20%, and a small amount of thermal power ... accounts for less than 5% We went to Sichuan and Yunnan to do hydropower, and Sichuan thinks that [if] you are making money, you should make some contributions to the local government, so you can participate in some local enterprises to buy shares. This is not necessarily new energy We had many immigrants due to the construction of the hydropower plant and [the local governments] let us invest in a guarantee company, which guarantees local SMEs and solves problems for local governments. This is not new energy. From the perspective of stakeholders, it is a new way to deal with stakeholders (Former Director of an SOE).

Ethical sensemaking is a process that is both retrospective and time-sensitive. Some of our research participants had counter-arguments through their learnings and experiences over time with regard to a number of context-specific reasons. One example, as mentioned earlier in the ethical tensions section, was the prosocial motives theme of 'social innovation' alleviating poverty via RE. Issues of misconduct, policy change, and payment method had occurred during the implementation stage. The research participants reflexively evaluated the initially exciting 'innovative' model as follows:

...they found that the poverty alleviation funds were misused, as many enterprises took the money with-

out doing the actual job and the policy implementation was not in place. Later, a new policy was introduced; that is, all photovoltaic poverty alleviation projects must be government funded Another issue is that some local governments are spending [the] money indiscriminately. It is very difficult for the enterprise to come back with project money after completing the projects.... In short, local government is also short of money and it is troublesome for enterprises to do post-operation and maintenance work (Regional Marketing Director of a listed commercial company).

The following comment illustrates the tension regarding the logic underpinning the social innovation theme, as this participant reflected on their REI engagement:

An industry that needs subsidies to sustain [it] is used to help poverty alleviation. Don't you think this logic is a bit problematic? (General Manager and Production Director of a listed RE company).

As noted by Diochon and Nizet (2019), reflexivity allows leaders to be aware of and unpack the issues involved, and to choose to engage (or not) in sensemaking to solve the issues over time. The following reflection was related to the ongoing sensemaking process as the participants articulated and reflected on the issues related to their context-specific reasons for REI engagement:

The social impact assessment was added about five years ago. It was not there before. The environmental assessment was there and it is getting stricter. In the early days, everyone did not realise [the importance of social and environmental impact]; the realisation has been a process (Former Director of an SOE).

Ethical tension arises in supporting policies as well, when a government needs to subsidise the process of an energy shift but subsidies have unintended negative consequences, such as corruption and rent-seeking behaviours. Such behaviours lead to poor-quality products and services in the RE sector that could significantly delay RE deployments and erode market trust (International Renewable Energy Agency, 2015). A number of our research participants raised the issue that many low-quality RE projects in China were seeking investment and subsidies. The subsidy policies were leading to rent-seeking behaviour, with some opportunist EV companies taking advantage of these policies. One such type of business model was that a company would establish another company providing online car-hailing services and then sell subsidised EVs to the car-hailing business, to earn the subsidies. However, in reality, the sold cars were still owned by the rent-seeking companies. It was estimated that 72 out of 93 EV companies

were behaving this way, involving approximately 76,000 cars and appropriating more than US\$1 billion in subsidies (Yiducaijing, 2016). The Ministry of Finance in China has been investigating subsidy fraud and amending the subsidy policies accordingly (Ministry of Finance, 2016). These issues with regard to subsidy policies had not been foreseen. This reflective ethical sensemaking helped the interviewees to understand the potential impacts of such investments by the government and the private sector.

Another issue that our research participants raised with regard to subsidy policies was that they were unstable and unpredictable, with significant delays in the subsidy payment period forcing many private RE companies into bankruptcy due to a lack of cash flow. They believed that policymakers did not have the necessary industry knowledge to design the best policies. For example, one research participant described the following issues in the policy formulation with regard to pollutants and carbon emissions separation:

The local government's original policy separates environmental protection and carbon emissions, and now they [have] combined it together, but the synergies have not yet come out. The so-called synergy effect is that air pollution has both carbon emissions and pollutant emissions There is no policy to form a synergy It does not constitute a fair competitive market, [putting] biomass energy [in] a disadvantaged place when it competes with fossil energy (Chairman of a commercial company focusing on biomass heating).

One of the purposes of the retrospective mode of ethical sensemaking is to be able to forecast and achieve better performance in the future. Future-oriented sensemaking is conducted by imagining that future events have already occurred and then infusing this past 'experience' with meaning (Gioia & Mehra, 1996). This forecasting sensemaking mechanism relates to the reasoning strategy of anticipating consequences of actions and the effects of actions on others that enhance EDM (Mumford et al., 2008). The aforementioned risks related to the use of proceeds, from either investors or government subsidies, need to be managed and calculated with foresight. The following quote shows the way the research participant balanced prosocial motives and economic motives to manage trade-off situations infusing both retrospective and forecasting modes of ethical sensemaking:

Although we serve the field of thermal power, we are an environmental protection company ... for a long time in China, coal-burning energy accounted for more than 70% of the primary energy source. Now it is around 50 to 60%.... For the next 20 or 30 years, we believe that half of the primary energy [will be] coal. Everyone is concerned about increasing the proportion of new energy and natural gas. It is necessary to

upgrade and clean up the [coal-fired] thermal power, which is also important in itself (General Manager of the Strategic Investment and Financing department of a listed environmental protection service company).

Individuals have varied sensemaking abilities. Most of our research participants had an educational level of Masters-level or higher, with in-depth knowledge of the REI field in China. They utilised pragmatic ethical sensemaking to emphasise the fact that the energy transition from fossil fuels to renewables was a process that could not be achieved overnight; therefore, compromises were needed, such as ‘cleaning up’ the existing fossil-fuel plants to achieve complete decarbonisation in the future. Their experience equipped them with strong sensemaking ability to reflectively reason through their decisions. They also employed the forecasting mode of ethical sensemaking to prospectively analyse the expected consequences of their decisions.

Here, we find three modes of ethical sensemaking—pragmatic mode, retrospective mode, and forecasting mode—as an integrated approach to the navigation of ethical tensions. Managers use different modes of ethical sensemaking to explain and reinforce their behaviours. Figure 2 illustrates the way the decision makers in our study used three modes of ethical sensemaking to balance the four dimensions of motives that were formed by the context-specific reasons in the RE sector.

We analysed the way context-specific reasons were used by the leaders through ethical sensemaking to justify their engagement in RE. The abductive methodology used allowed us to see sets of context-specific reasons and uncover themes and motives based on theoretical underpinning. As noted

earlier, we identified three modes of ethical sensemaking to explain the way the leaders used different context-specific reasons to justify their behaviours and reinforce their reasons and motives: pragmatic, retrospective, and forecasting. These three modes of ethical sensemaking were not mutually exclusive and nor did they operate in isolation. For example, within the pragmatic mode of ethical sensemaking, the leaders could use retrospective and/or forecasting modes to make their reasons more pragmatic, based on the meanings they gave to their elapsed experience or forecasted future situations. Sensemaking is not about getting things right because it is characterised by equivocality, giving primacy to the search for meaning and reasons as a way to deal with ambiguity. We found explicit sensemaking efforts when the current state was perceived differently from the expected state, with sensemaking being activated by this dissonance. In our context, the uncertain situations are around the ethical tensions that could not be resolved.

Discussion

This study advances knowledge of ethical decision making and ethical sensemaking in impact investing. By accentuating the multiple context-specific reasons that drive and influence the impact investing motives, this research contributes to the scholarly conversation on ethical sensemaking and informs future research in this emerging field of REI decision-making process. Bringing ethics to the sensemaking literature has brought together the concepts of reasons, pragmatism, reflexivity, and prospects to better understand the drivers of impact investing. Weick (1995, 2016) highlighted the importance of giving meaning to the processes with an interpretative and contextual approach. Our findings have contributed to efforts to understand ethical sensemaking, empirically and theoretically, through three modes: pragmatic, retrospective, and forecasting. The development of these three modes of ethical sensemaking dynamics constitutes a space for understanding REI decision making with various motives as materialised with meaningful context-specific reasons, rather than as abstract representations of social and environmental truths.

Ethical tensions are paradoxical and have the property of plausibility without having a single right answer. In general, context-specific reasons (first-order codes) serve as fundamental antecedents of motives (attitude, subjective norm, and perceived control), as leaders justify their decisions to others. The circumstances are explicitly identified and made comprehensible. The four dimensions—prosocial, personal, reputational, and economic motives—are integrated in the mechanism of ethical sensemaking, with decision makers assigning different weightings to each of these dimensions. Previous research has shown that even traditional investors

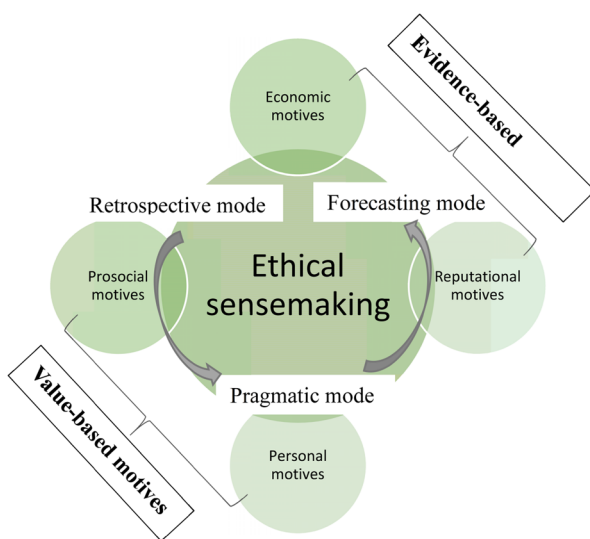


Fig. 2 Ethical sensemaking as a mechanism between value- and evidence-based motives

are not comfortable to admit to the notion that they invest primarily for capital growth and it is clear that both ethical and 'standard' investors see investment as more than just a financial decision (Lewis, 2001). In our research project, while evidence-based motives could have been the main drivers for REI decisions, prosocial and personal motives were more likely to be articulated to justify and defend the participants' behaviours. While it was not possible to discern the actual weighting of different motives of the impact investors, as they were not necessarily able to articulate fully the importance of specific motives, the ethical sensemaking mechanism was common to them all. We found that impact investors in the RE sector employed sensemaking in different modes and balanced both value- and evidence-based reasons for REI.

Pragmatic ethical sensemaking is action-oriented, with perceptual truth and accuracy treated as pragmatic utility, judged only by their usefulness in prompting beneficial action (Kruglanski, 1989). This is because the ultimate goal of ethical sensemaking is to initiate actions in order to reconcile ethical tensions. The pragmatic mode of ethical sensemaking is used to reconcile the tensions between truth (accurate reality) and sensemaking (equivocality). Actors use pragmatic mode of ethical sensemaking to downplay the ethical tensions caused by conflicting objective functions such as the simultaneous investment in renewables and fossil fuels, but rather focus on how to solve the issue with feasible plans and actions. Pragmatism has a strong cultural influence on social issues, particularly in the US; in China, it combines Confucian philosophy with a relational worldview (Ames, 2019; Pye, 1986). The pragmatic mode of ethical sensemaking fitted the context of our Chinese dataset where many of our research participants with international experience were deeply influenced by pragmatism.

Ethical sensemaking is also time-sensitive, looking backward or forwards from a particular present moment. Therefore, both retrospective and forecasting modes are relevant to leaders' strategies for sensemaking that facilitates better EDM, through self-reflection and forecasting with regard to likely future situations (Caughron et al., 2011; Thiel et al., 2012). The retrospective mode is one of the seven properties of sensemaking elucidated by Weick (1995), describing the way actors reflexively give meaning to their past experiences and learnings. This is similar to the simplified model of interpretation, where scanning, interpretation, and learning occur (Daft & Weick, 1984). In ethical sensemaking, forecasting future situations helps to bring about a predictable and controllable world for the actors. This mode relates to Weick's (1995) belief-driven sensemaking being an expectation process, where people produce self-fulfilling prophecies to establish some sort of stability and predictability, rather than aiming to be accurate. The forecasting mode also relates to prospective sensemaking, which creates potential

paths for further development of meanings that involve the projection of idealistic images (Gioia & Mehra, 1996). In addition, the forecasting mode is about the formulation of multiple predictions based on the consideration of a variety of consequences, contingences, and opportunities (MacDougall et al., 2015). The quality of forecasting produced by individual actors depends on the expertise, experience, and knowledge built through the retrospective mode of ethical sensemaking, where actors examine the experiential knowledge and motives inward.

We offer a new way of viewing the motives and reasons embedded in the sensemaking literature. According to Weick et al. (2005), people deliberately look for 'reasons', selected from various frameworks, to resume the interrupted activity where the interplay of action and interpretation is in the centre. Interruption of an ongoing flow creates occasions of novelty, undesirable situations, and ambiguity that trigger sensemaking (Weick, 1995). Leaders often need to justify and defend their decisions and behaviours, giving reasons for them. This process of articulating reasons is part of ethical sensemaking, which according to Diochon and Nizet (2019), is similar to mapmaking in a puzzling terrain that does not have a single best or true map. Thus, sensemaking is not about finding the truth and the pursuit of accuracy, but about the continued search for meaning, to make things more comprehensible by incorporating more information, and to make us more resilient when facing disruptions (Weick et al., 2005). By embedding context-specific reasons into the sensemaking process, we have sought to reconcile the interactions between behaviour and interpretation.

Our findings have shown that context-specific reasons, entwined with pragmatic, retrospective, and forecasting modes of ethical sensemaking, supported the research respondents' decision making in the REI sector. Our pragmatic mode of ethical sensemaking, with an action-oriented and problem-solving approach, reconciles accuracy and plausibility and therefore, opens further possibilities for more ethical business behaviours. Weick et al. (2005) noted that the retrospective mode of ethical sensemaking gives meaning, with reasons, to the lived experience. Ethics entails the examination of attitudes and behaviours through the retrospective mode of the sensemaking process and it is believed that a good professional is able to be a reflective craftsman (Graaf, 2019). The forecasting mode of ethical sensemaking extends Weick's (1995) idea that expecting facilitates sensemaking with a foresight to produce a self-fulfilling prophecy and that disruption occurs when there is difference between the current and the expected state of the world, such as in situations of ethical tensions. In this study, the forecasting mode of ethical sensemaking allowed decision makers to act on their predicted future as they believed, from some sort of present evidence, that their reasoning could be expected to hold true.

Our contribution is also founded on an unpacking of ethical sensemaking processes in our particular context of impact investing in the RE sector. We have extended the current research on REI and argued a need to understand REI motives and processes better, where it is important that such research engages with the ethical sensemaking processes rather than the techno-economic incentive logic that typically underpins policy formulation. Our research has enhanced the relevance of prior interpretations of ethical tensions, offered opportunities for actors to enhance their ethical sensemaking processes, and facilitated learning through action- and problem-solving-oriented sensemaking. By analysing our data from a diverse sample of interviews, we have used the ethical sensemaking lens, with a holistic sustainability logic, to investigate decision makers' motives for investing in RE projects and the way they made sense of their intentions and behaviours. Our research showed that value- and evidence-based motives were embedded in an integrated system, rather than separated in a unidimensional scenario. In this sense, REI could be seen as a conduit for blended-value creation (Alijani & Karyotis, 2019; Emerson, 2003).

Limitations, Future Research, and Implications for Practice

This paper represents an initial enquiry into impact investing in the RE sector, employing an ethical sensemaking approach. There are some limitations in terms of the overall research topic, the methodology, and the levels of analysis.

The inherently interdisciplinary position of EDM meant that the topic of this paper, impact investing and REI, could be accessed from a wide range of disciplines. This posed a challenge for this paper, exacerbated by the lack of clear definitional boundaries of impact investing and the overlapping use of similar terminologies in this field. Further, while impact investing and REI are appealing subjects to both researchers and practitioners, they are ambiguous and emerging concepts, with different and competing conceptualisations. This creates opportunities as well as challenges, as the subject area's interpretive flexibility allows researchers to approach the topics from diverse theoretical and disciplinary bases. One limitation of this research project was

that because of the complex nature of EDM, this project could not cover all aspects of all existing reasons that might influence the ethical sensemaking process.

In terms of methodological limitations, the approach that we took prevents empirical generalisability to other contexts, as according to Lincoln and Guba (2009), generalisation requires freedom from time and context to achieve predictability and control. While generalisation from China to other contexts was not the primary concern of this research project, some theoretical generalisability is possible, as insights into the ethical tensions for impact investors, and their responses to it, are applicable to other cultural and political contexts, even though the exact tensions may differ. Answering the question of the extent to which the Chinese context may be idiosyncratic, and the extent to which these findings can be generalised to other places, would require similar pilot research in other areas.

Our analysis of ethical sensemaking began at an individual level, but the literature on social entrepreneurship and social innovation analyses (e.g. Bacq & Alt, 2018; Beal et al., 2005; Miller et al., 2012; Tracey et al., 2011) has shown that individual actions can catalyse institutional change over time and across contexts. Therefore, future research could investigate ethical sensemaking in impact investing on multiple levels, or the interactions across different levels of analysis. For example, on an *organisational* level, sensemaking is influenced by a flow of organisational circumstances and institutional constraints by which organisational members make sense of their environment (Weick et al., 2005). On a *sector* level, the field of impact investing emerges through ethical sensemaking. On a *macro* level, ethical sensemaking could provide a micro-mechanism to generate new macro-states for national and international policy making in which the small and momentary can become the large and sustained (Weick et al., 2005).

This research has offered some new perspectives on reputation in business research. We found both altruism and egoism in the two concepts that comprised reputational motives. Altruistic motives include placing priority on the overall social benefits, while egoistic motives emphasise personal satisfaction and benefits such as economic return and feelings of accomplishment. Previous literature on reputation in business has been mainly concerned with reputation as

a competitive advantage, or as an input and outcome for corporate social responsibility activities, as well as reputational risk and the resilience to recover from detrimental incidents (e.g. Carlisle & Faulkner, 2005; Koronis & Ponis, 2012; Šontaitė-Petkevičienė, 2015). In the case of impact investing, many investors have been motivated by a sense of accomplishment and the project's importance to them personally, rather than by economic returns; however, this sense of accomplishment and personal importance is still related to egoism. In contrast, our findings showed that establishing a stable image to empower investee organisations and the whole ecosystem of impact investing was more related to altruism. This separation in our data between altruism and egoism in reputational motives could prompt research on business reputation to see the fundamental assumptions differently. We suggest that future research could investigate the link between reputation and ethical sensemaking, to improve our understanding of reputation as an individual or organisational motive with either altruistic or egoistic intentions, or both.

This research did not explore the weightings of the various dimensions of motives. For example, some researchers could perceive value-based motives as the investors being self-righteous or egoistic and discount them accordingly. Future quantitative research could examine the weightings of these mixed motives in an investor's decision-making process. A useful theoretical frame for such an enquiry could be the behavioural reasoning theory (BRT). As a novel theoretical framework, BRT demonstrates the way reasoning influences the relationships between values, attitudes, and intentions (Westaby, 2005). Early research by cognitive psychologists using experimental settings has acknowledged that decision makers construct reasons and arguments to justify their choices, which relates to uncertainty, conflict, context effects, and normative rules (Shafira et al., 1993). BRT proposes that reasons that are easily counter-argued receive lower weighting during the consideration and evaluation process (Westaby et al., 2010). We suggest further exploration in the weighting distributions of these motives, using BRT as the theoretical lens.

In terms of practical implications, our research offers managers and stakeholders a better understanding of RE investors' decision-making processes as being shaped by three modes of ethical sensemaking with both value- and evidence-based motives. Individuals have varied sensemaking abilities (Whiteman & Cooper, 2011). Experienced practitioners with tacit knowledge can engage with situations in an expert form of sensemaking, which is also called 'reflection-in-action' with their practical competence (Schön, 1983; Whiteman & Cooper, 2011). The three modes of ethical sensemaking involve an individual questioning one's reasons and motives in considering both antecedents and future consequences. This relates to the aforementioned

metacognitive reasoning strategies developed by Mumford et al. (2008), specifically to the strategies of anticipating consequences of actions and analysing personal motivations. This provides information about one's emotions and cognitions, leading to the mental model formation and therefore, improving one's coping skills when responding to ethical tensions (Crowley & Gottlieb, 2012). With the pragmatic, retrospective, and forecasting modes of ethical sensemaking, managers can redesign their decision-making systems and enhance their sensemaking abilities to make more informed decisions, and to motivate individual and organisational behaviours that are more sustainable. There are also empirical implications for policymakers by enabling a better understanding of impact investors in order to design policies which avoid issues such as speculation or payment delay, and offer more systematic supports to the development of the RE sector.

Conclusion

This paper has brought together aspects from the EDM literature and ethical sensemaking to enrich the understanding of impact investing in the RE sector. Our findings have shown the ways leaders make sense of their intentions and behaviours while navigating ethical dilemmas. The proposed ethical sensemaking model with pragmatic, retrospective, and forecasting modes demonstrates the way leaders use context-specific reasons to make sense of their value- and evidence-based motives. This paper has addressed a significant gap in the theoretical discussions on ethical sensemaking in the impact investing field with respect to the lack of an integrated framework to clarify and synthesise the multiple means by which leaders make sense of their motives and actions. This paper builds an analytical framework of ethical sensemaking with the three modes serving as the basis for further inquiry in this field. Both value-based and evidence-based motives are integrated into this ethical sensemaking process. Our ethical sensemaking process promotes feasible action, self-reflection on personal motives and cognitions, and anticipating potential consequences, to improve the coping skills that practitioners require to effectively navigate complex ethical tensions. This article seeks to facilitate greater scholarly cohesion and theoretical grounding in the field of impact investing. In turn, this will play an increasing role in supporting the development of impact investing policy and practice, and ideally, maintain its critical and ethical perspectives.

Appendix

See Tables 2 and 3.

Table 2 Dimensions, themes, categories, and data (supplementary to Fig. 2)

Second-order themes and first-order categories	Representative data
<i>Aggregate dimension: prosocial motives</i>	
1. Sustainability	
A. Environmental protection	<p>A1. "All pollution is caused by fossil fuels, whether it is water, atmospheric or soil pollution. So you can only solve the problem of environmental pollution by replacing the fossil energy. The energy market has three elements, heating, electricity generation, and liquid fuel. The heating market alone accounts for 50%, so the heating market is the largest. China's fuel consumption is dominated by coal-burning plants, which is the focus of the problem, so we find a solution to replace coal, and economically close to coal. This solution is economically viable while realising social and environmental benefits" (Chairman of a biomass heating company)</p> <p>A2. "We believe that changing this grim situation of pollution is what our company should do by providing green energy. Sustainability, I think it is continuing and benign development. Sustainable development is a long-term solution, not a short-lived one" (General Manager and Production Director of a listed RE generation company)</p>
B. Carbon emission reduction	<p>B1. "Social benefits are some of the greenhouse gases such as methane we deal with that reduces carbon emissions. Our company's revenues also include carbon trading on the international market, with a large annual income from it" (Engineer of a biogas power generation company)</p> <p>B2. "It is in the market of thermal power from the year of 2000. The market has been squeezed very small by some environmental protection and carbon emission requirements. It is not allowed to build new coal-burning thermal power plant. So we gradually turned to wind power and solar energy" (International Market Development Lead of an SOE, EPC contractor)</p>
2. Social innovation	
C. Stakeholder satisfaction	<p>C1. "So we made an innovation by working with the local county government to make it a poverty alleviation project. Our company provides the equipment such as harvester and baler to farmers for free. The farmers are required to sell the straws to us. The price is preferential. We control the cost of harvesting straw to be lower than normal, so that farmers are satisfied as they do not need to negotiate the price every year. So we effectively establish stability for both sides... so the government is happy too. It solves the problem of biomass environmental pollution, and solves the problem of cooperation between farmers and enterprises... The contract is normally around 20–30 years which creates a win-win situation. Therefore, it has social, environmental and economic benefits" (General Manager of strategic investment and financing department of a listed environmental protection service company)</p> <p>C2. "Take our power station as an example. Hubei has our largest mountain photovoltaic. We have signed long-term employment contract agreements with the villagers in three local villages. Their work including weeding, fire prevention, and flood protection services. Some power stations are agriculture and PV complementary which needs some agricultural support from local personnel. From this point of view, the local people will be united. Some locals may be unemployed in the past, now there is work to do. The locals can now establish their own agricultural company or organise a labour company to do it (General Manager and Production Director of a listed commercial company)</p>
D. Poverty alleviation using RE projects	<p>D1. "The social benefits is more about precise poverty alleviation. Most of the photovoltaic projects we have done are in the desert area from 2015 to 2016. The Chinese government started to work on poverty alleviation using PV in 2017. The government-led programme will install solar panels on people' roofs offering them 3000 rmb rent, which can be seen as the social impact. The electricity is free of charge to meet the farmers' own usage, and the surplus will be sold to the grid. The government will also pay these farmers a certain maintenance fee" (Regional Marketing Director of a listed commercial company)</p> <p>D2. "Commercial company mainly talks about profit, and then when I came to this organisation, they say that they are mainly serving the BoP community. When they make products, the first thing they think is not how much they can make, but how to let BoP community spend the least money to achieve the highest experience... From the original design, we consider the inconvenience of users in the future, what materials can be used for a long time with a very low cost. We have a solar light called candles killer... Other similar products' holder in the market is very high. First, it [the high holder] pollutes the environment during the manufacturing process. Second, the cost is high. The third is that transportation cost is also higher in international trade. We are now using a very short holder. One container can carry 50 lights [during international trade] in the past. Now we can carry 96 lights. Their transportation cost is lowered, because the transportation cost is finally borne by the end users. And then our holder height is reduced, the customer is inconvenient. How to solve this problem? Now we are using recycled water bottles [in the destination country/community]" (CEO Assistant of a social enterprise)</p>

Table 2 (continued)

Second-order themes and first-order categories	Representative data
<i>Aggregate dimension: Personal motives</i>	
3. Individual choices	
E. Personal fulfilment	<p>E1. "We are doing something green, whether it is wind or solar, we are doing good to the environment and the society, including reducing the amount of CO2 emissions. I think it is a very meaningful thing. The sense of meaning and accomplishment brought about by the work that you are doing has surpassed the concept of the so-called financial incentive of a pure financing project" (Financing director of a listed RE company)</p> <p>E2. "In fact, environmental protection is advocated in China as a concept of an industry, hoping to promote the development of the public service with an industry. Therefore, those of us who are engaged in this profession believe that we are creating value for the society in an industry with social welfare nature. We are proud of our work in this field with a sense of accomplishment, and I think it is very valuable" (General Manager of strategic investment and financing department of a listed environmental protection service company)</p>
F. Career transformation	<p>F1. "I used to do ecological management. I have done engineering projects such as the treatment of saline-alkali land in the north and water and soil erosion control in the south. The government is paying to solve environmental problems. To do ecology depends on government support. I can't see the economic benefits. So the ecological community is called the public welfare business which relies on donations. Can we make the public welfare a public interest business? This was my starting point, to combine environmental benefits with economic benefits. Biomass development has these benefits" (Chairman of a commercial company focusing on biomass heating)</p> <p>F2. "I was originally at the sell side, now I am at the buy side. Because from the bank's point of view, it wants to sell its products, now I will look at what kind of service the bank provides, or what kind of structure it provides, and I will decide if this structure is appropriate. So from the perspective of transformation, it is the transformation from the sell side to the buy side. From the perspective of my personal development, I feel that it is a good opportunity that I met such a group of people" (Financing Director of a listed RE company)</p>
<i>Aggregate dimension: Reputational motives</i>	
4. Reputational impact	
G. Identity enhancement in the industry (ecosystem building)	<p>G1. "We are still more likely to consider such an influence in the industry, both our company and the group. We hope to establish such an image of stable investment with a deep understanding of the industry. We hope that after accepting our investment, the investees can rest assured that they will get more social resources, and get more financial resources including our internal resources to achieve better growth. We want companies to recognise us like this, not that we are an institution that can make you profit very quickly. We really want to form such an impact within the industry, including the group, we also hope to have such an identity, and also in front of our investors" (Director of RE investment sector in an asset management SOE)</p> <p>G2. "The main focus of our establishment of the Responsible Cobalt Initiative (RCI) is cobalt, a special metal. Because it is concentrated in Africa and the economy there is relatively backward, so child labour has become an unavoidable problem. We have a lot of concerns in corporate social responsibility, including occupational health, corporate integrity, environmental protection, etc. But because of the special nature of cobalt, its social responsibility mainly focuses on child labour, in order to let the industry chain to solve this problem together, we have actively joined the RCI to carry out some corresponding work, including solving problems together with upstream and downstream enterprises in our industry chain... Of course, we have to face some characteristics of the industry. For example, cobalt has some insurmountable obstacles in the lithium-ion battery industry... As a responsible company, we must use our leading status within this industry to regulate some of the industry regulations, such as social responsibility" (Director of a RE material SOE)</p>
H. Branding and publicity	<p>H1. "In fact, now that our company can do... from the point of brand building, from the point of attracting people's attention, we did a lot of work and effort. This includes the development of the [specially designed] solar panel [array] in cooperation with the United Nations Development Programme by introducing young people to focus on climate change from a young age. [We are also involved] in the seventh goal of the SDG which is sustainable energy" (General Manager and Production Director of a listed RE company)</p> <p>H2. "Nobody knows us in the social enterprise community. No one knows you, no one understands you, how can they support you? You may become more lonely along the journey. I don't want to [keep it that way, so I started to show up more]... Renmin University of China and Chengdu University of Science and Technology are making our company an international case in English. These are intangible advertisements, which means we are promoted without spending money. It is this type of recognition made me regain my strength and go out again. Michael Gordon, who is an influential figure in social innovation has personally come to our company. Including the UN Foundation also came 2 or 3 weeks ago, they came to look at the clean stove to see if there is a chance to cooperate. Last year, ADB also selected us as an energy leader..." (Founder of a social enterprise)</p>

Table 2 (continued)

Second-order themes and first-order categories	Representative data
<i>Aggregate dimension: Economic motives</i>	
5. Industry outlook and potential	
I. RE has a bright future compared with traditional energy which is seen as a sunset industry	<p>I1. "The renewable energy industry is the trend of the country. Coal thermal power is still the main source of electricity in our country, accounting for 70% to 80%. With the improvement of our environmental awareness, especially the words 'Lucid Waters and Lush Mountains Are Invaluable Assets' raised by President Xi, coal-burning thermal power will gradually be phased out. Electricity generation from wind power and solar power is the future direction of the country, and it can be considered from this perspective" (Regional Project Leader of an SOE)</p> <p>I2. "I think that this is a very good market. This market has a lot of potential in the future. There is a big difference between renewable and traditional energy. Because traditional energy is a sunset industry, for renewables, we believe that the future is bright" (Financing Director of a listed RE company)</p>
J. Stage of RE development	
6. Policy- and regulation-led development	<p>J1. "The first stage is concept, the second is the laboratory, and the third is commercialisation. The stage of intervention [support] from us is often the fourth stage when the company has one or two commercialised projects that actually generates cash flow. There was a famous book called "Zero to One". The four stages I mentioned earlier are zero to one. What is really 'one'? It really started to generate project cash flow and makes money (Senior Investment Officer of a development bank)</p> <p>J2. "I used to do strategy in the traditional automobile industry, this is because the EV did not rise at the time. But the strategic planning of the group involved EV, EV was not developing as fast as now. When I was working in 2012, the market for EV has not yet opened. Not until 2014 and 2015, the private market gradually opened up for public consumers. Between 2012 and 2014, it was a demonstration operation stage and has not yet In the true sense of commercialization. It was 2015 that EV went real commercialization in China" (Strategic Manager of an SOE in EV)</p>
K. International trend	
L. Subsidies and quota policies	<p>K1. "The first is that the world attaches great importance to environmental protection and CO2 emissions. In 2016, China signed the Paris Agreement. It is agreed that non-fossil energy will account for 15% by 2020, but the reality is that oil, natural gas, and coal account are the main energy sources in China. It is necessary to develop renewables in order to achieve the goal. This is the main driving force" (Former Director of an SOE)</p> <p>K2. "China is now pushing into the process, and many countries have a commitment to this. For example, Saudi Arabia promises non-fossil fuels to account for 30% by 2030. In fact, all of these are based on a treaty, [the] Paris Agreement, because it has made countries pay attention to the development of renewable energy in the field of power generation and energy. I think it is the foundation of the development of new energy in various countries. With this foundation, we have an overall environment. It is difficult to promote renewables only by relying on enterprises, because the power of the enterprise is too weak, how much strength we have in a company? But when it is aligned with the national strategy, I as a manager will have the space to do development" (Financing Director of a listed RE company)</p> <p>L1. "From 2019 onwards, the whole industry has actually entered a relatively stable situation. The clarity of the policy has been greatly recognised. Previously the policy has been changing almost every several months. It was hard for everyone. So now whether it is a retreat or a withdrawal of subsidies, or the country's affirmation of this industry, and the country's guidance for the future of this industry, all directions are relatively clear. The competition in the market has been better aligned" (Managing Director in renewable projects of an investment fund SOE)</p> <p>L2. "Policy support is very good. I think China must be the world's largest implementation of EV, or else there will be no fraud for the subsidy money. There were financial deceiving schemes in many EV companies to get the country's subsidy money" (Strategic Manager of an SOE in EV)</p>
7. Risk and return	
M. Risk control	<p>M1. "That may be risk aversion, because when we are choosing any projects to invest, we will calculate a return on investment ratio. For renewable energy projects, it requires a large amount of funds. Some investors will go in and we will calculate this ratio after taking account of all kinds of costs from construction to maintenance. Under normal circumstances, we will break event after four to five years." (Director of a commercial company)</p> <p>M2. "We are more inclined to risk aversion. For example, when we need to sign a contract, the draft will be reviewed by the legal department and the finance department. We sometimes just use the templates issued by these two departments, but sometimes they will raise questions again, which demonstrates our risk aversion preference. Moreover, each time a contract is signed, we go through a very strict credit rating evaluation of the customer. We have a lot of bad debts which are caused by the bankruptcies of some companies, which makes us very passive. Therefore, we are more risk averse even if it means that available projects will be less" (Regional Marketing Director of a listed commercial company)</p>

Table 2 (continued)

Second-order themes and first-order categories	Representative data
N. Market-rate return	<p>N1. "In China, our expected economic return of the project is between 8 and 12%, but of course the higher the better. How is this determined? China's financing cost is about 5%, but SMEs' financing cost is generally higher. We tentatively set it around 6.5%. The old banking rules of Western capitalism is that your IR is 1.5 times of your financing cost. So it is very simple to multiply by 1.5, so I hope it is around 9. So 8% is a minimum threshold" (Senior Investment Officer of a development bank)</p> <p>N2. "There are two type of financing in the RE industry. One is the traditional way of financing for central enterprises and SOEs which is mainly bank loan. Bank loan is relatively simple which is the benchmark interest rate or slightly higher. It is for companies with strong credit reporting. For our company, although the shareholders are strong, we have adopted the financial leasing method which includes direct rent and sale-leaseback. This method is also a common way for private enterprises to make such REI. Of course, we also have some project loans, but the most used is actually financing leases. As a listed company, there are some sources of funding from additional issuance... Out entire financing cost is about 8%. There are some private companies with weaker shareholders, and their financing cost is around 10%" (General Manager and Production Director of a listed commercial company)</p>
8. Industry restructuring O. Industry development and transformation	<p>O1. "There are many aspects of the political and economic environment. Firstly, national policy is guiding you. For example, President Xi mentioned 'corner overtaking', because in the leadership's perspective, the traditional car industry has been developing for years and are still not as competitive as the foreign brands. If we work hard on new energy vehicles as early as possible, we might have a good foundation... Let's say it's a corner overtaking strategy" (Strategic Manager of an SOE in EV)</p> <p>O2. "It's still like I said earlier. What the funder values is not the monetary return that the investment can generate, right? So this is what I want to emphasise again. There may be some other aspects of return, but these funds or we call them donors, their intention is not monetary return. They have a lot of other considerations. But in order to transform an industry you just mentioned, institutional investors must enter. Their role is actually leading the way and guiding the direction for the industry transformation" (Officer of an international intergovernmental organisation)</p>
P. Related industry renaissance	<p>P1. "Do you know that the development of the EV market has saved the battery companies? The battery company faced bankruptcy back then. Two businesses in the country have saved it. The first business is the cell phone battery...One is the mobile phone, and the other is EV. Because an EV is loaded with a lot of electricity, the demand for batteries is very big. The battery cost has dropped a lot in recent years as well" (Strategic Manager of an SOE in EV)</p> <p>P2. "Our Group is a mature SOE. The attributes of the company determine that we have more social responsibilities than the average company. Our contribution to the local government's tax income is greater, and we provide local employment, we also support the development of the surrounding industrial chain, which are the things we believe that contributes to the society. In environmental protection, in addition to meeting the hard requirements of the industry and the country, we also act as a core member of the industrialisation of EV, providing lithium-ion battery anode material. In terms of domestic laws and regulations, including society and the environment, it is relatively complete" (Director of a RE material SOE)</p>

Table 3 Details on research participants (sequences are organised by organisational type and interview date)

Position	Organisation type	Education level	Location
Founder and CEO	Social enterprise solar lighting	MBA	Shenzhen
Head of Marketing	State-owned enterprise	Master in metallurgical science and engineering	Xiamen
Local project leader	State-owned enterprise	Bachelor	Central China
Head of International Market Development	State-owned enterprise	BA in International Commerce MBA Tsinghua	Beijing
General Manager of New Energy Investment Department	State-owned enterprise	Bachelor in financial management	Beijing
Financing director	State-owned enterprise	EMBA from CEIBS, Bachelor from Tsinghua Hydraulic and Ocean Engineering	Shanghai
Director of Strategic Planning	State-owned enterprise (mixed ownership reform)	Bachelor's in material processing	Beijing
Director of Global Project & Structured Finance	Commercial company	MBA, MSc in economics and engineering	Shanghai
CEO	Commercial company	PhD	Boston
Chairman, entrepreneur and investor	Commercial company (biomass)	PhD in Peking University (sustainable development research centre)	Beijing
Regional Marketing Director	Commercial company	Bachelor from North China Electric Power University	Shanghai
President	Commercial company (fund management company)	Master's in HK	Guangzhou
General Manager and Director of Operations	Commercial company	Bachelor from North China Electric Power University	Beijing
Business development manager	Commercial company	Bachelor's in Thermal energy and power engineering	Central China
Founder and CEO	Commercial company	Mater	Central China
General Manager of Strategy and Investment	Commercial company	Master (Peking University Environmental Science)	Beijing
Manager in Acquisitions & Project Finance	Commercial company	Master (UK)	Beijing
Government Relations Officer	International organisation	Master	Beijing
Senior Investment Officer	Development bank	Master	Beijing
Deputy General Manager of Green Bank Co-ordination Executive Office	Rural commercial bank for green finance	Master	Shanghai
Vice-President of a sub-branch	Commercial bank	Master	Central China
National Development and Reform Commission / National Energy Administration	Government	Bachelor chemical engineering	Central China
Chairman and Trustee	NGO	PhD	Washington DC
President & Trustee	NGO	PhD	Beijing
Solar Group	Foreign commercial company	Master	Beijing
Senior Consultant	Foreign commercial company (energy and environment consulting company)	Master	UK

Interview Protocol

Project title: Social Impact Components of Renewable Energy Investment

Interview Details

Date:

Time/duration of interview:

Place:

Interviewee name & position:

Associated organisation:

Describe the research project briefly. Reassure participant of confidentiality of responses. Seek permission to direct discussions and make the most of participant's time

Participant Background

1. Please describe your role and responsibilities at your organisation and how long have you worked there?
2. What's your prior professional background and education background?

A Priori Beliefs

3. Could you please tell me your role as a social impact investor and why you chose to invest in renewable energy related projects?
4. Is the term 'ethical' or 'sustainable' investment an expression you use to describe what you offer?
5. Do you see yourself as risk aversion or risk seeking in general?

Perceptions of REI in China (Knowledge)

6. What's the current state of REI in China (general understanding of the REI scenario)?
7. Are there enough policy support and public acceptance?

Decision-Making Process (Reasons and Objectives)

Reasons

8. What is driving you to invest in RE?

Objectives

9. How do you determine the approach you would take to REI?
10. How long do you expect to see such financial returns, social/environmental returns? What's the return dynamics of the project you are seeking?
11. What are the extra-financial criteria (social/environmental impacts) you are seeking?
12. Here is a list of some of the identified social impact of renewable energy projects: *socio-economic regeneration, access to affordable energy, knowledge and skills development, empowerment, increased social acceptance of renewable energy, energy literacy and environmentally benign lifestyles.*

Could you please tell me about your opinion on these items? Do you think they reflect what social impacts are in the renewable energy context or do you have any other items you would like to talk about?

13. How do you make your investment decisions? Are there any criterions you follow? If yes, do you use any traditional investment decision making frameworks in finance such as Expect Net Present Value (NPV) theory or Real Options Theory? And how do you balance the expected financial and social/environmental returns?

Institutional Influence

14. Within your organisation, how do you make investment decision collectively? How does your organisation influence your REI decisions?
15. Do you follow some kind of 'best practice' organisation in the field?

Stakeholder Interaction

16. How do you manage stakeholder relationships? Who are the major parties that influence your investment decision? What's your interaction and dynamics with stakeholders?

Investment Portfolio

17. What does your investment portfolio look like? (Do you invest in other types of projects or organisation? If only in RE, In terms of different types of RE, technology stage)

Looking Forward

18. What issues will emerge that will impact REI?
19. What needs to change for REI?

Other Information

20. Is there anything else you would like to add?
21. And finally, is there any documents or portfolio information might add to what we have just discussed? Is it possible to get a copy?

Thank individual for participation

Please note that the exact questions will be slightly different based on each participant's profile. This list only includes some main topics that are applicable to all participants

Approved by the University of Auckland Human Participants Ethics Committee on 15th February 2019 for three years. Reference Number 022479

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Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Ethical Approval This study is approved by the University of Auckland Human Participants Ethics Committee on 15th February 2019 for 3 years with reference number 022479.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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