

Climate change-related regulatory disturbances and the accounting profession: longitudinal evidence from Australia

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Abstract

Purpose – This study aims to examine how climate change regulatory disturbances shape the settlement between accountants and potentially competing professionals engaged in managing climate risks. Using an Abbott-Actor-Network Theory lens, the authors theorise regulation as an actant boundary object that mediates professional boundaries.

Design/methodology/approach – This study analyse 54 interviews (2012–2018) with senior managers responsible for emissions risk management from 15 large Australian high emitters across three policy eras (National Greenhouse Gas Energy Reporting Act 2007 (NGERAct) reporting, carbon pricing and the post carbon tax repeal/TCFD period) to trace problematisation, intersement, enrolment and provisional settlement at the workplace level.

Findings – The NGER Act standardised calculability and assurance of emissions data, enrolling accountants around controls and external reporting while engineers dominated technical measurement and target setting. The carbon tax re problematised climate issues in pecuniary terms, extending accountants' roles into valuation, cost modelling and month end routines alongside those of engineers. In the post-carbon tax period, climate risk was reframed in financial risk and stability terms. The outcome is a cooperative but asymmetric settlement: accountants secure practical jurisdiction over controls, valuation and disclosure, applied science professionals retain cognitive control over targets and scenarios.

Practical implications – For professional bodies, claims of broad climate leadership require interdisciplinary upskilling (particularly focused on measurement, uncertainty and long horizon planning) and strategies that build cross professional networks for competencies beyond mere disclosure. For firms and regulators, standardised risk-oriented disclosure sustains collaboration, but does not by itself transfer technical cognition away from engineering or other applied sciences.

Originality/value – This study shows how regulation functions as a boundary object device that orchestrates collaboration and why it remains bounded, thereby qualifying prior explanations that emphasise reluctance or



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organisational barriers by specifying the material and epistemic constraints that calculative infrastructures embed.

Keywords Climate risk, Accountants, Professionalisation, Actor-network theory, Boundary objects, Carbon pricing, Climate change-related regulation, NGER, TCFD/ISSB

Paper type Research paper

1. Introduction

Organisations are increasingly adapting their enterprise risk management (ERM) processes to encompass climate concerns (Subramaniam *et al.*, 2015; Bui and De Villiers, 2017; WBCSD, 2017). The tasks associated with climate-related risks are wide-ranging, including researching and developing means for mitigating and abating emissions, ensuring regulatory compliance, setting targets, monitoring progress, forecasting and managing carbon pricing and accounting. This new organisational work has created the conditions for potential interprofessional competition for jurisdiction over the new tasks (Abbott, 1988). According to Abbott's (1988) processual theory of how and why professions evolve (*The System of Professions*), this competition will likely lead to a new yet provisional configuration of professional boundaries (what Abbott terms a "settlement"). However, whereas Abbott conceives settlements as arising from conflictual professional contests, Walker (2004) highlights how they might instead have resulted from collaborative negotiations and interdependencies, often resisting neat jurisdictional closure.

In this study, we seek *first* to determine how settlement is achieved between accounting and other corporate professionals regarding the work involved in managing climate change risks and evolving regulatory pressures, and *second*, to ascertain what role, climate-related regulatory interventions may have played in this outcome. The many potential claimants to this work include environmental scientists, engineers, lawyers, consultants and accountants – each with varying degrees of collective power and influence. However, relatively little is known about the nature of any workplace "settlement" between these professionals.

Favourable workplace settlements are typically a profession's initial bridgehead to wider sanction through public and legislative arenas and the accounting profession recognises a significant role for its members in activities related to climate change risk management (CCRM) (ACCA, 2009, 2021; CIMA, 2010). Empirical evidence regarding accountants' involvement in such activities is limited. However, with respect to broader sustainability-related work, evidence suggests accountants' roles in the workplace fall short of the level envisaged for them by the profession (Ascani *et al.*, 2021; CIMA, 2010; Egan and Tweedie, 2018; Kunz *et al.*, 2025; Schaltegger and Zvezdov, 2015; Williams, 2015; Wenzig *et al.*, 2023). More specifically, for management accountants, challenges to their involvement include knowledge deficits, reluctance to go beyond "collecting the numbers" (professional habitus) and conflicting institutional logics (e.g. the "logic of information provision" and the "logic of capital markets") (Ascani *et al.*, 2021; Egan and Tweedie, 2018; Kunz *et al.*, 2025).

Echoing these findings, early research on management accountants' involvement in CCRM suggests modest participation (Kumarasiri and Jubb, 2016; Subramaniam *et al.*, 2015). Highlighting management accountants' potential contributions, however, Molinari *et al.* (2025) find evidence of management accountants adopting hybrid roles and actively working cross-functionally to facilitate the embedding of climate and energy goals into the corporate reporting systems of a single case firm that had voluntarily and publicly committed to climate-related goals. What remains underexplored is the process through which professional roles may be reconfigured in response to regulatory pressures and how material infrastructures mediate these transformations. We seek to address this gap by examining how

regulatory initiatives shaped the jurisdictional boundaries between accountants and other professionals across three significant eras of climate-related policy in Australia.

Advancing the position of accounting in this field is challenging. First, since no profession has secured jurisdictional control over CCRM in the legislative arena, accountants must persuade local management of their relevant competencies in independent workplaces. Secondly, management accountants have less power and prestige than more elite segments (Burns and Haga, 1977; Richardson, 1987; Arena and Jeppesen, 2010). Finally, successful jurisdictional claims are founded on the effective extension of the profession's abstract body of knowledge to new task areas (Abbott, 1988). The more tenuous the link between the former and the latter, the more difficult it is to convince others of the legitimacy of the claims and secure a propitious settlement (Abbott, 1988; Channuntapipat *et al.*, 2020; Gendron and Barrett, 2004; Power, 1997, 2009). Past research has shown that when accountants attempt to extend their expertise into new domains (e.g. web assurance), they must build networks of support and align diverse interests. Insight from actor-network theory (ANT)-informed studies (e.g. Gendron and Barrett, 2004) suggests that the success of such jurisdictional claims depends on enrolling both human and non-human allies – a perspective we adopt here in examining climate risk work. Based on the preceding challenges, we anticipate in this study that, rather than a classic zero-sum takeover, a form of shared or negotiated jurisdiction may emerge at the workplace level, facilitated by certain regulatory actants. This aligns with recent observations that professions can form alliances or hybrid roles in response to sustainability challenges (Canning *et al.*, 2019).

In exploring *how* any settlement has come about, we consider the role of climate-related regulatory interventions. We extend the work of Lantto (2022) on boundary spanning by viewing climate legislation as a boundary object actant. We examine how regulatory interventions may function as both system disturbances and boundary objects in creating new tasks and facilitating collaborative work among workplace professionals.

We conducted three rounds of interviews with senior managers involved in carbon emissions management at Australia's largest companies during successive climate change regulatory disturbances. A workplace micro-level focus is essential to "fully specify and explain the processes by which occupational boundaries move and are shaped" (Bechky, 2003, p. 721). The first interviews were conducted in 2013 during Australia's carbon pricing period, the second after the repeal of that tax and its replacement by the Emission Reduction Fund (ERF) and the third after the publication of the Task Force on Climate-related Financial Disclosures (TCFD) final recommendations (Task Force on Climate-related Financial Disclosures, 2017). [1] Australia's heavy dependence on extractive and carbon-intensive industries, high per capita emissions and historical churn in climate-related policies make it an ideal setting for this research.

Our study contributes to understanding the alteration and expansion of professions, including their growth and "hybridisation" with other fields through a process of interaction and the formation of alliances among "competing" experts (Canning *et al.*, 2019). We find that climate change regulatory instruments co-create new professional landscapes in workplaces, actively influencing professions rather than merely being reacted to. The carbon tax and reporting under the *National Greenhouse and Energy Reporting Act* 2007 (NGER) Act were boundary object actants that actively engaged with professional groups to co-create changes in jurisdiction over workplace tasks, including the expansion of accounting professionals' roles in sustainability-related issues despite their initial hesitance and scepticism of their technical capacities by others. We demonstrate that by granting agency to external disturbances, we can extend the degree to which Abbott's (1988) theory explains *how* such disturbances have effects.

Our findings suggest that professional accounting bodies' ability to transform and colonise new spaces is neither unproblematic nor unavoidable, furthering the literature examining jurisdictional expansion in other accounting contexts (e.g. [Andon et al., 2015](#); [Greenwood et al., 2002](#); [Suddaby and Greenwood, 2001](#)). In terms of [Abbott's \(1988\)](#) theorised available settlements, our findings suggest a dominant applied-science-related profession in climate change that retains cognitive control while sharing practical jurisdiction with accounting and finance-related professionals, together with engineering and legal professionals.

In what follows, we build the theoretical foundation for our analysis, first summarising [Abbott's \(1988\)](#) theory on professionalisation and then introducing ANT and boundary object concepts as a lens through which to examine interprofessional dynamics. Section 3 develops the study's research questions after having considered the extant literature and the CCRM tasks subject to professional claims. Section 4 provides a brief review of the research context, while Section 5 outlines the research method. Section 6 presents the findings and discussion. The final section offers conclusions.

2. Theoretical foundation

In this section, we outline the theoretical foundation that informs our analysis. Establishing the theoretical lens at the outset assists in clarifying the conceptual categories and interpretive frame through which we later engage with the domain literature and empirical material. In this section, we first overview [Abbott's System of Professions](#) before introducing both ANT and boundary objects. We conclude the section by first conceptualising climate regulation as agentic boundary objects that actively mediate professional roles and collaboration, before presenting our framework for analysing the jurisdictional dynamics of the research setting.

2.1 *Abbott's system of professions*

[Abbott \(1988, p. 8\)](#) characterises professions as “exclusive occupational groups applying somewhat abstract knowledge to” specific tasks, over which it has jurisdiction. A profession's abstract (academic) knowledge base is central to legitimising claims for the exclusive rights over tasks as only such a system “can redefine its problems and tasks, defend them from interlopers and seize new problems” ([Abbott, 1988, p. 9](#)). These exclusive rights can manifest as monopoly of practice, licencing, compliance monitoring and self-discipline. To have received these rights, however, professions must typically have first made claims in three arenas: the workplace, the public and the legal system. “Disturbances” to the system of professions trigger interprofessional competition for jurisdiction over tasks and may be initiated internally or by exogenous events, including changes in the social environment. [Abbott \(1988, p. 228\)](#) notes, for example, the impact of information technology on accounting. Some disturbances occur over time, such as changing social values (e.g. climate-related concerns), while others (e.g. legislative changes) can have immediate and profound impacts ([Abbott, 1988, p. 343](#)).

Ultimately, jurisdiction disputes result in a temporary stabilisation of jurisdiction, what [Abbott](#) refers to as “settlement”. Importantly, settlement is not synonymous with a single “winner” whereby one profession gains control over others (full control). [Abbott](#) identifies several other recognisable forms, including where one profession subordinates another, a dominant profession retains cognitive control while sharing practical jurisdiction, jurisdiction is split or one profession maintains advisory control over certain aspects of work. Renegotiation of settlements unfold on different time scales (typically years in workplaces and decades in public and legal arenas), so any settlement should be treated as provisional

rather than final (Abbott, 1988; Edwards *et al.*, 2007; Walker, 2004). Empirical work in accounting and adjacent fields underscores that many real-world outcomes are partial, hybrid and “fuzzy”, resisting neat classification. Walker’s (2004) historical analysis of insolvency practice, for example, shows drawn contests in which jurisdictional boundaries remained obscure despite episodes of legal and organisational adjustment – a reminder that “balance” is often difficult to achieve and sustain. In summary, “settlement” denotes a contingent, arena-specific configuration that is often maintained through everyday workplace arrangements and remains open to subsequent disturbance and renegotiation.

While not devoid of criticism, [2] Abbott’s theory has proven to be a useful framework in accounting research, including demonstrating how disturbances, such as regulatory changes, create jurisdictional contests between accountants and other experts. [3] Our study seeks to extend the insights offered by Abbott’s (1988) framework by adopting ANT as a methodological lens to analyse *how* non-human actors (actants) can actively shape professional boundaries (Lukka and Vinnari, 2014). More specifically, we attribute agency to climate change mitigation legislation in Australia (system disturbances) to examine how it may function as a mediating boundary object actant within networks that co-create change in jurisdictions by influencing and aligning professional actors in corporate workplaces. With this focus, we can move beyond viewing exogenous disturbances as merely passive backdrops to jurisdictional conflicts.

2.2 Actor-network theory

The concepts of actor and actant interactions stem from ANT, which examines how human actors and non-human actants form shifting networks of relationships through their ongoing interactions (Callon, 1986; Latour, 2005; Caria and Gomes, 2022). [4] In the context of CCRM, for instance, accountants in the workplace operate within a network that encompasses, among other things, sustainability experts, engineers, lawyers, regulators, regulations and professional bodies. Outcomes from networks emerge from the complex interplay between various actors and actants, with no particular outcome (e.g. type of settlement) presupposed. ANT emphasises the symmetry of humans and non-humans in networks. Latour (2005, p. 71) stresses that ANT pluralises agency beyond humans, asking “[d]oes [an entity] make a difference in the course of some other agent’s action or not?” (Sayes, 2014). That is, do they effect meaningful change in the network of interactions rather than merely being intermediaries? (Sayes, 2014).

Our use of ANT highlights the role of climate-related regulatory instruments in catalysing professional change due to their mediating function among diverse and previously disconnected actors. Our granting of agency to climate-related regulatory instruments is supported by Contesse *et al.* (2021), who assert that inadequate attention has been paid to the agency of non-human actors in research aimed at understanding the underlying processes that mediate sustainability transition contexts.

We draw upon ANT’s key concepts of *problematization*, *interessement*, *enrolment* and *translation*. As described by Callon (1986), in the *problematization* stage, a focal actor defines a problem and positions itself as indispensable in resolving it. During this stage, the actor establishes an “obligatory passage point,” that frames the issue in a manner encouraging the involvement of other actors to reach a common resolution through the obligatory passage point. For example, while various governments and policymakers may problematise climate change by using regulatory instruments as obligatory passage points, the accounting profession might position accountants as obligatory passage points in an effort to claim jurisdictional control over CCRM. *Interessement* is referred to as “the group of actions by which an entity [...] attempts to impose and stabilise the identity of the other

actors it defines through its problematization” (Callon, 1986, pp. 207–208). To ensure effective *interessement*, upholding the integrity of all actors’ interests within the network is crucial (Star and Griesemer, 1989; Callon, 1986). If *interessement* is successful, *enrolment* can be achieved. Callon describes *enrolment* as “[...] the group of multilateral negotiations, trials of strength and tricks that accompany the *interessements* and enable them to succeed” (Callon, 1986, p. 211). Finally, the process by which the network is transformed is referred to as *translation*. In the context of our study, a profession that successfully translates the issue of CCRM in its favour can attain a dominant position of control, including jurisdictional control.

2.3 Boundary objects

Our workplace focus highlights task area boundaries, which are a central problem in the system of professions. Boundaries between communities of practice or knowledge may inhibit communication and knowledge transfer within organisations. Boundary objects, however, transcend boundaries and facilitate shared meaning and appreciation of others’ perspectives (Fox, 2011). Boundary objects “can be representations, abstractions or metaphors that have the power to ‘speak’ to different communities of practice” (Fox, 2011, p. 72). Importantly, they are “something people act towards *and* with”, and their “materiality derives from *action* [...]” (Star, 2010, p. 603, emphasis added). Star and Griesemer (1989, p. 393) suggest that boundary objects “are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity across sites.” A boundary object can take centre stage or drift into the background at different times (Nicolini *et al.*, 2012) and may also function as an obligatory passage point (Star and Griesemer, 1989). In summary, boundary objects can be seen as actant mediators that help secure the *interessement* of diverse actors. In our study, we argue that Australia’s emissions-related regulatory instruments enacted during the first two decades of the 21st century function as boundary objects and through that role, their agency is largely enacted.

Prior research has considered the role boundary objects play in settlements arising in interdisciplinary work settings (Bechky, 2003), including accounting (Lantto, 2022). Several researchers have highlighted the potential for boundary objects with agency (Guston, 1999; Fleischmann, 2006). In an accounting setting, Briers and Chua (2001) demonstrate how boundary objects can stabilise and mediate diverse interests within a network.

2.4 Regulatory instruments as actant boundary objects

From the viewpoint of ANT, legislation is not merely a legal or regulatory instrument. Rather, it functions as a mediator – a transformative actor – shared across multiple intersecting networks. Regulatory instruments are generally represented in both physical form (such as written statutes and legal agreements) and as conceptual representations of public policy (Cavanagh, 2018). Climate-related regulatory instruments, such as Australia’s NGER Act and *Clean Energy Act* (2011), reflect abstract public policy goals and commitments related to reducing greenhouse gas emissions through mechanisms that ensure accountability and incentivise mitigation. There is an implicit intergenerational morality embedded in such public policy goals given the potential consequences of climate change for Earth if emissions are not constrained (see, for instance, Smith (2013)). These instruments promote stewardship, accountability and mitigation within local workplaces. Their enduring and generally coercive nature facilitates enactment through continuous performance of the networks they bring into being. However, the inherent tension between acting to reduce emissions for the long-term health of the global environment and the shorter-term costs to businesses and individuals within specific jurisdictions is omnipresent. By forcing a

confrontation with this trade-off, these instruments – especially the carbon tax – also embed an implicit ethical overlay that confronts the professions involved in complying with them, whether through greater transparency via disclosure (NGER Act) or a financial impost (carbon tax) on a harmful-to-the-planet externality that would otherwise be costless.

As boundary objects, such instruments standardise how emissions are measured, reported and traded. [5] This can lead to common understanding (and language) among otherwise remote and disconnected professional actors within workplaces, facilitating task negotiation and collaboration. However, to ensure adoption and ongoing adherence, regulatory instruments must remain sufficiently flexible to allow local tailoring across diverse industry sectors and organisational settings. Thus, local (workplace) decisions can be made on issues such as how information and reporting systems need to be adapted. Once determined and acted upon, solutions become strongly structured in individual workplaces. Notwithstanding this, the interpretive flexibility of regulatory instruments is maintained across professional boundaries.

2.5 Synthesising abbott, ANT and boundary objects: a framework for analysing jurisdictional dynamics

This study combines [Abbott's \(1988\)](#) theory of the system of professions with ANT to examine how climate-related regulation influences the jurisdictional positioning of accountants in workplaces. Abbott's framework enables us to conceptualise how external disturbances affect professional settlements, while ANT provides tools to trace the material and discursive translations that mediate these effects.

Abbott focuses on how professions defend and expand their jurisdictions by responding to disturbances, such as policy reform or new technologies, that challenge existing role boundaries. We use ANT to enable us to move beyond viewing such disturbances as simply passive exogenous shocks. ANT complements Abbott's theory by treating external disturbances not as passive events but as actants that actively mediate change ([Latour, 2005](#); [Sayes, 2014](#)). Through processes of translation, enrolment and alignment ([Callon, 1986](#)), actors and actants co-construct new relational configurations. In other words, we use [Abbott's \(1988\)](#) framework to provide the problem structure, while ANT provides the analytical method with which to delve into that problem. The concept of boundary objects links the two since they are external forces in Abbott's sense and mediating actants in ANT terms. We use this framework to explore how hybrid arrangements between accountants, engineers and sustainability experts are forged, contested and reconfigured.

3. Research questions

In this section, we first situate our study in the context of the existing literature before considering the nature of work that is brought into being, or affected by, climate-related regulatory interventions that could conceivably be contested by the accounting profession. Next, we consider the factors likely to influence the successful outcome of jurisdictional claims over these tasks. Finally, we outline the paper's research questions.

Despite considerable participation by management accountants in sustainability management, generally ([Gibassier et al., 2018](#); [Gray et al., 1993](#); [IFAC, 2016](#); [Schaltegger and Zvezdov, 2015](#)), empirical evidence reveals a persistent gap between expectations and workplace realities. [Ascani et al.'s \(2021, p. 17\)](#) review of the "limited" and "fragmented" literature suggests that management accountants' involvement in sustainability accounting and reporting remains lower than that of non-accountants. Furthermore, [Schaltegger and Zvezdov \(2015, p. 350\)](#) find that when involved, management accountants tend to "act as gatekeepers and as method experts shaping indicators". While gatekeeping "can be seen as a

possibility to exercise power” it may also encompass a “brokerage role”, whereby information is constructively transformed and transported between functional specialists, departments and top management, in such a way that facilitate “the uptake of sustainability issues and bring the importance of sustainability performance to the immediate attention of senior management” (p. 339).

Obstacles to greater accountant engagement include the lack of organisational resources (particularly time) and existing mindsets (Egan and Tweedie, 2018), lack of psychological ownership (Kurki and Järvenpää, 2024) and high degree of specialisation in traditional accounting tasks, combined with a tendency to view sustainability as peripheral to the core business, which creates self-reinforcing barriers to deeper involvement. These professional norms and routines can “lock” accountants into a limited scope of action, inhibiting the kind of double-loop learning and transformative thinking that broader sustainability work often requires for genuine integration (Wenzig *et al.*, 2023). In addition, Kunz *et al.* (2025) find resistance among sustainability staff to financial controllers’ involvement in driving sustainability initiatives due to the latter’s association with traditional financial logic.

The role of accountants in the more specific area of CCRM, has received significantly less research interest despite its growing importance to managing risk and calls for action from accounting professional bodies (Tysiac, 2020). We interpret climate risk management activities broadly. They include such activities as climate risk identification, researching, developing and implementing means for mitigating and abating emissions, regulatory compliance, target-setting, monitoring, forecasting, performance evaluation, carbon pricing and accounting, responding to institutional and activist pressure and internal and external reporting. Accountants struggle to carve out a substantive niche in these areas (Bui and De Villiers, 2017; Kumarasiri and Jubb, 2016; Subramaniam *et al.*, 2015); a view echoed by professional bodies (CIMA, 2010; ACCA, 2021). Research also suggests that accountants have little awareness of key climate-related multilateral institutions (Garayar *et al.*, 2016). Molinari *et al.* (2025), however, demonstrate that management accountants have the capacity to expand their competencies and move beyond traditional roles in addressing the exigencies of climate change. In their longitudinal study, accountants were seen to engage in hybrid roles and collaborate across disciplinary boundaries to facilitate the embedding of climate and energy goals into corporate reporting systems. Although the study is somewhat context specific, [6] it underscores the potential for (and perhaps, need for) cooperative arrangements between accounting and other professions when responding to climate- and energy-related challenges. This circumstance aligns with our interest in examining how professional settlements emerge in CCRM, with our study extending this inquiry to a contested, regulatory-driven setting in Australia.

The process of organisational climate change adaptation is complex and continuous, necessitating the “synthesis and integration of a range of different approaches, methods, tools and stakeholder engagement” (Bowyer *et al.*, 2014, p. 13). Regulatory interventions further complicate this process. The integration of climate-related risk frameworks and disclosures into existing corporate ERM processes is seen by many organisations as a rational approach to dealing with these issues (Bowyer *et al.*, 2014; Force on Climate-related Financial Disclosures, 2017; WBCSD, 2017; IFRS Foundation, 2023).

In problematising CCRM, the accounting profession sees significant opportunities for its members (CIMA, 2010; CGMA, 2014; ACCA, 2021). The International Federation of Accountants (IFAC) and various national professional accounting bodies have shifted their focus from disclosure and assurance issues to the skills accountants need to seize these opportunities (e.g. IFAC, 2021, 2024). The Chartered Institute of Management Accountants (CIMA, 2010, p. 3) claims that “management accountants are well-versed in risk

management and have the skills and techniques to support long-term strategic decision-making”, arguing that they provide useful tools and techniques, such as:

- cost-benefit analysis/profitability forecasting;
- investment appraisal;
- environmental cost accounting;
- the balanced scorecard;
- whole life costing/life cycle assessment;
- activity-based costing; and
- transfer pricing (CIMA, 2010, p. 11).

CIMA suggests that accountants might usefully be involved in the following CCRM-related activities (CIMA, 2010, pp. 11–14):

- Carbon footprint calculation;
- Tracking climate change performance measures/KPIs/benchmarking/target setting;
- Sustainability reporting (internal and external);
- Integration of financial and climate change management information systems;
- Carbon accounting/budgeting/management;
- Monitoring compliances with climate change policy and regulation;
- Preparing the business case for climate change initiatives;
- Investment appraisal;
- Business forecasting and planning (including sophisticated forecasts, scenario planning, modelling of uncertainty, financial and cash-flow planning);
- Whole costing/Life cycle assessment calculations;
- Value-based management; and
- Change management.

The professional logics underpinning these activities (e.g. risk management, costing, budgeting, recording, monitoring, applying calculative practices in appraising and forecasting and developing business cases) are closely associated with professional accountancy. CIMA goes further, however, in seeing chief financial officers (CFOs) or finance directors chairing sustainability committees – something Abbott (1988) would characterise as an attempt to subordinate competing professions. Notwithstanding this, accountants have traditionally participated in risk management and influenced the development of the organisational meaning of ERM processes (Arenas *et al.*, 2010). Further, managerial and financial accounting can facilitate a better understanding of how climate change impacts value-creating activities (Linnenluecke *et al.*, 2015). Without straying too far from their core knowledge and competencies, accountants could conceivably also have roles in “(i) assessing climate risks and adaptive capacity, (ii) valuing adaptation costs and benefits and (iii) climate disclosure” (p. 610), but they need to move beyond their traditional “focus on short-term outcomes and the management of short-term costing, reporting and disclosure” (p. 608) to consider longer-term climate risks.

We now turn to the factors likely to affect the success of the accounting profession in attaining its jurisdiction claims. According to Gendron and Barrett (2004), much depends on the ability to construct stable and solid networks of support around claims to expertise. From

the profession's perspective, enrolling essential actors, such as management accountants and other workplace professionals, may be difficult because the profession has "limited" "control over what others [do] with the claim. The fate of a knowledge claim is indeed in others' hands and, once the claim is disseminated, it may be ignored, accepted, transformed, or contested (Latour, 1986)", (Gendron and Barrett, 2004, p. 572).

Aside from issuing public reports (e.g. CIMA, 2010; CGMA, 2014; ACCA, 2021), a notable problematisation strategy of the accounting profession has been the active promotion of its own ERM framework as indispensable for managing climate risks within organisations. The accounting-related Committee of Sponsoring Organizations of the Treadway Committee (COSO) has worked with the World Business Council for Social Development (WBCSD) to develop guidance on integrating environmental, social and governance issues into the COSO-based ERM framework (World Business Council for Sustainable Development, 2018). [7] From Abbott's (1988) perspective, this is consistent with the attempt to "enclose" the work area through the imposition of a version of ERM based on its own "conceptual building blocks" (Power, 2009).

Successful jurisdiction claims also require the demonstration of "efficacious treatments" (Abbott, 1988). Management accountants have been involved in many functions noted by CIMA, but their ability to adapt tools and techniques to the unique context of climate risk is uncertain. Accountants are not accustomed to working with long-term forecasts and high uncertainty (Linnenluecke *et al.*, 2015), which makes their success in controlling climate-related work tasks unclear. Furthermore, the work of management accountants is not legally protected, as it is for external auditors, and it is theoretically contestable by other workplace professionals. Compounding these concerns is the volume of new work brought about by climate-related regulatory interventions. As Abbott (1988) warns, the boundaries between professional jurisdictions can disappear in overworked worksites.

In summary, climate change has led to increased work within organisations and created conditions for accountants and other professionals to compete for jurisdiction over CCRM-related tasks. However, it is unclear what, if any, settlement has been reached. While it is evident that professional bodies are actively promoting accountants' involvement, whether management accountants themselves are interested in engaging in this new work remains an empirical question.

Based on the preceding discussion, we propose the following research questions:

- RQ1. How is settlement achieved between accounting professionals and other corporate actors in managing climate change risks and evolving regulatory pressures?
- RQ2. What role(s) do climate-related regulatory disturbances play in achieving that settlement?

We address these questions and consider the implications of our findings for any future strategies that the accounting profession may use in advancing its claims across various arenas.

4. Regulatory disturbances and the research context

Australia's climate policy landscape from 2007 to 2018 was turbulent – an ideal "natural experiment" for observing professional responses. There was a rapid sequence of events: the introduction of annual mandatory emissions reporting to government that manifests later as public reporting, a short-lived carbon pricing scheme that fell due to its repeal and replacement with a voluntary mechanism (ERF) and then growing international pressure through frameworks like TCFD. This shifting context allows us to observe whether the

nature of collaborative practices persisted or faded under changing incentives. Australia is a high per capita greenhouse gas producer due to its heavy reliance on coal for energy. [8] The NGER Act mandates that companies meeting certain emissions thresholds register and accurately disclose carbon emissions (Olson, 2010) to the government, which vicariously flows to the public through the Department of Climate Change. [9] This mandatory reporting influences large, high-emitting companies to set targets, measure their emissions (Lodhia and Martin, 2011) and obtain external assurance of emissions data (Simnett and Nugent, 2007).

The *Clean Energy Act 2011* introduced a “Carbon Tax” effective 1 July 2012 for “liable entities”, initially set at AUD\$23 per tonne of carbon (Kumarasiri and Gunasekarage, 2017) to incentivise emissions control through financial penalties and encourage the adoption of clean energy technology. Despite evidence that it reduced emissions (Department of the Environment, 2014), the tax was repealed in 2014 following a change in government. The repeal may have alleviated direct pressure to reduce emissions, but external stakeholder pressure increased (Dumay and Hossain, 2019; O’Dwyer and Unerman, 2020), given, for instance, Australia’s signing of the 2015 Paris Agreement. The ERF was established in 2015, involved voluntary participation and provided funding for businesses, communities and landholders to initiate new environmental practices aimed at reducing emissions. The ERF failed to attract high-emitting companies, and policy uncertainties along with low commercial incentives for participation resulted in sustained criticism of it (e.g. Baxter, 2019). Finally, by 2018, the *Force on Climate-related Financial Disclosures* (2017) framework became prominent and regulatory speeches reminded report preparers of accounting standards requiring the disclosure of material financial risks, including climate-related risks.

Table 1 summarises the main legislative and framework components of our study.

5. The sample, data and research approach

Given the dearth of research on the role of management accountants *vis-à-vis* other professionals within CCRM, a qualitative exploratory approach was considered appropriate using semi-structured interviews. The data collection method involved three rounds of semi-structured interviews (with 15 unique companies, and a total of 54 interviews) with managers directly involved in carbon emissions management for Australia’s largest listed companies. We intended to interview accounting and other professionals directly involved in CCRM activities. However, our sample consists of more non-accounting professionals than accounting professionals, which is consistent with later interview evidence indicating accountants’ more peripheral role in operational emissions work in 2013–2016, with increased engagement around risk reporting by 2018 (see Sections 6.1–6.3).

The first interviews, conducted from December 2012 to June 2013, took place during the carbon tax period, the second round from January to April 2016 occurred after its repeal and the introduction of the ERF, and the final round was held between March and June 2018, following the issuance of the TCFD framework. By comparing interview insights from 2013 (during the carbon tax) with those from 2016 (after repeal) and 2018 (amid TCFD influence), we could discern which changes in professional roles were transient responses to regulation and which became embedded practices. Open-ended questions allowed participants to elaborate on aspects and enabled the first-named researcher to prompt and probe based on the answers provided (Qu and Dumay, 2011). Following Bryman and Bell (2011), the interview questions (see Appendix 1) covered relevant areas, and the language used was both comprehensible and appropriate.

Sample companies represent high or medium carbon-intensive sectors in Materials (M), Industrials (I), Energy (E), Utilities (U), Consumer Staples (CS), Communication Services

Table 1. Summary of legislation/framework and interview timeframes

Framework	NGER act	Carbon tax	Emissions reduction fund	TCFD
Operational Interviews Status	2007 onwards 0 Mandatory for large emitters meeting specified thresholds Disclosure to government Information symmetry	1 July 2012–30 June 2014 Dec 2012–June 2013 Mandatory for certain large emitters subject to NGER act Financial penalty for emissions Punitive	1 July 2015 Jan–April 2016 Voluntary Reverse auction Corporate conscience	Available from 1 July 2017 March–June 2018 Voluntary but encouraged by ASIC and APRA Disclosure to stakeholders Information symmetry

(ComS) and Information Technology (IT) under the Global Industry Classification Standard (GICS). Of the 15 participating companies, seven were involved in all three interview rounds. [Appendix 2 Table A1](#) provides detailed demographic information about the interviewees. Each interviewee is assigned an identification code based on (i) company number (1–15); (ii) the assigned interview number within each company; (iii) industry sector, (iv) professional qualifications [i.e. engineer (E), sustainability (S) or accounting (A)]; and (v) year of the interview. For example, for a Co.1 interviewee, the first from Co.1, an engineer in a utility company interviewed in 2013, the identification code would be [Co.1(1,E,U,2013)].

All companies except two consented to digital audio recording. Notes were taken during interviews, especially during the two unrecorded ones. Interviews were recorded and transcribed *verbatim*. The interviews averaged 40 min, ranging from 30 to 50 min and no interviewees requested changes to the transcripts after reviewing them.

We conducted a thematic analysis of the interview data using NVivo 13 as this approach enabled systematic identification of patterns across our three-phase interview data while maintaining sensitivity to the theoretical frameworks used in the study. Thematic analysis allowed for the integration of multiple theoretical perspectives (Abbott and ANT) while remaining flexible enough to capture unexpected themes that emerged from our three-phase data collection. While ANT-informed studies often use ethnographic methods to trace actor-networks in real-time, our interview-based approach enabled us to capture participants' retrospective accounts of network formation and boundary object deployment across different regulatory periods – something that would have been difficult to achieve through observation alone given the temporal scope of our study. We coded themes based on the research questions, [Abbott's \(1988\)](#) theoretical perspective and with attention to both human and non-human actors. In line with ANT, we looked for instances where regulatory instruments were mentioned as influencing actions or relationships.

We also traced the network of relationships – for example, how accountants interacted with other professionals, and what objects (e.g. carbon data systems) mediated these interactions. We interpreted our data through Callon's translation framework, identifying evidence of problematisation, interessement and enrolment while remaining cognisant of an important methodological limitation: our analysis is based on participants' accounts of interactions and network relationships rather than direct observation of these processes. This distinction is crucial for ANT-based research, as we are analysing participants' retrospective interpretations of how accountants interacted with other professionals and what objects were perceived to mediate these interactions, rather than observing network formation and boundary work in real-time. To address this limitation, we used several analytical strategies: triangulating accounts across different professional groups and time periods, focusing on concrete examples of boundary objects and their reported effects, and being explicit about the interpretive nature of our findings. While this approach does not capture the full complexity of actor-network dynamics, it enables analysis of how different professionals understand and narrate their collaborative arrangements, which is particularly valuable for understanding professional settlements that evolved over extended time periods. In essence, we use interview data as a lens to examine participants' constructions of network relationships, acknowledging that these accounts represent one layer of the complex socio-technical processes that ANT seeks to understand ([Lukka and Vinnari, 2014](#)).

A time-ordered meta-matrix of CCRM activities by company, professional group and year facilitated data analysis ([Miles and Huberman, 1994](#)). This analytical tool organises data chronologically to enable systematic comparison of patterns across time periods, which was essential for our study design examining professional boundary changes during three

distinct regulatory eras. The matrix displayed activities and roles performed by different professionals (accountants, engineers, sustainability specialists and lawyers) within each company across the 2013, 2016, and 2018 interview periods, allowing us to trace how professional jurisdictions evolved in response to regulatory changes. Time played a central analytical role in two ways: first, it enabled us to identify which professional arrangements were temporary responses to specific regulatory pressures versus more enduring settlements that persisted across regulatory transitions; and second, it allowed us to map the temporal sequence of Abbott's theoretical processes. That is, how regulatory disturbances led to jurisdictional claims, then to various forms of professional settlement.

6. Findings and discussion

In this section, we operationalise the integrated framework developed in Section 2.5, drawing on Abbott's jurisdictional lens, ANT's notions of problematisation, interessement, enrolment and settlement, and the concept of boundary objects to analyse and interpret the three distinct time periods (eras) covered by the study. We address RQ1 (how settlement evolves) and RQ2 (how regulatory disturbances act as boundary objects that reorder collaboration).

6.1 NGER act era: initial problematisation

6.1.1 Problematisation and interessement via mandatory calculability. We treat 2009–2012 as the first phase in a longitudinal translation process. Prior to the carbon tax, interviewees already framed climate change as an issue to which firms needed to respond in earnest. Formal risk management processes commonly encompassed climate issues in which accountants participated. However, managerial roles associated with steering policy and strategy largely sat with engineers and environmental specialists, particularly in the Industrials and Materials sectors. Across eight heavy-emitting companies, only one head of carbon management was a professional accountant.

Accountants' most visible contributions clustered around reporting under the NGER Act and associated audit/assurance. The NGER Act translated diffuse concern with climate change into reportable, auditable numbers, thereby redefining the problem as one of accountable measurement and disclosure (i.e. problematisation in ANT terms). As one manager explained, NGER necessitated that for:

[...] all our sites in Australia, we [now have to regularly] collect [...] their energy use, water use, recycling, waste and carbon emissions [and report this information externally]. We have been audited independently by the Federal government and also by an auditor we engaged" and "[w]e pass our audits very well – better than most companies because we're very strict in applying rigorous tests to our data to make sure there are no errors in the data [Co.2(3,M,ES,2013)].

Interessement of accountants appeared to manifest through the NGER Act's emphasis on measurement standardisation, accuracy, data verification and public disclosure. This focus transformed emissions from purely technical metrics into reportable, auditable figures subject to professional assurance and resonated strongly with accountants' professional identity and abstract knowledge base.

In Abbottian terms, then, the NGER Act was a disturbance that introduced new, formalised workplace tasks; while in ANT terms, it problematised an environmental issue into an accountability problem and provided interessement necessary to gain the attention of workplace accountants.

6.1.2 Partial enrolment around "the numbers". During this era, accountants' substantive involvement clustered around internal controls, data integrity, assurance and

external reporting, typically in collaboration with engineers who dominated technical measurement and target-setting roles. Accountants leveraged their abstract knowledge of controls to claim relevance, “impressing auditors” via manuals, “ratio analysis” and control procedures; but this established *peripheral* rather than *core* jurisdiction. Engineers and sustainability professionals explicitly bounded accountants’ remit to “bookkeeping” aspects of emissions reporting while reserving target-setting and measurement for themselves, signalling only a *partial* enrolment of accountants into the climate risk management network.

Engineers believed that, unlike “the finance guys”, they (and environmental scientists) had a “deep understanding of carbon” and what could be done about it. This knowledge asymmetry was keenly felt. One accountant recalled:

I actually had to do a lot of study at the start to understand where our carbon emissions lay[...]and concepts like] thermodynamics[...]which I did on my own time, so I didn’t sound like an idiot when I was talking with the engineers [Co.3(1,M,A,2013)].

This underscores both the technical hurdles and the reliance on engineers for core calculative practices, reinforcing the partial nature of enrolment. In essence, scientific knowledge became an obligatory passage point through which engineers defined credible calculation and accountants’ participation was thus performatively limited to audit and control inscriptions.

6.1.3 NGER act as a boundary object disturbance (RQ2). The NGER Act was plastic enough to allow engineers to own measurement choices and accountants to own controls/reporting, yet robust enough to sustain a single emissions storyline across functions and, as will be seen in subsequent sections, time. Analytically, the Act’s features of (i) mandatory disclosure thresholds, (ii) standardised metrics, (iii) routinised audit/assurance and (iv) integration into internal corporate reporting systems, [10] produced cross-functional data dependencies that compelled interaction between technical and financial domains. Firms even reconfigured ERP systems:

[...] the last few years actually we’ve ceased using our own purpose-built system and all the environmental management reporting now has been incorporated into SAP, which is our financial accounting system [...] [and] is now included and reported on as a part of our [financial reporting] [Co.10(3,CS,A,2013)].

This illustrates how emissions data were drawn into the same infrastructures as financial accounting, materially integrating climate reporting into the corporate accountability apparatus.

Over time, the methodologies themselves matured, sharpening the categories through which firms measured and reported. As one interviewee reflected:

NGERS was sort of the accounting methodology [...] not one size fits all but methodologies that were generic [but] slowly [and] surely they’re becoming more and more sharper and more accurate [Co.1(1,U,E,2013)].

Here the regulatory instrument itself evolved as a boundary object, progressively stabilising calculative routines across firms.

6.1.4 The form of (provisional) settlement in the NGER era (RQ1). Synthesising the above, the NGER era exhibits a dominant applied-science group retaining cognitive control over core practices (measurement and target-setting) while sharing practical jurisdiction with accountants over controls, audit/assurance and reporting, that is, in Abbott’s terms, a hybrid, cooperative but asymmetric settlement at the workplace level. Evidence of collaboration (shared systems, audit preparedness and cross-functional reporting) coexisted with persistent scepticism about accountants’ technical capacities, producing a fragile network

configuration, which from the accountants' perspective, centred on compliance/accountability rather than strategic emissions decision-making.

This configuration is inherently contingent on the regulatory device that made emissions financially and publicly visible. That said, however, the mechanisms traced here (mandatory calculability, auditability and cross-functional data infrastructures that align heterogeneous expertise) should travel to other settings where emissions disclosure regimes create similar boundary objects.

As Section 6.2 will show, the carbon tax re-problematized the issue in explicitly pecuniary terms, shifting incentives and bringing accountants into the core of the calculative process through which emissions were valued and disclosed.

6.2 Carbon tax era: re-problematization and re-enrolment

Applying the analytical frame introduced in Section 2.5, this section examines how the introduction of the *Clean Energy Act 2011* (Australia's carbon pricing mechanism) re-problematized emissions management. The disturbance shifted attention from compliance and measurement to financial exposure and valuation, altering cross-professional relations and reshaping the provisional settlement between accountants, engineers and sustainability specialists.

6.2.1 Re-problematization: making emissions financial. The carbon tax rendered emissions a priced liability rather than a compliance metric, attaching a direct cash-flow consequence to every tonne of CO₂-e. One manager recalled:

Yeah, and you know at \$23 a tonne it's significant [...] It wasn't until 1 July and the first month-end for carbon where various business units see on their bottom line an accruing financial liability [...] and they start to think, well if we can do anything to reduce that it will be to our benefit very quickly. [Co1(1,U,E,2013)].

Such recognition reframed emissions as monetary events demanding cost control, provisioning and forecasting. Another participant noted bluntly: "[O]ur financial-year [...] liability is approximately \$110m. So that's a big incentive to try and mitigate that cost. That cost goes straight to the bottom line" [Co.7(2,I,E,2013)].

These accounts exemplify how the Act translated atmospheric outputs into corporate costs, generating new calculative work and bringing accountants into play.

6.2.2 Interestment and re-enrolment of accountants. The monetary framing created a powerful interestment device that re-enrolled accountants into carbon management. As one sustainability specialist observed:

Before the Clean Energy Act [...] the accountants were not that involved [...] Since there's been a price, then all the accountants throughout the business are involved. They're putting a dollar value on our liabilities [...] That's our forecasting, our actual reporting [Co.1(2,U,ES,2013)].

[T]oday it's not unusual for finance to put a phone call in to me [...], [whereas] two years ago they would never have called me about our emissions because it was of no interest to them [Co1(1,U,E,2013)].

Accountants became central to month-end routines, cash-flow forecasting and ledger integration:

We [...] needed to put it through our ledger. We needed to have that as a cost coming through on our P&Ls [...] It is a line in our P&L now that gets a lot of profile because of the value [Co.1(3,U,A,2013)].

Finance functions were reorganised accordingly:

I led a [...] carbon pricing implementation project [...] [W]e had [...] the financial work stream [...] to set up all the new month-end procedures [...] educate the finance department [...] and [...] make sure that there's the right new fields [in SAP] to report on this [...] [T]reasury [are] the guys who have got to find the cash for [our] liability payments [Co1(1,U,E,2013)].

This expansion of tasks gave accountants jurisdiction over valuation and financial representation, while engineers and sustainability teams continued to control physical measurement. One accountant described the novelty of the situation:

I actually rang up the Institute [of Chartered Accountants] [...] to [...] see what the Australian Accounting Standards Board had released [...] because without standards to guide us, you're back looking at the facts. What's an asset and what's a liability? [...] I was talking to the CFO [...] and said, 'It's frontier accounting – that's what I'm doing' [laughs] [Co.3(1, M, A,2013)].

In ANT terms, the disturbance strengthened intersement by offering accountants a concrete passage point, i.e. the monetisation of emissions, through which they could claim relevance and partially stabilise their enrolment within the network.

6.2.3 Carbon tax legislation as a boundary object disturbance (RQ2). The carbon tax became a potent boundary object precisely because it connected physical emissions to financial consequences, compelling collaboration across disciplinary and organisational boundaries. One manager reflected on how carbon had become a “commodity”:

About 12 months ago when the legislation passed [...] [we had] 15 to 20 people who have some aspect of their job [...] reporting or measuring emissions or [...] the financial accounting of our emissions or [...] the wholesale trading desk [...] buying and selling carbon [Co1(1,U,E,2013)].

The disturbance catalysed joint finance–engineering work streams, software integration and shared calculative tools. One accountant explained:

The benefits of adding the carbon module [...] we added parameters [...] of energy use and carbon [...] That module [...] means that it's much more auditable than a spreadsheet [...] all records of [updates and corrections] are kept for the auditors [Co.3(3,M,ES,2013)].

Another sustainability specialist highlighted how the price signal redirected engineering attention:

The carbon price is a good driver [...] [t]here's more engineers being given clear instruction and [...] more resources put towards finding ways to increase efficiencies now that the carbon price is costing millions of dollars [Co.3(3,M,ES,2013)].

Further, the carbon tax was seen to open roles for accounting professionals to work alongside other internal professionals as “mediators” or “translators” to educate their companies on the implications of the tax through training sessions, internal communications and through the risk management process itself as “[t]he best way to present carbon and climate-related information to the executive management often is in the risk management process” [Co.1(1,U,A,2016)].

Through these mechanisms, the carbon tax regime created a shared calculative infrastructure that both separated and connected professional domains – an example of a regulatory boundary object that is simultaneously constraining and enabling.

6.2.4 Provisional settlement (RQ1). The resulting settlement was more balanced than under NGER but remained asymmetrical. Accountants gained authority over valuation, disclosure and cash-flow management, while engineers and sustainability specialists retained

expertise in measurement and emissions abatement. For instance, an engineer acknowledged that:

It's the engineers [role] to see what the improvement projects are, but when it comes to calculating things like internal rates of returns and cost of capital and stuff like that, that's really when accountants get involved; and also, in terms of just actually the administration of the [carbon] scheme in terms of free carbon permits and stuff like that. [Co.3(2,M,E,2013)].

One accountant-manager described the cross-functional division:

I've [...] been valuing the carbon asset and carbon liability for the half-year accounts [...] [Our] environment sustainability manager [...] prepares the NGER reporting which I review and sign off [...] I work with [engineers outside my team] on our energy-efficiency optimisation program. [Co.3(1,M,A,2013)].

Such arrangements did more than formalise shared reporting responsibilities; they also generated a sense of procedural assurance within the organisation. By embedding emissions data within established accounting systems and control routines, firms conferred the same credibility on carbon inscriptions as on financial ones. This institutionalisation of calculative practice fostered confidence in the integrity of "the numbers":

People don't query an accounting system [...] That's the same sense I have with our carbon numbers — there's a sense they're [...] right because they've got accounting processes behind them [Co.3(1,M,A,2013)].

Yet, from the perspective of sustainability specialists, collaboration remained dependent on the technical expertise of engineers. The boundary work that legitimised accountants' involvement also reaffirmed the epistemic limits of their jurisdiction. Sustainability staff therefore continued to underscore engineers' indispensability:

You'll see the numbers and be able to say well, that one's different to that. Why? But you won't be able to solve the why [...] there's no reason why you couldn't have an accounting person doing it, but they'd need engineering advice. [Co.2(1,M,E,2013)].

Notwithstanding this, internal power relations shifted with the advent of the carbon tax as evidenced by the increased salience of the gatekeeping role of (senior) accountants with respect to emission-abatement capital projects. Accountants were viewed as very "[...] *influential with top management*" [Co.2(3,M,ES,2013)]. In this sense, the carbon tax facilitated the positioning of the finance function as an "obligatory passage point" in the internal climate risk management network.

Hence, the settlement was collaborative but layered – accountants ensured credibility and financial translation; engineers retained technical authority; sustainability specialists mediated across both.

In summary, the carbon tax era demonstrates how regulatory disturbances that monetise emissions alter professional settlements by creating new calculative interdependencies. The tax strengthened accountants' relevance through valuation, reporting and investment appraisal tasks, while engineers and sustainability experts remained essential for generating credible data; and identifying and developing abatement projects. The episode shows how boundary object disturbances both redistribute and stabilise expertise: translating physical phenomena into financial realities, and financial realities back into organisational practice. However, the network supporting accountants' expanded role in climate risk management remained fragile and dependent on the carbon pricing mechanism. The network included carbon legislation, accountants, other professionals (e.g. engineers and sustainability

specialists) and internal management. If any of these were to shift, the role could change once again.

6.3 Post-carbon tax era: enduring networks and circumscribed jurisdictional expansion

In this section, we examine how the carbon tax repeal (2014), followed by the TCFD framework and intensified investor scrutiny, constituted a third wave of re-problematisation. We trace how key elements of professional arrangements forged during the carbon tax period partially persisted despite withdrawal of the pecuniary mechanism, revealing both a degree of network durability and the circumscribed nature of accountants' jurisdictional gains.

6.3.1 Re-problematisation: from pecuniary compliance to strategic risk disclosure. The repeal of the carbon tax did not eliminate climate risk from corporate agendas. Instead, 2016 and 2018 interviews revealed increasing framing of emissions as strategic financial (and reputational) risks. This refocus can be attributed to three intersecting developments:

- (1) institutionalised calculative practices from the carbon tax period;
- (2) escalating investor and other stakeholder expectations; and
- (3) the emergence of the TCFD framework, which explicitly re-problematised climate change at a macro level as a matter of global financial stability (risk) and at a micro-level, accountability through corporate non-financial disclosure of risks (and opportunities), quantified in financial terms where possible.

Rather than reverting to pre-tax arrangements, many organisations maintained cross-functional teams, data systems and shadow carbon pricing. One sustainability manager observed that focus had actually intensified:

I'd say if anything our focus on the issues has increased. We anticipate that both domestically and internationally in the future there will be costs associated with a price on carbon[...] Ignoring the policy specifics, it's likely that regulation around carbon will increase [Co.8(1,I,L,2016)].

By 2018, one accountant articulated how internal pricing had become institutionalised:

So, we believe that in spite of the vacuum in policy at the moment that eventually there will be a carbon policy, a price on carbon. And the single biggest factor driving us is the fact that we have an internal price on carbon that needs to be factored into our capital decision-making [Co.10(1,CS, E,2018)].

In ANT terms, the carbon tax achieved *irreversibility* (Callon, 1990): networks it mobilised and calculative routines it normalised persisted beyond the statutory instrument.

However, this continuity was accompanied by significant uncertainty. Ongoing policy volatility itself became a risk factor:

Because of policy uncertainty, we have a huge range, when we do our sensitivity testing, and that creates a massive risk [...] a massive portion of the uncertainty is decisions on carbon policy [Co.9 (1,E,ES,2018)].

Climate change remained in the news in the post-carbon tax period, and societal forces continued to build, advocating for climate change action by business and governments. [11] The perceived increasing external pressure to *disclose* climate change risks contributed to the evolving view that emissions represent a *broad* strategic risk (i.e. not merely energy management). A manager explained the external societal pressure as follows:

I think we're going to continually listen and respond to social attitudes and our customers as attitudes change, and expectations change. The people in our finance teams that provide commercial support to the business, I think it's in those teams that really build the cases around what we do and how far and how fast we should move [...]. [Co.4(2,M,A,2016)].

Concurrently, [Force on Climate-related Financial Disclosures \(2017\)](#) re-problematised climate risk in terms resonating with finance professionals. By framing emissions as material financial risks requiring board oversight and investor-oriented disclosure (albeit still voluntary), TCFD translated climate into governance lexicon that accountants routinely navigate: "I see it as a very much needed and valuable addition [...] The fact that it was derived through the Financial Stability Board means that it carries extra weight" [Co.7(1,I,L,2018)]. This evolution sustained accountants' interest, positioning climate-related disclosures as core ERM components – an arena where accountants claim established expertise ([Arena et al., 2010](#)).

6.3.2 Interest and enrolment under voluntary regimes. In this new landscape, accountants' enrolment persisted but changed character. Without a statutory price, their participation relied on symbolic and procedural legitimacy. They provided the *formal grammar of accountability* (i.e. controls, audit/assurance and standardised reporting) through which voluntary disclosures gained credibility. As one finance manager explained:

[o]ur role [now] is one of helping the business understand [not just direct carbon costs] but also the opportunity cost [of] not changing with public sentiment [...] converting social attitudes [into financial terms is becoming] increasingly important [Co.10(2,CS,A,2013)].

Sustainability professionals and engineers continued to generate data and manage performance, but accountants ensured its credibility by embedding it within established accounting systems and disclosure templates. Interviewees consistently emphasised that close coordination between sustainability and finance functions was required to maintain coherence between sustainability disclosures, financial statements and investor communications. This interdependence reflected an ongoing effort to preserve legitimacy and comparability in the absence of regulatory compulsion. In ANT terms, interest persisted through *shared calculative practices* rather than regulatory compulsion, reflecting a reconfigured but still active network.

6.3.3 Regulatory instruments as enduring boundary objects (RQ2). The post-carbon tax era reveals how regulatory instruments retain boundary object functions after formal repeal if they've sufficiently inscribed new routines and cross-professional dependencies. NGER remained operative, continuing to mandate disclosure and sustain data collection and assurance practices connecting accountants with engineers and sustainability specialists. Meanwhile, anticipated future carbon pricing kept shadow pricing alive. As one manager explained: "[W]e believe that there will be some form of carbon cost in the Australian economy again [...] [so] we have in place a shadow carbon pricing scheme." [Co.10(2,CS,ES, 2016)].

TCFD provided a fresh quasi-regulatory frame amplifying these dynamics [12]. Firms had already built cross-functional teams and integrated systems during the carbon tax period; TCFD provided renewed mandate to deploy these for investor-facing disclosure.

Accountants positioned themselves as *obligatory passage points* for translating technical climate information into risk management lexicon: "At the end of the day, management of carbon is fundamentally a risk management exercise" [Co.1(1,U,A,2016)]; "I think our role is one of helping the business understand the commercial consequences" [Co.4(2,M,A,2016)].

From an ANT perspective, the regulatory landscape thus functioned as a chain of mediating actants: the NGER Act sustained baseline reporting obligations; shadow carbon pricing maintained internal calculative discipline; TCFD imposed new disclosure frames; and investor expectations grounded in customer and broader societal expectations provided external accountability pressures. Together, these actants stabilised the network in which accountants, engineers and sustainability specialists collaborated, even in the absence of direct financial penalties or annual/sustainability report mandates. This finding extends Abbott's framework by demonstrating that jurisdictional settlements can be sustained not merely by human professional strategies, but by material and regulatory infrastructures that continue to mediate cross-professional dependencies.

6.3.4 Settlement form and limits of jurisdictional expansion (RQ1). The post-carbon tax era exhibits continuation and partial deepening of the hybrid settlement from the carbon tax period. Environmental scientists and engineers retained cognitive control over technical practices (target-setting, measurement and abatement design), while accountants maintained and modestly expanded practical jurisdiction over risk assessment, cost evaluation, shadow pricing and disclosure integration.

Accountants still acknowledged technical dependence:

I'm an accountant by trade [...] The engineers [...] are aware of it in terms of how it influences their longer-term decisions [...] but accountants, per se, are not involved in the process. We've got engineers and people like that, but not accountants [Co.1(1,U,A,2016)].

Yet this coexisted with their strategic positioning as risk interpreters. Reflecting on the benefits of diverse team membership, one lawyer noted: "I'd say you have a diversity of views [...] emissions [...] is a very complex problem to solve and it requires that diversity of thought" [Co.7(1,I,L,2016)].

This approximates Abbott's *shared jurisdiction with dominant cognitive control retained by applied sciences* – one profession defines problems and retains authority over core practices, while others share practical implementation and reporting. The settlement proved stable across regulatory discontinuity, suggesting institutionalisation, yet remained *provisional* and exhibited *unevenness* across firms.

However, accountants failed to expand into target-setting and long-term scenario planning—areas that professional bodies envisioned. Target-setting remained with engineers: "it's probably difficult for an accountant to fully understand target-setting [...] whereas an engineer have (sic) more practical understanding" [Co.3(1,M,E,2016)]. Similarly for forecasting: "the financial impact of long-term climate issues [...] is harder for accountants to handle as they like forecasts based on actual facts" [Co.10(1,CS,A,2018)]. Some accountants exhibited reluctance: "the hesitation [...] is people not looking to take it on [...] because they don't see it as being a routine part of their function" [Co.14(1,CD,E,2016)].

From an ANT perspective, this represents a *missing link*: accountants lacked technical fluency (and sometimes motivation) to engage deeply with engineering and climate science, and no actant successfully enrolled them into these technical domains. Professional bodies' rhetoric thus foundered on external scepticism and internal hesitance, consistent with prior research on management accountants' peripheral sustainability involvement (Egan and Tweedie, 2018; Wenzig et al., 2023; Kunz et al., 2025).

To summarise, the settlement remained partial and asymmetric: accountants secured jurisdiction over risk assessment, cost modelling and disclosure (extensions of traditional knowledge) but failed to penetrate technical domains. This cooperative arrangement was enabled by regulatory boundary objects structuring interdependencies without eliminating

professional distinctions and sustained through material infrastructures rather than solely professional strategies. This insight extends Abbott's framework by foregrounding non-human actors' agency in mediating jurisdictional arrangements.

7. Conclusion

We examined how professional roles around corporate climate-risk work are reshaped as regulatory and market contexts evolve. Our research questions were, first, how is settlement achieved between accounting professionals and other corporate actors in managing climate change risks and evolving regulatory pressures?, and second, what role do climate-related regulatory disturbances play in achieving that settlement?

Our study advances understanding of accountants' involvement in sustainability-related work by revealing how regulatory instruments actively shape professional boundaries and collaborative arrangements in the specific context of CCRM. Prior research has consistently documented a gap between professional accounting bodies' aspirations for accountants' sustainability roles and workplace realities, noting barriers including knowledge deficits, professional habitus, conflicting institutional logics and resistance from other professional groups ([Ascani et al., 2021](#); [Egan and Tweedie, 2018](#); [Kunz et al., 2025](#); [Wenzig et al., 2023](#)). Our longitudinal study extends this literature to the CCRM setting and demonstrates *how* and *why* these barriers were partially overcome through regulatory interventions that functioned as boundary objects, creating calculative infrastructures that compelled cross-professional collaboration.

Specifically, we show that accountants' entry into climate risk management occurred less through professional strategising than through a series of regulatory-driven re-problematisations that translated climate issues into domains where accounting expertise gained legitimacy. The NGER Act transformed emissions into auditable, reportable figures; the carbon tax monetised them as financial liabilities; and TCFD framed them as a material financial risk requiring board oversight and public disclosure. Each intervention strengthened accountants' interestment while simultaneously revealing the limits of their technical knowledge and the persistent dominance of engineering and environmental science professionals in target-setting and mitigation strategy.

Our findings extend and qualify prevailing accounts in two ways. First, moving beyond portrayals of accountants' non-involvement rooted in reluctance or organisational barriers (e.g. [Egan and Tweedie, 2018](#); [Wenzig et al., 2023](#)), we specify how regulation orchestrates collaboration: by standardising categories and audit/assurance (NGER), monetising emissions as recognised liabilities with new month-end routines (carbon tax) and reframing climate change as presenting investor-relevant financial risks for mainstream corporate reporting (TCFD/ISSB), these devices constructed calculative infrastructures that made cross-functional coordination instrumentally necessary, even where predispositions and technical confidence were mixed. In short, collaboration here is not merely attitudinal, it is a property of the infrastructural linkages that regulations inscribe into ERP, control and disclosure systems. Second, contrary to professional bodies' expectations of comprehensive involvement ([CIMA, 2010](#); [ACCA, 2021](#)), we document a circumscribed settlement: accountants gained practical jurisdiction over emissions and risk disclosure, financial valuation and investment appraisal, but failed to penetrate target-setting and long-term climate scenario planning – areas professional bodies had envisioned for them. Engineers, however, retained cognitive primacy. This hybrid arrangement, cooperative yet asymmetric, reflects not simply professional capabilities or ambitions, but the material and epistemic constraints embedded in the calculative practices that regulatory instruments inscribe.

Importantly, the settlement proved partially durable beyond the carbon tax's repeal, suggesting that once regulatory instruments inscribe cross-functional dependencies into

organisational systems and routines, these arrangements can achieve a degree of irreversibility (Callon, 1990). This finding extends Molinari *et al.*'s (2025) insights on accountants' hybrid roles by showing that such arrangements can emerge and stabilise not only through voluntary organisational commitment, but through regulatory compulsion that creates lasting calculative momentum.

Our integration of Abbott's (1988) jurisdictional framework with ANT provides a novel analytical approach for understanding professional boundary dynamics. Prior research has highlighted that inadequate attention has been paid to the agency of non-human actors in research aimed at understanding the underlying processes that mediate sustainability transition contexts (Contesse *et al.*, 2021). By treating regulatory instruments as actants with agency, we move beyond viewing climate change regulations as passive contextual factors and instead analyse how they actively mediate professional settlements. The NGER Act and carbon tax functioned as boundary objects that standardised emissions measurement while remaining flexible enough for different professional groups to interpret through their respective lenses – engineers through technical efficiency, accountants through financial risk and compliance, lawyers through regulatory obligation.

This approach reveals that jurisdictional settlements can be sustained not merely through human professional strategies, but through material and regulatory infrastructures that mediate cross-professional dependencies. The carbon tax, for instance, achieved translation by imposing a common calculative language (price per tonne) that required coordination between previously separate domains. These findings augment Abbott's framework by demonstrating that non-human actors can function as catalysts that reconfigure professional landscapes, providing accounting researchers with an analytical tool for examining how external disturbances actively shape rather than merely trigger jurisdictional change.

For professional accounting bodies, our findings suggest that jurisdictional expansion in sustainability requires more than rhetorical claims about accountants' potential contributions. The persistent knowledge gaps documented in our study, particularly regarding long-term forecasting under uncertainty, technical measurement and target-setting, constitute fundamental obstacles that training and continuing professional development must address. The level of collaboration we observed reflects not only external scepticism but also internal reluctance among some accountants to engage deeply with climate science and engineering concepts, echoing findings in the broader sustainability management accounting literature (Egan and Tweedie, 2018; Kunz *et al.*, 2025; Kurki and Järvenpää, 2024; Wenzig *et al.*, 2023). These findings support efforts by professional bodies to develop specialised credentials or post-qualification pathways that build genuine interdisciplinary capabilities rather than positioning accountants as all-purpose sustainability experts; something that was absent during our study period, but which is, at the time of writing, beginning to emerge. At a higher level, however, the degree to which professional bodies have failed to build necessary networks of support and align diverse interests to ensure greater accounting participation suggests further reflection and introspection is required. They could work to ascertain how their interestment strategies can be enhanced, including the possibility of more direct and positive engagement with the relevant competing professions' peak bodies. This potential also provides an avenue for future academic research.

Our study's primary methodological limitation lies in its reliance on interview accounts rather than direct observation of network formation and boundary work. While this approach enabled longitudinal analysis across three regulatory eras, something difficult to achieve ethnographically, we analyse participants' retrospective constructions of professional interactions rather than observing these processes in real-time. We addressed this limitation through triangulation across professional groups and time periods, focusing on concrete

examples of boundary objects and their reported effects, but acknowledge that our findings represent one layer of the complex socio-technical processes that ANT seeks to understand.

The Australian context, characterised by extreme climate policy volatility and high per capita emissions, may shape our findings' transferability. The rapid introduction and repeal of the carbon tax created an unusually compressed timeframe for observing jurisdictional dynamics, which may differ from settings with more stable regulatory environments. However, the underlying mechanisms we identify – how mandatory calculability, auditability and financial consequences create cross-functional dependencies – should travel to other jurisdictions where emissions disclosure and pricing regimes establish similar boundary objects. Future research examining climate risk management in contexts with different regulatory trajectories (e.g. EU's sustained emissions trading system (ETS), UK's Climate Change Act) would test these propositions and illuminate how regulatory persistence versus volatility affects professional settlement durability. Further, while our Australian context reflects an Anglo-American model where professional associations significantly shape accountants' work, future research should examine whether similar jurisdictional dynamics emerge in contexts such as German-speaking countries and the Nordics, where organisational-level factors and educational background predominate (Goretzki *et al.*, 2013; Schäffer, 2013).

Future research might usefully explore several avenues. First, examining whether and how professional accounting education and certification programs are evolving to address the knowledge deficits documented here would provide insight into the profession's capacity for adaptation. Second, investigating the role of other non-human actors, such as emissions accounting software, corporate sustainability reporting platforms and scenario modelling tools, in mediating professional boundaries would extend our ANT-informed approach. Third, comparative research across countries with different climate policy regimes would illuminate how regulatory design and stability affect professional settlements. Finally, longitudinal studies examining whether the hybrid arrangements we observed evolve towards greater integration or revert to traditional professional boundaries as climate disclosure becomes mandatory would test our claims about irreversibility and institutional embedding.

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Notes

- [1.] Legislation was passed by the Australian Parliament in September 2024 mandating a 2025 commencement date for climate risk-related corporate reporting for the largest companies and those subject to the NGER Act no matter their size.
- [2.] Examples of concerns include its limited consideration of the role of important social, historical, and political contextual factors (see Walker (2004) for a review), a failure to acknowledge supranational pressures or those from actors with no territorial aspirations and an assumption of homogeneity within professions (Sikka and Willmott, 1995).

- [3.] See, for example, [Sikka and Willmott \(1995\)](#) (strategic use of accountants' image of independence to counter external threats); [Walker \(2004\)](#) (inter-professional conflict between accountants and lawyers over insolvency work); [Fogarty et al. \(2006\)](#) (the AICPA Vision Project); [Edwards et al. \(2007\)](#) (the 19th century emergence of 'public accountants') and [Arena and Jeppesen \(2010\)](#) (inter-professional competition between internal and external auditing).
- [4.] ANT was initially developed in sociology by Bruno Latour, Michel Callon and John Law and has since been widely applied in accounting research – see [Justesen and Mouritsen \(2011\)](#) and [Lukka et al. \(2022\)](#) for reviews of this literature. [Justesen and Mouritsen \(2011\)](#) and Mouritsen (2011) suggest that it has most often been applied to the study of change in accounting contexts.
- [5.] Our framing of regulatory instruments as boundary objects complements the literature on 'mediating instruments' ([Miller and O'Leary, 2007](#); [Kurunmäki & Miller, 2011](#)). While overlapping, these concepts emphasise different aspects: boundary objects foreground interpretive flexibility and coordination across communities despite different meanings ([Star and Griesemer, 1989](#)), whereas mediating instruments emphasise dual capacity as both means of representation and intervention that actively connect and transform domains ([Miller and O'Leary, 2007](#)). We adopt boundary objects as our primary lens because our workplace focus centres on professional boundaries, the core problematic in [Abbott's \(1988\)](#) framework, and how regulatory instruments enable collaboration while maintaining distinct professional identities. However, as [Briers and Chua \(2001\)](#) demonstrate, boundary objects can stabilize and mediate diverse interests within networks. In our study, regulatory instruments function as boundary objects with this mediating capacity, both bridging professional communities and actively reshaping jurisdictional settlements through their representational and interventional power.
- [6.] The research ([Molinari et al., 2025](#)) is focused on a single case organisation domiciled in a country that "is particularly focused on sustainability topics and reporting demands" (p. 8) and that had voluntarily publicly committed to climate-related goals.
- [7.] Relatedly, COSO has issued guidance on applying its separate COSO Internal Control-Integrated Framework to sustainability reporting ([COSO, 2023](#)).
- [8.] In 2013 and 2014, Australia's carbon emissions were 16.8 and 16.2 metric tons per capita, with the world average 4.7 in both years. In 2016 and 2018, these numbers were 16.3 and 15.9 and 4.6. (<https://data.worldbank.org/indicator/EN.ATM.CO2E.PC?locations=AU&view=chart>).
- [9.] Department of Climate Change, Energy, the Environment and Water, from 1 July 2022.
- [10.] Emission measurements were mandatorily disclosed to government under the NGER Act but could also be included voluntarily in corporate annual or sustainability reports.
- [11.] Whether the carbon tax and the NGER Act had an active translation role in making risks more visible and thus bringing climate-related matters into the active monitoring domain of shareholders, is an interesting question. While this study cannot answer this question conclusively, this possibility cannot be ruled out. [Averchenkova et al. \(2024\)](#) find, for instance, that climate legislation can positively influence public perceptions of and support for climate action.
- [12.] Although the TCFD was conceived as a voluntary disclosure framework, it operates as a *quasi-regulatory boundary object*. By translating climate risk into financial categories and embedding disclosure expectations within investor, audit and policy networks, it performs many of the functions of regulation without statutory mandate.

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Appendix 1. Selected semi-structured interview questions for 2013, 2016 and 2018

- (1) With respect to CCRM/ carbon emissions management, please describe your role in the company and how long you have been in it:
 - Who are the different professionals involving in CCRM activities of your company?
 - Please describe the influence of climate change issues on your company's business activities?
 - How long has your company been managing carbon emissions, and which areas of the organisation are involved?
 - What is the influence of the carbon tax on your company?
 - What benefits has your company experienced from managing its carbon emissions?
 - What is the involvement of accounting professionals in carbon emissions/ CCRM of your company?
 - What factors hinder the involvement of accounting professionals in carbon emissions risk management?
 - When preparing company budgets, how does your company incorporate carbon emissions costs relating to your business activities?
 - How does your company communicate its environmental values internally and externally?
 - Is there any influence of Carbon Tax withdrawal on your company's strategies/ actions on climate change risks management?
 - How does your company see community pressure for climate change action by your company?
 - What factors hinder or encourage the collaborative involvement of different professionals (specifically the involvement of accounting professionals) in emissions management actions by companies?
 - As an expert in Carbon emissions management area, could you please let me know how you see the Emissions Reduction Fund in Comparison with the Carbon Tax in driving emissions management actions of your company?

Table A1. Firm and respondent characteristics

Company	Industry sector	Professional background/ interview code	
		2013	2018
1	Utilities(U)	1. Engineering [Co1(1,U,E,2013)]	1. Accounting [Co.1(1,U, A,2018)]
		2. Env. Sustainability [Co.1(2,U, ES,2013)]	2. Accounting [Co.1(2,U, A,2016)]
2	Materials(M)	3. Accounting [Co.1(3,U,A,2013)]	
		1. Engineering [Co.2(1,M,E,2013)]	1.Engineering [Co.2(1,M, E,2018)]
		2. Engineering [Co.2(2,M,E,2013)]	2.Engineering [Co.2(2,M, E,2018)]
		3. Env. Sustainability [Co.2(3,M, ES,2013)]	
3	Materials(M)	1. Accounting [Co.3(1,M,A,2013)]	1.Engineering [Co.3(1,M, E,2018)]
		2. Engineering [Co.3(2,M,E,2013)]	2.Env. Sustainability [Co.3(2,M,ES,2018)]
		3. Env. Sustainability [Co.3(3, M, ES,2013)]	
4	Materials(M)	1. Env. Sustainability [Co.4(1,M, ES,2013)]	1. Env. Sustainability [Co.4(1,M,ES,2016)]
		2. Accounting [Co.4(2,M,A,2013)]	2. Accounting [Co.4(2,M, A,2016)]
		3. Engineering [Co.4(3,M,E,2013)]	
5	Materials(M)	1. Engineering [Co.5(1,M,E,2013)]	
		1. Engineering [Co.6(1,M,E,2013)]	
6	Materials(M)	2. Engineering [Co.6(2,M,E,2013)]	
		1. Accounting [Co.7(1,I,A,2013)]	1 Lawyer [Co.7(1,I, L,2018)]
7	Industrials(I)	2. Engineering [Co.7(2,I,E,2013)]	2. Lawyer [Co.7(2,I, L,2016)]

(continued)

Table A1. Continued

Company	Industry sector	2013	Professional background/ interview code	2018
8	Industrials(I)	1. Engineering [Co.8(1,I,E,2013)]	1. Lawyer [Co.8(1,I,L,2016)]	1.Lawyer [Co.8(1,I,L,2018)]
9	Energy(E)	1. Env. Sustainability [Co.9(1,E,ES,2013)]	1. Env. Sustainability [Co.9(1,E,ES,2016)]	1.Env. Sustainability [Co.9(1,E,ES,2018)]
10	Consumer staples (CS)	1. Engineering [Co.10(1,CS,E,2013)]	1. Engineering [Co.10(1,CS,E,2016)]	1.Engineering [Co.10(1,CS,E,2018)]
		2. Accounting [Co.10(2,CS,A,2013)]	1. Env. Sustainability [Co.10(2,CS,ES,2016)]	1 Env. Sustainability [Co.10(1,CS,SE,2018)]
		3. Accounting [Co.10(3,CS,A,2013)]	1. Engineering [Co.10(1,CS,E,2016)]	1 Accounting [Co.10(1,CS,A,2018)]
11	Communication services(ComS)	1. Engineering [Co.11(1,ComS,E,2013)]		
12	Information technology(IT)	1. Other [Co.12(1,IT,OP,2013)]		
13	Consumer staples (CS)	2. Other [Co.12(2,IT,OP,2013)]		
		1. Env. Sustainability [Co.13(1,CS,ES,2013)]		
		2. Env. Sustainability [Co.13(2,CS,ES,2013)]		
14	Consumer discretionary (CD)	3. Accounting [Co.13(3,CS,A,2013)]	1. Engineering [Co.14(1,CD,E,2016)]	
15	Energy (E)		1. Env. Sustainability [Co.15(1,E,ES,2016)]	
	Totals companies (interviews)	13(28)	9(15)	7(11)