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Regulatory-induced uncertainties and corporate strategic responses: evidence from Australian climate policies

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Abstract

Purpose – This study aims to explore how uncertainties associated with climate-related regulations can influence corporate strategic responses to carbon emissions management.

Design/methodology/approach – Drawing on Hoffmann *et al.* (2008) taxonomy of regulatory uncertainty, the authors carried out an interpretive qualitative field study, involving interviews and archival data collected from six large Australian-listed companies between 2013 and 2018. The authors analysed the interview data thematically.

Findings – Regulatory and regulatory-induced uncertainty significantly shapes managerial perceptions, influencing corporate strategies on climate-related risk management. It was evident that regulatory-induced uncertainties, as an exogenous shock from the carbon tax, pressured high-emitting corporations to act on carbon emissions to mitigate financial risks, regardless of political uncertainty. The findings also show that some companies tend to adopt more conservative strategies rather than explorative strategies due to regulatory uncertainties. Finally, institutional pressures exerted through the Task Force on Climate-related Financial Disclosures seem to have prompted carbon abatement actions that the Emissions Reduction Fund alone could not achieve among the case companies.



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Practical implications – The findings will guide organisational decision-makers and regulators in deciding the type of strategic responses and understanding potential outcomes when managing uncertainties associated with specific climate-related regulations.

Originality/value – This study yielded valuable insights into how corporate managers view uncertainties regarding climate policy as strategic risks and how this perception influences their risk management strategies.

Keywords Carbon emissions, Government regulations, Regulatory-induced uncertainty, High-emitting companies, Climate risk management strategies

Paper type Research paper

1. Introduction

Climate change significantly threatens the global economy, environment and society ([World Economic Forum \(WEF\), 2022](#)). Reducing carbon dioxide emissions ([IPCC, 2014](#)) is a climate mitigation strategy, reflected in international treaties such as the 2015 Paris Agreement, where nations are held accountable for setting carbon reduction targets. Much scrutiny has been placed on businesses, particularly high-carbon emitters, calling into question their commitment to and actions on climate change. Developing appropriate legislative and regulatory mandates to incentivise firms to adapt, innovate and transform is critical for transitioning to cleaner energy systems. These include direct taxes on carbon emissions, cap and trade schemes, and financial incentives for investment in innovative technologies.

In response to regulatory developments, businesses face several strategic options: do nothing, continue operations with incremental changes or make transformational adaptive changes, including investing in emerging technologies ([Lee, 2012](#); [March, 1991](#)). [Danese and De Marchi \(2024, p. 1\)](#) highlight that “[...] adaptation responses may vary from utter deferral to quick fixes for imminent vulnerabilities to continuous adaptation to actual and perceived risks”. Empirical evidence indicates that business responses to climate regulatory developments have focused on financial impacts and prioritising cost minimisation, often leading to a strategy of “doing nothing” or delaying investment in carbon abatement ([Gasbarro and Pinkse, 2016](#); [Hoang, 2022](#)). In contrast, some findings suggest that regulatory changes can propel businesses to take transformative adaptive actions to leverage innovations for competitive advantage ([Hoffmann *et al.*, 2009](#); [Lopez *et al.*, 2017](#)). Responses to regulatory changes may vary across individual managers, organisations and industries, making it difficult to compare the dynamics behind climate action outcomes concerning a given legislative mandate or regulatory policy.

Regulatory uncertainty theory ([Hoffmann *et al.*, 2008](#)) proposes that organisational actions emanate from individual managers’ perceptions of the risks and opportunities their enterprises face, i.e. perceived uncertainties within a given context. Given that businesses operating within the same regulatory environment appear to display quite different strategies and responses to climate change, the question arises as to whether there are differences in managers’ perceptions of risks and opportunities within the same regulatory ecosystem, and if so, how such perceptions are associated with their strategic outlook on climate action. Nevertheless, the current understanding of the dynamics between external regulatory developments and internal managerial mindsets on organisational adaptation to climate change remains inadequate.

Our literature review identifies two factors that warrant further investigation to better understand the dynamics between managerial perceptions and organisational responses to regulatory developments related to climate action.

Firstly, the nature of regulatory uncertainty needs to be better understood. There is a view that regulatory uncertainty has been primarily studied as a broad, homogeneous construct, whereas managerial responses to regulatory uncertainty can be directly related to a specific regulation and the uncertainties induced by that regulation itself (Hoffmann *et al.*, 2008; Lopez *et al.*, 2017). For instance, a tax on carbon emissions may entail uncertainties about how long the tax will last. However, in terms of the actual financial impact – such as the calculation of the tax impost and its implications for economic security – there is little uncertainty. On the other hand, there can be high uncertainty regarding any subsequent effects of the carbon tax on costs along a supply chain as supplier costs and pricing increase. This regulation-induced uncertainty (RIU) is distinguishable from the regulatory uncertainty (RU) associated with how long a carbon pricing policy survives in a politically contested environment. Lin and Zhao (2023, p. 1) suggest that “the uncertainty in the design and implementation of policies and the possible policy implications in this process should be an essential part of analysing how climate change will influence the real economy.” While the nature and extent of perceived risks and opportunities may differ between RU and RIU, we have a limited understanding of how they may separately or jointly affect corporate strategic thinking and actions regarding climate change management.

Secondly, further work is needed to better understand the types and choices of strategic response to regulatory developments. March’s (1991) early work on organisational adaptation identified two distinct strategic orientations to regulatory change: *exploratory* and *exploitation*.

Exploration refers to experimentation, risk-taking and the search for innovative knowledge or practices. From a climate action perspective, this could involve developing clean technologies, investing in renewable energy or remodelling supply chains. In contrast, exploitation is more short-term oriented, efficiency-driven and relies on existing knowledge or resources. The strategic actions will focus on improving existing production systems and reporting practices to meet regulatory requirements at minimal cost. In general, achieving a balance between an exploratory and exploitation orientation is critical for an organisation; risk-taking for future growth and maximising the use of current resources will optimise performance with future sustainability in mind. Yet increasing regulatory interventions to curb emissions make achieving this balance challenging. The art of the possible in political terms for regulated climate policy interventions may not coincide with countries’ ambitions or multilateral commitments on emissions.

Linnenluecke *et al.* (2013) argue that sustainability involves managing climate action choices, integrating transformative goals into the organisation’s decision-making process and balancing the tensions between economic, environmental and social imperatives. Such an understanding is timely and warranted in the continuing, if not increasingly volatile, need for climate change management at the organisational level. To this end, this study aims to explore how managers’ perceptions of regulatory and regulation-induced uncertainties affect corporate strategies for managing carbon emissions. Guided by Hoffmann *et al.* (2008) and March (1991), we address the following research questions (RQs):

- RQ1. How do managers perceive uncertainties related directly to climate-related regulations and uncertainties induced by such regulations?
- RQ2. How do managerial perceptions of regulatory and regulation-induced uncertainties influence corporate management’s strategic approaches towards carbon emissions management?

To address these questions, we conducted a field study within six large Australian companies over three distinct carbon emissions regulatory phases (carbon tax, a competitive fund for

project-oriented emissions reduction, “Emissions Reduction Fund” (ERF) [1], and regulator encouragement for the Task Force on Climate-related Financial Disclosure (TCFD) [2] framework adoption). Australia was chosen as the contextual setting for this study as it provides a unique carbon abatement regulatory ecosystem to examine how policy developments influence managerial attitudes towards corporate carbon abatement strategies.

The study’s findings contribute to the literature in three ways. First, by comparing and contrasting managerial perceptions of RU during three different climate policy regimes, our field evidence demonstrates how these perceptions shaped carbon reduction strategy-making, including investment in abatement technologies. In so doing, we aim to address the gap identified by [Aragón-Correa et al. \(2020\)](#) and [Kolk and Mulder \(2011\)](#), who call for further inquiry into the impacts of mandated and voluntary regulatory regimes.

Secondly, the study offers insights into [Hoffmann et al. \(2008\)](#) regulatory uncertainty taxonomy in climate change abatement strategy. In five of the six case companies we examined, political contestation over carbon pricing dominated managers’ views. Speculation remained that it would return after the repeal. The sixth case company continued investing in emissions abatement, as it claimed. [Hoffmann et al. \(2008, p. 714\)](#) defined RIU as “...an individual’s perceived inability to predict the future state of the non-regulatory environment as a result of regulation”, and this uncertainty was also high during the carbon tax period. Managers’ concerns about energy costs, customer price worries and pressure from international bodies motivated companies to act proactively.

Thirdly, high RU and RIU levels occurred again during the ERF period. The scheme’s eligibility criteria were restrictive, and its additionality rules were difficult to enforce. Unlike the carbon tax, the ERF’s voluntary nature has no financial implications for participating companies. Managers saw the policy as weak, with only one company committing to it and another deemed ineligible. The ERF was considered inconsequential, with no evidence that its emissions reduction goal would be embraced or achieved.

Conversely, managers saw the TCFD framework as akin to regulation despite its voluntary nature. It gained quasi-regulation status, likely due to the corporate regulator’s “encouragement” as the ERF struggled to engage high emitters amidst ongoing concerns about the return of carbon pricing. RU and RIU were high because it was unclear how investors or stakeholders would react to the recommended disclosures, or if companies would respond differently if choosing not to disclose while their peers did. Managers indicated that their companies felt pressure to reduce emissions. The RIU surrounding the TCFD incentivised carbon abatement actions that the ERF alone could not achieve. Soft law or quasi-regulatory instruments of this type (e.g. recommendation or guidance documents) are commonly used in climate-related policy ([Ionescu and Eliantonio, 2023](#)), as they offer authorities agility, flexibility and comparatively rapid responses to stakeholder pressures while operating between law and politics.

Finally, our study informs climate policymaking by showing how companies may respond to high RIU with exploratory approaches such as experimentation. These approaches are essential for enhancing carbon emissions management amid politically contested regulatory changes and decision-making biases that may hinder abatement efforts. RIU may influence corporate strategies for managing carbon emissions.

We organise the remainder of this paper into eight sections. Section 2 presents a description of the Australian regulatory setting that serves as the context to our study. Section 3 presents the literature review of climate adaptation studies. Section 4 discusses the conceptual underpinnings of the study, guided by [Hoffmann et al. \(2008\)](#) and [March \(1991\)](#). Section 5 describes the research design and methods. Section 6 presents the findings.

Subsequent sections discuss the findings and conclude the paper by highlighting its contributions, limitations and recommendations for future research.

2. The Australian regulatory setting

Between 2010 and 2016, Australia implemented two regulatory abatement schemes: an emissions trading scheme that began with a carbon tax and the Emissions Reduction Fund (ERF). Bidders compete for taxpayer funding to implement emissions abatement projects in this reverse auction scheme. It was a tumultuous and highly volatile period regarding RU and RIU.

While heated debates on carbon pricing began in 2010, Australia, under the Labor Party, instituted a carbon tax on July 1, 2012. More than 500 of Australia's largest polluting companies were captured ([Commonwealth of Australia, 2011](#)), and plans to transition to an emissions trading system by July 2015 were made. However, following an election and a change of government to the Liberal-National Coalition, the carbon tax was repealed on July 17, 2014. The carbon tax package was expected to decrease national carbon emissions to 5% below 2000 levels and achieve a reduction of 80% below 2000 levels by 2050. However, *"since the 2013 election, successive coalition governments have introduced various out-of-market mechanisms, such as co-financing and investment by the Clean Energy Finance Corporation and changes to the Renewable Energy Target"* ([Gonçalves and Menezes, 2024](#), p. 2).

From 2012 to 2015, four prime ministers with varying policy outlooks emerged in Australia, heightening political anxiety and tensions surrounding climate change policy and its longevity. In 2017, regulators promoted the voluntary Task Force on Climate-related Financial Disclosures (TCFD) framework [[Task Force on Climate-related Financial Disclosures \(TCFD\), 2017](#)]. Nevertheless, Australia's record from 2010 to 2019 showed a modest 15% drop in CO₂-equivalent emissions [584–484 million tonnes (MT)]. Significant economic and environmental risks exacerbated by insufficient strategic financing and investment in innovative technologies remain for Australia, jeopardising its competitiveness in a low-carbon global economy.

In this study, we analyse the risks and opportunities perceived by corporate managers within Australia's climate change regulatory ecosystem during an era dominated by both RU and RIU, and how these two types of uncertainty influenced organisations' strategic stance on climate change actions. These actions can range from more exploitative short-term, less risky and cost-efficiency focused strategies to long-term, riskier and transformative stances.

3. Literature review

Organisational adaptation strategies are shaped by both external factors (e.g. regulatory bodies, institutional, supply chain, stakeholders and investor developments) and internal factors such as leadership, organisational culture and financial and other organisational resources ([Linnenluecke et al., 2013](#); [Pinkse and Kolk, 2012](#)). Early studies show that environmental regulations significantly impact how managers and organisations respond to regulatory developments (e.g. [Busch et al., 2012](#); [Kouloukoui et al., 2019](#)). Yet the growing research on climate adaptation by business organisations in a dynamic and volatile regulatory eco-system over the last two decades indicates that strategic approaches to climate change ([Aragón-Correa and Sharma, 2003](#)) can still vary widely, with differing views emerging even among those in similar regulatory circumstances ([Gasbarro and Pinkse, 2016](#)).

An earlier study by [Blyth et al. \(2007\)](#) emphasises that uncertainty in climate policy raises financial risks associated with investments in power generation technologies, requiring

higher returns and increasing electricity and carbon prices. The capacity to adjust to potential policy changes resulting from innovations such as the integration of successful carbon capture and storage can impact investment choices. [Bui and De Villiers \(2017\)](#) studied New Zealand electricity generators and found that RU was the main barrier to developing proactive strategies. [Yang et al. \(2025\)](#) find that climate policy uncertainty heightens managerial risk perception, leading firms to favour conservative investment strategies over green innovation due to unpredictability in regulatory changes and market volatility. [Han and Gao \(2025\)](#) share a similar sentiment, suggesting that uncertainty in climate change policies hampers corporate initiatives and presents societal challenges. This view is consistent with [Deegan's \(2019\)](#) suggestion that climate-related uncertainty induces corporate managers to adapt to shifting policies and balance diverse stakeholder interests to maintain organisational legitimacy.

RU often prompts corporations to adopt more conservative strategies, hindering green innovation and proactive climate risk management ([Niu et al., 2023](#); [Gao and Zhang, 2024](#); [Ren et al., 2022](#)). For instance, [Iqbal et al. \(2024\)](#) examine the asymmetric effects of climate policy uncertainty in China on key energy assets, including carbon emission allowance prices and the clean energy stock index. Their findings indicate that this uncertainty leads to varying investor reactions, resulting in asymmetric impacts on energy prices and a negative influence on the development of green technology. [Niu et al. \(2023\)](#) reveal that uncertainty in regulatory policy hurts corporate innovation in green technologies, investment in R&D, and companies' willingness to engage in risk-taking. [Gao and Zhang \(2024\)](#) also find that climate policy uncertainty is negatively associated with capital investment, and this impact extends for at least four years into the future.

On the other hand, past studies also show that managers shape proactive strategies when they perceive issues as threats rather than opportunities ([Jawahar and McLaughlin, 2001](#)) and are more likely to act. [Lopez et al. \(2017\)](#) found that RIU positively affected firms' decisions to invest in environmental protection initiatives; however, no such relationship was observed between RU and investment decisions. The authors argued that the positive relationship between uncertainty induced by regulation and investment may stem from challenges in understanding the interplay between the regulatory environment and non-regulatory factors. Climate change policies, such as a carbon tax, can indirectly affect electricity prices due to non-regulatory market factors such as demand, quantity or operating costs, which may create RIUs.

Similarly, [Garcia-Torea et al. \(2024\)](#) investigate the RU associated with the EU Taxonomy Regulation, which became operative in 2020, and find that it induces RIU. The RU stems from the regulation's perceived unclear measures and rules, as well as the timeline and oversight of its implementation. The RIU emanates from the non-regulatory environment in terms of the potential impact of meeting the new requirements on banks' reputation, since public perception of new disclosures about sustainability exposures was required, banks' competitive position in the market since non-EU peers were unaffected and banks' internal structures and processes since sustainability now had to be embedded throughout given the nature of reporting requirements. The consequences of any of these aspects were not predictable within acceptable levels of certainty. An earlier quantitative archival study by [Lucarelli et al. \(2023\)](#) found that uncertainty about which firms were subject to the regulation was associated with variation in corporate investments in sustainability.

[Lopez et al. \(2017\)](#) suggest that an insignificant relationship between RU and investment may reflect managerial preference for other types of risk management strategies, such as "wait-and-see" or political lobbying, until there is more clarity on the regulation. Therefore,

they emphasise the importance of differentiating the nature of regulatory uncertainties to fully understand their impact on managerial risk perceptions, which in turn potentially affects investment in carbon abatement.

Hoang (2022) observed that under climate policy uncertainty, heavy carbon emitters may tend to reduce R&D spending by adopting a “wait-and-see” approach, delaying decisions until they have clearer information about environmental policies. However, Hoang (2022) claimed that such an impact can vary based on management sentiment, managerial capability and the firm’s maturity. Hu *et al.* (2023) research on the effects of environmental policy uncertainty on green investments reveals that inconsistencies in policy content or unpredictability in policy enforcement can deter companies from making such investments.

This mixed evidence regarding the impact of climate policy changes on corporate climate-related strategies has been associated with how RU needs to be understood through RIU. Further, managerial perceptions and responses to risk are vital to understanding the corporate stance on climate action. Our study aims to address this understudied phenomenon.

4. Theoretical framework – Hoffmann *et al.*’s taxonomy

To address our research questions, we used Hoffmann *et al.* (2008) taxonomy as the theoretical framework. Adopting Hoffmann *et al.* (2008) taxonomy of RU and RIU, we investigate managers’ perceptions and strategic responses to Australia’s two climate change regulations (i.e. Carbon Tax and ERF) and a voluntary reporting framework [Task Force on Climate-related Financial Disclosures (TCFD), 2017], we distinguish regulatory uncertainties from regulation-induced uncertainties as well as isomorphic pressures (e.g. social, political or industry factors) that shape managerial perceptions and organisational responses to managing risks over time.

Hoffmann *et al.* (2008) regulatory taxonomy focuses on four dimensions: (a) Basic direction; (b) procedural; (c) implementation; and (d) interdependence. The Basic Direction focuses on whether a broad agreement exists regarding the regulation’s objective and the extent of this agreement. The Procedural dimension focuses on the clarity of the measures and rules invoked to operationalise the regulation. The Implementation dimension captures the process that a regulation stipulates for implementing its measures and rules. The Interdependence dimension highlights the connectivity of a regulation with other existing and future regulations in a field.

Each dimension entails different risks and opportunities, leading to the RU’s knock-on effects on other stakeholder interests and supply chain stability, i.e. RIU. Hoffmann *et al.* (2009) also contend that RU can accelerate investment decisions by (a) securing competitive resources, (b) leveraging complementary resources and (c) alleviating institutional pressures. The literature identifies several strategies to address various risks and opportunities arising from RIU. We outline the relevant strategies in turn.

March (1991) introduced the notions of “exploration” and “exploitation”, which can impact organisational outcomes such as technological innovation, organisational competitive advantage and survival (Gupta *et al.*, 2006; Wilden *et al.*, 2018). Exploration strategies include searching for new ideas, opportunities and competitive advantages, process innovation and experimentation with new products and unfamiliar markets (March, 1991; He and Wong, 2004). They aim to acquire knowledge for better future outcomes. Exploration is useful when there is high uncertainty about available options or when current choices are suboptimal (March, 1991; He and Wong, 2004; Gupta *et al.*, 2006).

Exploitation strategies focus on maximising the value of existing options using current knowledge of competitive advantages through refinement, choice, production, efficiency and selection (March, 1991), while exploration strategies may lead to many undeveloped new

ideas and insufficient distinctive competence (March, 1991), resulting in substandard solutions. He and Wong (2004) argue that an excessive focus on exploiting existing competencies can create structural inertia, potentially impeding the refinement of those competencies. Consequently, maintaining an appropriate balance between the extremes is advised (March, 1991; He and Wong, 2004).

Exploration and exploitation should not be seen as separate strategies but rather as two ends of a spectrum, as argued by March (1991) and Gupta *et al.* (2006). While exploration is crucial for creating ideas, exploitation may combine existing solutions to generate new ones.

The literature also identifies another strategy, labelled “ambidexterity”. Gupta *et al.* (2006) define ambidexterity as an organisation’s simultaneous pursuit of exploration and exploitation. Thus, ambidexterity balances exploration and exploitation, while others favour punctuated equilibrium, cycling through these periods. The choice depends on the organisation’s resources, goals and environment. Firms can employ both ambidextrous and punctuated equilibrium strategies. Ambidexterity can be essential for organisational adaptation, innovation, learning and survival.

Maletic *et al.* (2018) found that organisations with similar traits may require customised strategies to incorporate sustainability, suggesting that varying approaches may be essential. They called for longitudinal studies to examine how exploitation and exploration strategies coevolve to develop organisational ambidexterity. We address this call for longitudinal studies and focus on March’s (1991) categorisation of *exploration* and *exploitation* as two ends of a spectrum, or *ambidexterity*, to investigate how managers’ perceptions of regulatory and regulation-induced uncertainties influence climate-related risk management strategies.

5. Research design and method

5.1 Research design

Given our research questions and theoretical focus, we chose an interpretive qualitative approach (Miles and Huberman, 1994; Broadbent and Unerman, 2011). The interpretive qualitative research design allowed for exploring and understanding the phenomena from the actors’ perspectives in their natural settings (Morgan and Smircich, 1980; Hoque *et al.*, 2026).

We conducted our field study within six large Australian-listed companies from 2013 to 2018. We chose this period because of the introduction of the Carbon Tax, ERF and the formation of the TCFD. We chose all six companies (subsequently referred to as Company A, Company B, etc.) for investigation because they are high carbon-emitting, required to report under Australia’s *National Greenhouse Energy Reporting* (NGER) Act [3] and come from five General Industry Classification Standard (GICS) Industries, Consumer Staples, Energy, Materials, Industrials and Utilities. Companies A to E are among Australia’s highest Scope 1 emitters, and Company F is among the highest Scope 2 emitters.

5.2 Data collection

We collected data from two primary sources. The first source was archival data from various government websites used to determine the relevant climate change-related regulations and government policies. This archival data played a foundational role in our subsequent field interviews. Appendix 1 [4] provides a list of the archival data collected.

We conducted 31 open-ended interviews (see Appendix 2 [5] for questions) with individuals working in six case-study companies. We chose these individuals because they are directly involved in climate change-related activities and agreed to participate. Table 1 presents the profiles of the interviewees. An open-ended approach during the interviews

Table 1. Profile of the interviewees

Company No.	Industry classification	Description Scope 1 /Scope 2 and ASX position*	The profiles of interviewees and the number of interviews conducted		
			2013	2016	2018
A	Utilities (U)	Scope 1 (ASX Top 50)	• Manager carbon strategy and operations • Financial accountant • Environmental manager • GM sustainability and carbon • Corporate sustainability manager • Process technology engineer	• Manager carbon strategy and operations • Financial accountant • Corporate sustainability manager • Process technology engineer	• Manager of carbon strategy and operations • Corporate sustainability manager • Process technology engineer
B	Materials (M)	Scope 1 (ASX Top 100)	• Manager sustainability and climate change • Finance manager	• Head of sustainability • Group manager environmental and carbon strategy • Carbon advisor	• Head of sustainability
C	Industrials (I)	Scope 1 (ASX Top 100)	• Environmental manager for carbon • General manager carbon and sustainability • Head of engineering, energy and sustainability • Sustainability manager • Sustainability program manager	• General manager carbon and sustainability • Head of energy operations • Head of sustainability and energy	• Carbon advisor • General manager carbon and sustainability • Head of energy operations • Head of sustainability and energy
Total interviews			13	10	8

Note(s): *In 2018, Company C achieved a position in the top 50 rankings, while Company D, having dropped to the top 300 in 2016, subsequently improved its standing and moved back into the top 200. The remaining companies maintained their respective positions on the ASX throughout all three rounds of interviews

allowed for open discussion about individuals' experiences and views on climate-related activities, uncertainties and strategic management issues.

We conducted 13 interviews with senior managers directly involved in carbon emissions management activities in 2013. Ten managers from the same companies were interviewed in 2016, almost all of whom claimed that the ERF was evolving and needed more time to be understood. In 2018, we interviewed eight managers from six companies. Representing a disclosure framework rather than an emissions policy, the 2018 interviews included the TCFD recommendations due to regulatory pressure to voluntarily adopt them. The duration of interviews ranged from 50 to 70 min, with an average of 60 min. The field study was conducted following approval from the university's human research ethics committee. All interviews conducted adhered to relevant consent guidelines, and informed consent was obtained from all participants. Care is taken to preserve participant anonymity when presenting interview findings.

5.3 Data analysis

The audio recordings were carefully transcribed *verbatim* immediately after the interviews. The interview transcriptions were provided to the interviewees for their review, and none of them requested any changes. Thematic analysis is widely recognised as an effective method for qualitative research, providing a comprehensive narrative of the data (Nowell *et al.*, 2017). We performed thematic analysis on de-identified interview transcripts, guided by the framework established by Braun and Clarke (2019) using NVivo 12 software. Initially, the first author manually reviewed the interview transcripts to identify relevant recurring themes. Following this, the second author used NVivo to code these themes.

In line with Hoffmann *et al.* (2008), when analysing the interview data, we coded uncertainties from the policy framework, such as unclear design, vague allocation rules and shifting political priorities, as "Regulatory Uncertainty" (RU). This encompasses uncertainty about the rules, their duration and potential future changes. Conversely, concerns regarding market actors' responses to regulations are termed regulation-induced uncertainty (RIU), which includes uncertainties about how suppliers, competitors and customers will react and the operational consequences of those reactions, such as increased costs. To examine how RU and RIU impact managerial perceptions and corporate strategies regarding climate-related risk management, we used March's (1991) framework of exploration and exploitation as a spectrum, with ambidexterity representing a balance between the two (Gupta *et al.*, 2006). Innovation, experimentation and technological shifts were classified as exploration strategies, whereas refinement and efficiency improvements were classified as exploitation strategies. Combining both forms creates an ambidexterity strategy.

In 2013, interviews focused on the Carbon Tax policy, while in 2016, they centred on the implications of the carbon tax repeal and the new ERF policy. By 2018, the focus of interviews shifted to the TCFD and the ERF, which, by then, remained Australia's primary climate policy instrument. The interview quotations were labelled according to company identification (A-F), industry sector (i.e. CS [Consumer Staples], E [Energy], I [Industrials], M [Materials] and U [Utility]), the manager's title (e.g. Carbon Advisor) and fourth, the interview year. All interview data were cross-checked with archival data, where appropriate, to account for alternative explanations.

6. Findings

We present our findings on managerial perceptions conveyed in our interview evidence, distinguishing between RU and RIU for each of the three eras of climate-related policy change and interpreting corporate responses. To this end, we present our descriptive archival

data on relevant climate-related government policies, regulations and legislation, followed by our interview-based evidence on managers' interpretations of the uncertainties experienced and corporate strategic responses to carbon emission management in each of the three eras. The theoretical discussion of the findings follows in Section 7.

6.1 ERA 1: The Carbon Tax (July 1, 2012, to June 30, 2014)

Australia signed the Kyoto Protocol in 2007, committing to cut greenhouse gas emissions by at least 5% below 2000 levels by 2020 (Rankin *et al.*, 2011). In 2011, the Rudd Labor Government proposed an emissions trading scheme. However, political disagreements prevented Senate approval. Through the Clean Energy Act (2011), the Gillard Labor Government introduced a "carbon tax", effective July 1, 2012. Initially a fixed-price emission permit at AUD\$23 per tonne, this tax was set to increase by 2.5% plus inflation annually for two years then shift to a market-based emissions trading scheme in 2015 (Andersson and Karpestam, 2012). The tax applied to about 500 of the nation's highest polluters, labelled "liable entities", if any facilities emitted Scope 1[1] emissions of 25,000 tonnes of CO₂-e or more annually (Clean Energy Act, 2011). The policy aimed to encourage carbon reduction and drive clean energy investment.

However, the carbon tax faced strong resistance, with opposition parties and interest groups (Newman, 2011) predicting higher energy costs, increased living costs and coal industry unemployment. In contrast, 60% of 145 people surveyed by the Economic Society of Australia believed a carbon tax was sound economic policy (Creagh, 2011). The Liberal Party-led Coalition Government replaced the carbon tax with the voluntary ERF scheme, potentially causing Australia to rank worst among industrial countries on climate change actions in 2015 (Burck *et al.*, 2015).

Most interviewees perceived the RU surrounding the carbon tax as high due to the politics and doubts about its longevity. For example, the Manager Carbon Strategy and Operations for Company A (Utility), stated: "[...] we need to have a little bit more certainty...if we had bipartisan support, we would not be so cautious in the next few years". The Sustainability Manager for Company B (Materials) stated: "[...] but the bigger thing that has more effect is the uncertainty surrounding the carbon price" and "[...] if Tony Abbott [Opposition Leader] [...] gets in and abolishes the carbon price or reduces the price per tonne significantly, it would cause financial problems for our business". The Environment Manager for Carbon at Company C (Industrials) was troubled about "[...] the lack of regulatory certainty around what is happening" and added that: "[...] the political risk [...] means we cannot make investment decisions in the initial term". The Environmental Manager for Carbon from Company D (Industrials) commented, "[...] different political situations, different programs have come in play, different attitudes from stakeholders, so it is obviously going to change over time". The Sustainability Manager for Company F (Consumer Staples) stated, "[...] it does pose an interesting consideration when it comes to making longer-term capital investments in terms of any instability or uncertainty around government policy".

Thus, for Companies A, B, C, D and F, the high RU surrounding the permanency of the carbon tax inhibited investment, leading to an exploitative strategy. However, the Carbon Advisor for Company E (Energy), while acknowledging the high RU, indicated an exploratory approach, stating: "But regardless of today's scheme [carbon tax], we build our sites to 20 years in the future [...], so we therefore run the emissions reductions on all of our new facilities".

In the 2013 interviews, five companies (A, B, C, D, F) chose exploitation strategies, consistent with Slawinski *et al.* (2017) finding that high RU engenders inaction at various levels. The carbon tax's financial implications made carbon reduction investment too risky if

the policy proved short-lived, a politically contingent possibility beyond any company's ability to control. However, Company E continued its exploratory strategy, despite acknowledging RU.

Examining managers' perceptions of RIU in the carbon tax era raises questions about competing strategic corporate responses to RU and RIU issues and how to interpret any differential responses. Substantial carbon tax liabilities and limited control over tax longevity risk hinder responses to RU beyond passive tolerance (Engau and Hoffmann, 2011), making perceived RIU influential in strategic decision-making amid competing strategies.

In terms of RIU, Company A (Utility) conveyed carbon tax-related concerns over customer retention and demand growth, with the Manager – Carbon Strategy and Operations noting that customers, themselves high emitters, were “wanting to understand [increased prices] [...] from a cost perspective”, and the Financial Accountant noting the need to “[...] capture that information [on costs], and how we track it, and how we then use that and put it into our tariffs [...] to make sure we recover our costs from our customers”. Believing that inaction was too risky, managers were “[...] talking about the cost of carbon with our business customers before any other retailer and we continue to do that”, suggesting an exploitation strategy, a posture consistent with that for RU.

Company B's (Materials) Sustainability Manager commented on providing employee on-site training on “[...] what it will mean for the electricity bill or their gas bill [...]”, an educational approach indicative of high RIU. The Vice President of Sustainability focused on proactivity: “There are also opportunities for us because we have three product development teams that focus on product innovation”. High RIU was perceived as creating opportunities for lower carbon products attractive to customers, leading to an ambidextrous strategy likely to dominate the exploitation response to RU.

For Company C (Industrials), the Finance Manager noted that: “the legislative environment [...] in terms of focus on carbon emissions would be influencing; however, I think there would probably be some level of focus regardless”. Similarly, Company C's Environment Manager for Carbon acknowledged “[...] we aim to reduce - well, we set fuel reduction or fuel efficiency targets [...]”, later adding: “So that is the target that [name of an international association] [...] has set”.

Company D in the same Industrials category noted similarly, with the Environmental Manager for Carbon emphasising that: “[...] through our [name of an international association], we are committed to taking action and working out the potential of climate change on our operations”. High RIU for companies C and D under international pressure leads to an ambidextrous strategy dominating their exploitation response to RU.

Company E's (Energy) RIU arose from concerns about competitors in countries ignoring emissions. The Carbon Advisor commented, “They are never going to have a carbon tax, any of our competitor countries, so it is a competitive issue for us”, indicating high RIU. The same interviewee stated: “We developed a company-wide mandatory standard for all designed facilities; you have to design into things that would reduce emissions”. Thus, designing to achieve emissions reduction was intentional, purposive, conceived and executed at a considerable cost (“the cheapest emissions savings we can do are in the millions of dollars”), revealing an exploratory strategy in response to RIU, aligned with that for RU.

RIU for Company F arose from tax-induced rising costs, noted by its Head of Energy and Sustainability: “[...] they do not necessarily want to spend more money [...]. We have to manage a process around how we either pass it on or do not pass it on [...]”. This interviewee noted “[...] an opportunity to reduce that cost [...] for our customers.” Company F's Sustainability Program Manager said “[...] opportunities for us to change

[with] social attitudes [...] and as customers expect more from us” and “[...] several dedicated investment proposals [...] are likely to be approved over the coming years that are directly related to reducing our consumption and therefore our carbon output.” Company F’s response to RIU was *exploitation* due to higher prices, heightened expectations and future emissions reduction initiatives, aligning with its response to RU.

The carbon tax failed to promote investment in emissions reduction because its longevity risk elevated RU. Despite a long-term investment strategy, Company E was not motivated by the tax. Rising energy prices, customer concerns about product price hikes and international pressure compelled companies to manage costs, retain customers and gain a competitive edge. The carbon tax’s RIUs significantly influenced corporate strategies.

6.2 ERA 2: Emissions Reduction Fund (ERF) and post-Tax repeal: from July 1, 2015, onwards

The ERF funds Australian businesses, communities and landholders to implement emissions reduction practices. Organisations register their project and participate in a reverse auction to bid for new projects (e.g. reduction of 10,000 t of CO₂-e) with a proposed price per tonne. The government sets an unrevealed benchmark price and awards projects accordingly. The government allocated A\$2.55bn to the ERF and spent A\$2.30bn after seven auctions, with uncertainty about top-up funding. The scheme failed to reduce emissions in key economic sectors due to skewed fund allocation to land and agriculture sectors, administrative complexity and uncertainties around the policy and its future funding (Burke, 2016).

Company A’s industry was not ERF-eligible, and it continued to perceive high RU. The Carbon and Renewable Energy Policy Manager noted “[...] *regulatory change and policy uncertainty [...] as two of the highest risks within our company*”, leading to an *exploitation* strategy. This manager noted that with the tax repealed, carbon reductions could no longer be valued, so “[...] *we reneged on the ability for a number of those reduction opportunities to be commercially viable or commercialised*” and “[...] *what we considered to be long-term prudent approaches changed virtually overnight*”, creating a stranded asset risk (Shimbar, 2021); thus *exploitation* continued as the strategic response, aligning with RU. The carbon tax incentivised for this utility to reduce dependence on a declining value fossil fuel asset. The tax repeal invalidated the justification for this “long-term prudent” investment in non-fossil fuel alternatives, delaying decision-making and increasing risks from assets that regulators or stakeholders could deem unacceptably polluting when alternatives exist.

Company B (Materials) was eligible for the ERF; however, its Corporate Sustainability Manager commented, “*Direct Action [the ERF] is still evolving, so there is considerable business uncertainty around the Policy*”, and RU remained high, continuing its *exploitation* strategy from Era 1. The Sustainability Manager also noted, “[...] *we do not have any reduction targets going forward anymore. Management is not investing in target setting any longer*”, so RIU was lower than during the carbon tax. Company B faced stakeholder pressure, with “[...] *increased demand for low-emission products from us*”, and when tendering, with “[...] *more and more companies [...] asking for a sustainability report from us as to how we manage our emissions and our water use*” and “[...] *how we are managing risks [...]*”. RIU in Era 2 led Company B to shift from an ambidextrous to an *exploitation* strategy, aligning with the RU in this era.

Companies C and D (both Industrials) continued their investment strategy, with Company C’s Manager – Environment and Carbon Strategy stating, “[...] *we are continuing to work towards fuel efficiency as we were during the carbon tax, even before it was implemented [...]*.” Company D’s General Manager of Group Carbon and Sustainability echoed similar sentiments: “*There was a focus on those things before the carbon tax and a focus during the carbon tax*

period, and there has been an extreme focus on those things since the carbon tax was repealed". The carbon tax burden was lifted, but both companies faced ongoing international pressure and changed from exploitation to an ambidextrous strategy in response to RU.

Company C's Manager – Environment and Carbon Strategy discussed issues indicative of RIU, acknowledging double materiality in stating that: *"we need to be seen to be doing the right thing and taking initiative [...] and positively acknowledge the impact [...] on the climate to retain and attract our customers"*, and *"We were quite conscious of retaining our social licence to operate"*. The General Manager of Group Carbon and Sustainability for Company D emphasised that: *"[...] reputational management is important to us, innovation in the company is important to us [...]"* and *"We had already factored that [carbon tax] into our planning [...]"* Hence, we categorise these companies' RIU response as ambidextrous, continuing from Era 1 and aligned with that for RU.

Company E's (Energy) Carbon Advisor continued to perceive RU, stating: *"[...] so I would say that it [carbon tax] was entirely politically driven and that it was replaced with a new carbon policy [ERF]"*. Nevertheless, the company continued *"[...] to review and revise our plan, but essential components of it have not changed over time [...]"*, meaning that it continued its exploratory strategy. In terms of RIU, this Carbon Advisor remained optimistic about opportunities, stating that *"[...] globally we see a carbon price as ultimately an opportunity for the [sector] industry as a lower carbon fuel to help fuel global economies."* In Era 2, Company E's exploratory strategy continued, aligned with that for RU.

For Company F (Consumer Staples), the Head of Sustainability and Energy Manager noted that climate change was *"[...] a divisive political issue that's used by both sides of government to influence public opinion"*, and that *"[...] we already have the shadow carbon tax in place to prepare for a return of the carbon tax or a similar emissions trading scheme"*, implying continuing high RU, leading to a continued exploitation strategy. Company F's Head of Energy and Operations emphasised State government incentive schemes, an indicator of RIU under Hoffmann et al. (2008) taxonomy, stating that: *"[...] we continue to make investments in projects where we see an opportunity through the NSW Government's Energy Saving Scheme and the [...] Victorian Energy Efficiency Target scheme."* Company F continued internal short-term investment strategies in response to RIU, leading to an ambidextrous strategy unaligned with its RU strategic response.

Despite only one case company joining the ERF, comments about the tax's repeal and ERF's inefficiency and complex rules reveal high RU, with only companies C and D shifting from Era 1 RU strategies (from exploitation to ambidextrous). Stakeholder pressures arose for RIU to be seen as "doing the right thing" and managing reputations. Company B switched from ambidexterity to exploitation. Companies C and D maintained Era 1 ambidextrous strategies, Company E continued with its exploratory strategy and Company F shifted from exploitation to ambidexterity. Company A, ineligible under the ERF's rules, constrained its emissions reduction efforts, risking the stranding of its assets.

6.3 ERA 3 Taskforce on Climate-related Financial Risk Disclosure (TCFD) from July 2017 onwards

The corporate regulator's "push" for TCFD framework adoption prompted reassessment of what content and how companies approached and reported on carbon management actions. Despite the TCFD's recency, awareness of the impacts of climate change was growing. We label the TCFD recommendations [see [Task Force on Climate-related Financial Disclosures \(TCFD\), 2017](#)] as quasi-regulation. Investor pressure to implement its recommended disclosures was growing, adding RIU to ongoing RU.

Recalling that during the 2016 Era 2 interviews, some managers commented that they needed more time to fully understand the ERF, which had been introduced in 2015. The 2018 interviews also covered perceptions of the now well-established ERF. The ERF remained Australia's central climate policy instrument in 2018, so its continued prominence made it essential to explore participants' views on its operation and implications.

Company A's (Utility) Carbon and Renewable Energy Policy Manager said that: "[...] within the last four years [...] the level of policy uncertainty has absolutely been a critical factor in assisting or preventing companies from investing in what I would call carbon emission reduction [...]" and that "We would only participate in the ERF if there is a commercially viable option to do so", meaning that an exploitation strategy continued.

The Sustainability Manager for Company B (Materials), an ERF-involved company, lamented that "we do not know how the safeguard mechanism is going to work as of 2018, 2019 still. We don't know how we're supposed to apply. We don't know what the default value will be", leading to an ongoing exploitation strategy.

Managers for Companies C and D (Industrials) emphasised RU, with Company C's Group Manager Fuel and Environmental stating: "It is tough to bring in a business case and quantify [...] the potential savings [...] if the policy is uncertain [...]". Similarly, Company D's General Manager Group Carbon and Sustainability stated: "[...] there remains significant policy uncertainty [...] the fact that there have been numerous independent reviews, government reviews commissioned and then ignored [...], the more difficult it is to make sound investment decisions". Companies C and D shifted their ambidextrous strategy to exploratory.

Company E's (Energy) Carbon Adviser mentioned continuing RU, stating: "[...] see the uncertainty surrounding Australian climate change policies [...] obviously makes emission management policies very difficult [...]", adding "That makes all capital investment [...] much harder." Our lone case pursuing exploratory strategies in Eras 1 and 2 shifted to exploitation, the only instance of bypassing ambidexterity *en route* to either exploitation or exploration.

At Company F (Consumer Staples), the Head of Energy and Sustainability stated: "The challenge I have is that due to political uncertainty, beyond five years we do not know [what is] the model." Company F continued its exploitation strategy in response to RU.

Company A's Carbon and Renewable Energy Policy Manager stated, "[...] organisations are looking to adopt something along those lines [TCFD Recommendations] regardless of the specifics of politics [...]". The same manager later added: "The simple fact is we believe that in the future the future will be carbon constrained". We assess the strategic response as a shift to ambidexterity, unaligned with its Era 3 RU exploitation response.

The Sustainability Manager for Company B noted: "So things like the [TCFD] and reporting against those need targets and transparent reporting on how we're managing this [...] That goes to our share price, investor relations, sustainability indices, and ratings." Stakeholder pressure influenced Company B to shift to an ambidextrous strategy, unaligned with its Era 3 RU exploitation response.

Company C's Group Manager – Environment and Sustainable Fuel stated, "Investors are increasingly asking for information related to climate risk and for companies to consider how they respond to climate risk. That, in large part, is being helped by the Task Force Climate-related Financial Disclosure guidelines, the TCFD". Company D's General Manager Group Sustainability stated: "We have a lot of strategic investors. So, they have a strategic interest in investing in our company, which goes beyond just the financial." These two Industrial companies continued their ambidextrous strategies, which were unaligned with their exploitation strategy in response to RU.

Company E's Senior Climate Change Adviser had little to say about the TCFD other than: "I think at the moment they're [authorities] looking for an acknowledgement that the TCFD is sensible and our opinion on TCFD." Unlike others, Company E seemed to face little pressure to implement the TCFD recommendations, and the company moved towards an exploitation strategy, matching its shift in response to RU.

Company F's (Consumer Staples) Manager Energy and Operations stated the TCFD recommendations: "Institutional investors have expectations. This is non-negotiable, whether it is the community, shareholders, shareholder interest groups, or investor analysts. There is a growing expectation." The Head of Sustainability stated: "[Company name] does look at the public perception and what other competitors are doing, and we try to stay at a level - or if not higher [...]". Company F continued its *ambidextrous* response to RIU, which was unaligned with its exploitation response to RU.

Table 2 summarises the shifts and variations in climate change strategies adopted by our six case companies in response to the RUs and RIUs in each of the three eras.

7. Discussion

To understand how RU and RIU affect firms' climate risk strategies, we use Hoffmann *et al.* (2008) analytical framework. Table 2 shows substantial variations in climate-related strategic responses among case companies across three national climate policy eras. RU surrounding the carbon tax and ERF harmed policy goals, aligning with previous research (Hoang, 2022; Hu *et al.*, 2023; Garcia-Torea *et al.*, 2024) on such uncertainties' negative effect on emissions management investment.

Figure 1 further summarises the key findings and depicts the directions of flows and interactions in response to policy events among the case companies throughout the study period.

According to Hoffmann *et al.* (2008, p. 714), RU causes unpredictability about political support for scientific presumptions underlying regulation or societal preference changes. Our field evidence suggests that the RU surrounding the carbon tax persisted, with fears that it would not last when in place and fears it would return once repealed. Andrew *et al.* (2010) suggest a carbon tax can drive significant action by high emitters if implemented effectively. In our case companies, the carbon tax could have been effective if implemented with political certainty.

Our study indicates that the ERF in Era 2 involved significant policy uncertainty and poor financial incentives. Therefore, the voluntary ERF negatively affected strategies for climate-related risk management, with only one company participating and several managers citing its flaws and opting out. This ongoing uncertainty resulted in stable responses across the study period for our six case companies, except for one that shifted radically from exploration to exploitation. Hoffmann *et al.* (2008) highlight that analysing RU is crucial to understanding its impact on companies and policy objectives. Consistent with prior research (e.g. Hoang, 2022; Hu *et al.*, 2023; Garcia-Torea *et al.*, 2024), our findings suggest that RU harms the successful attainment of policy objectives.

Our empirical evidence shows RIU drove emissions management actions and positively influenced strategic postures during the carbon tax era. Our findings suggest that the exogenous shock of the carbon tax triggered realisations that high-emitting corporations must take responsibility and action, for instance, to increase operational costs through electricity pricing and retain and support customers facing higher electricity prices. This pressure forced companies to take carbon emission management actions regardless of the RU surrounding the carbon tax. Some companies perceived RIU uncertainty as an opportunity for greater brand differentiation and competitive advantage through innovation.

Table 2. Summary of six case company climate-related responses to RU and RIU strategies

Era no.	Exploitation	Ambidexterity	Exploration
Era 1	A-RU A-RIU		
	B-RU	B-RIU	
	C-RU	C-RIU	
	D-RU	D-RIU	
Era 2	F-RU F-RIU		E-RU E-RIU
	A-RU A-RIU		
	B-RU B-RIU		
Era 3		C-RU C-RIU	
		D-RU D-RIU	
	F-RU	F-RIU	E-RU E-RIU
	A-RU	A-RIU	
	B-RU	B-RIU	
	C-RU	C-RIU	
	D-RU	D-RIU	
	E-RU E-RIU		
	F-RU	F-RIU	
Co.	Industry	Regulatory uncertainty (RU)	
		Regulatory-induced uncertainty (RIU)	
A	Utility	Era 1 Carbon Tax	Era 2 ERF
B	Materials	Exploitation	Exploitation
C	Industrials	Exploitation	Exploitation
D	Industrials	Exploitation	Ambidextrous
E	Energy	Exploitation	Ambidextrous
F	Cons.Staples	Exploitative	Exploitative
		Exploitation	Exploitation
		Era 3-TCFD	Era 3-TCFD
		Exploitation	Exploitation
		Exploitation	Ambidextrous
		Exploitation	Ambidextrous
		Exploitation	Ambidextrous
		Exploitation	Ambidextrous
		Exploitation	Exploitation
		Exploitation	Ambidextrous
Note(s): Regulatory Uncertainty (RU) and Regulation-induced Uncertainty (RIU) Strategies			
Source(s): Authors' creation			

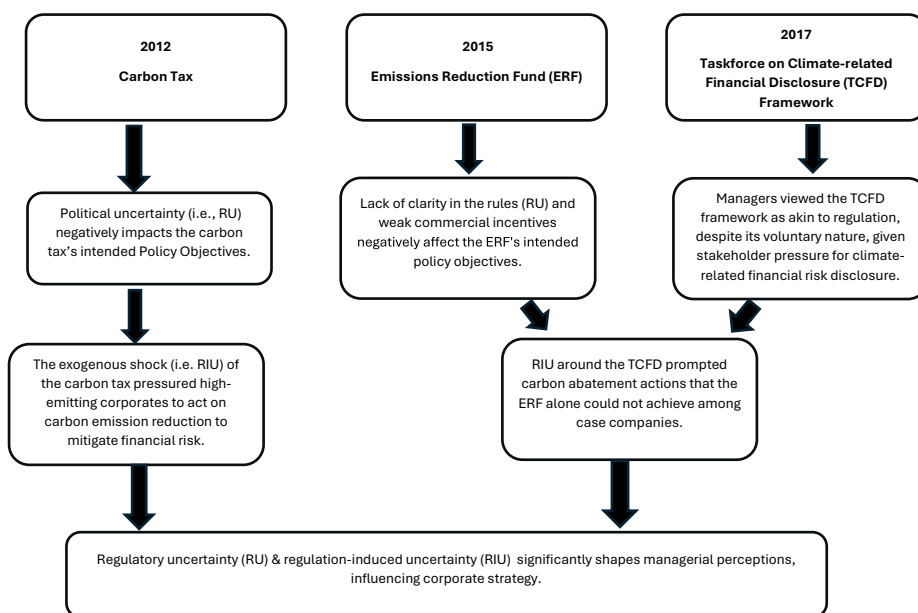


Figure 1. Regulatory uncertainty (RU) and regulation-induced uncertainty (RIU) and corporate strategic responses

Source: Authors' creation

Similarly, despite being voluntary, institutional pressure to adopt the TCFD framework led managers to see it as regulatory. The RIU, through institutional pressure, encouraged carbon abatement actions the ERF alone could not achieve. These findings align with [Lopez et al. \(2017\)](#) and [\(Garcia-Torea et al., 2024\)](#), who found that RIU has a positive impact on investment decisions in environmental protection initiatives, and [Johnson et al. \(2025\)](#), who found similarly after conducting interviews with international company representatives from 2021 to 2022.

Our findings support the view that RU and RIU play a pivotal role in understanding the influence of managerial perceptions of uncertainties surrounding climate policy on corporate strategic responses (see, for example, [Garcia-Torea et al., 2024](#)). Several other researchers share a similar sentiment, suggesting that RIU may trigger corporate behaviour to adopt more conservative strategies around climate risk management ([Niu et al., 2023](#); [Gao and Zhang, 2024](#); [Ren et al., 2022](#)).

8. Conclusions, contributions and implications

8.1 Conclusions

We draw two major conclusions from the evidence presented in the preceding findings section. Firstly, we suggest that managers' cognitive beliefs about risks surrounding regulatory uncertainties and regulatory-induced uncertainties play a significant role in their strategic responses to managing climate-related risks. Secondly, we conclude that companies that retain an exploitative strategy for longer than optimal, such as Company A, are at risk of holding stranded assets or missing opportunities. The foregone carbon tax payable if

emissions reductions through investment in non-fossil fuel assets occurred sustained the commercial imperative to invest. Without that imperative, fossil fuel-based stranded assets became more likely. As [He and Wong \(2004\)](#) caution, an excessive emphasis on exploiting existing competencies can lead to structural inertia, rendering firms rigid and unable to refine or adapt their capabilities. To avoid this pitfall, companies should strive for a balance between exploitation and exploration ([March, 1991](#)). Some organisations achieve this through ambidexterity, enabling them to pursue both strategies simultaneously to foster adaptation, innovation, learning and long-term success ([Gupta et al., 2006](#)).

8.2 Contributions to the literature

This study makes several contributions to the empirical and methodological literature. Firstly, we present scarce longitudinal evidence that allows for the analysis of subtle shifts in risk culture and climate risk management strategies across changing national climate-related policies and evolving stakeholder attitudes. Secondly, we provide evidence of how applying [Hoffmann et al. \(2008\)](#) taxonomy can assist in explaining corporate strategic actions towards carbon emission management. The corporate responses reinforce the well-known distaste for RU (e.g. [Hoffmann et al., 2009](#); [Slawinski et al., 2017](#)). However, past studies have not explored the impact of RIU in depth.

To this end, building on the interview-based qualitative, longitudinal design, our findings advance existing quantitative research on policy uncertainty and studies focusing on single regulatory episodes. In depth interviews with participants during our longitudinal field study helped us construct alternative interpretations until we were satisfied that the representation or explanation given by participants was a faithful account. This methodological approach contrasts with past studies involving the “hypothetical-deductive approach”, which requires specifying certain variables and stating specific hypotheses to be tested with quantitative data. [Miles and Huberman \(1994\)](#), [Yin \(1984\)](#) and ([Patton 1980](#)) argue that in contrast to quantitative research methods, qualitative case study approaches emphasise the importance of getting close to practising people and situations to understand firsthand the realities and minutiae of the daily activities of those involved in practice. Furthermore, applying [Hoffmann et al. \(2008\)](#) taxonomy as a theoretical framework helped us explain strategic responses to Australia’s national climate policy developments over time.

8.3 Implications of the study for practice

The study’s findings have implications for two primary stakeholders: regulators/policymakers and organisational decision-makers.

8.3.1 Implications for regulators/policymakers. This study provides useful insights for regulators and policymakers by demonstrating the potential societal harms arising from the uncertainty surrounding politically induced policy reversals, as well as the need for clear and unambiguous wording in regulations and laws. Our finding that by the end of our study period, mere “encouragement” by the corporate regulator for corporate adoption of the TCFD Recommendations was achieving what earlier regulation had not – greater transparency and acceptance that “business as usual” was no longer acceptable to stakeholders – offers insights into the power of “soft regulation”.

8.3.2 Implications for organisations. Our findings are a valuable reference for organisational decision-makers when it comes to addressing climate-related change and risk management strategies in several ways. Firstly, by exposing how the power of stakeholders (e.g. regulators) influences organisational managers’ responses to regulation and quasi-regulation pressure. Secondly, by demonstrating the dominance of economic interests in the trade-off between emissions, growth and profitability. Thirdly, by providing a lesson for

organisational managers that exposes the different cognitions and risk beliefs regarding climate-related events among managers within the same company who fulfil different professional roles (e.g. financial accountants versus carbon managers). Finally, by showing how some companies struggled with decision-making in the context of effectiveness in decarbonising. As such, our work is vital for organisations as it highlights the varied challenges that high-emitting companies face in managing the risks associated with climate issues.

8.4 Limitations of the study and implications for future research

As with all research, our study has some limitations. Interview-based evidence analysis is always subject to claims of interviewer or interpretation bias. However, each of the first two-named authors coded and analysed the evidence separately to minimise this risk as much as possible. We acknowledge, however, that individuals' perceptions may be influenced by hidden or immeasurable factors. Therefore, the generalisation of the study's findings must be made with caution.

Additionally, our sample size is small. Future studies may gather larger samples over extended study periods to test the impacts of regulatory uncertainties and regulation-induced uncertainties.

Future research could involve interviews with managers of high-emitting companies in subsequent phases of Australia's climate-related policies. Our Australian study could also be extended by incorporating global comparisons and replication in international settings. For instance, between 2023 and 2025, the European Union has shown regulatory back-and-forth on environmental matters (e.g. the omnibus package revising the Corporate Sustainability Reporting [CSRD] and Corporate Sustainability Due Diligence Directive [CSDDD] provisions). This regulatory volatility has created new uncertainties, similar to those analysed in our Australian situation. Future research may wish to extend our study by addressing the issues highlighted in the European context.

Furthermore, using multiple case studies, future research could benefit from applying Hoffmann *et al.* (2008) taxonomy to explore the interplay between the diverse interests of stakeholders beyond individual organisations in different climate-related regulatory environments. In conclusion, this study demonstrates how climate-related government regulatory oversight can influence managers' climate-related strategic risk posture.

Notes

- [1.] For details, visit <https://cer.gov.au/schemes>
- [2.] For details, visit www.fsb-cfd.org/
- [3.] For details, visit www.greener.com.au/
- [4.] Available on [Appendix 1](#) on Insight.
- [5.] Interview questions are available on [Appendix 2](#) on Insight.

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Appendix 1. Archival documents collected

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Appendix 2. Interview questions 2013 – During the carbon tax period

- What factors motivate your company to take action to manage carbon emissions?
- What is the influence of the Carbon Tax on your company?
- What is the strategic plan to minimise the risk of carbon emissions?
- Could you elaborate on how regulatory and political uncertainty influences your company's approach to emissions management and the implementation of related initiatives?
- What action plan does your company have to minimise risk while maximising opportunities?
- How does your company manage its carbon emissions? Please provide an overview (broad goals and timeframes) of the type of action plan(s) your company has in place.

- How does your company know if its strategies are effective and aligned with your plan?
- How do you see the top management's support for emissions management actions by your company?
- How does your company communicate its carbon emissions actions internally and externally?
- What benefits has your company experienced from managing its carbon emissions?

2016 and 2018 – During the ERF and TCFD periods

- Is your company exposed to regulatory/compliance risks related to climate change?
- Does the carbon tax withdrawal influence your company's strategies/actions regarding climate change risk management?
- Please share your perspective on how the ERF compares to the Carbon Tax in influencing your company's emissions management actions.
- Could you elaborate on how regulatory and political uncertainty influences your company's approach to emissions management and the implementation of related initiatives?
- Would establishing a pricing mechanism, such as a carbon tax, drive your company to take more emissions management actions?
- Do you think ERF funding sufficiently attracts companies that are covered by the safeguard mechanism to apply? If not, why?
- Does your company participate in the ERF? If yes, how did you find the process? If not, what are the main factors that discourage your company from participating in the ERF?
- What are the most important factors that would increase the likelihood of your firm participating in the ERF?
- What are the main strategic actions your company has taken during the last few years to manage your company's emissions levels? Could you please provide examples of some positive outcomes that your company has achieved as a result of the above actions?
- How does your company see the influence of community pressure on climate change actions taken by your company?
- What influence will the recent TCFD disclosure requirements have on your company's climate change risk disclosure?
- What are the factors that encourage the implementation of carbon emission management actions by your company?
- What are the main barriers to your company taking significant climate change mitigation and adaptation actions?
- What type of support does your company expect from the government in managing emissions?

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