Regulatory uncertainty in the voluntary carbon offset market

The case of the carbon offset project developer.

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Abstract

The voluntary carbon offset market is becoming an important instrument against climate change yet faces an ambiguous future with the introduction of a new global climate regime under the Paris Agreement. With as a result, the project developers in this market are facing substantial regulatory uncertainty. These organisations have been dealing with (regulatory) uncertainties multiple times as they are characteristic for carbon markets. This makes the project developers experts in dealing with uncertainties. However, academic literature has given little attention to regulatory uncertainty in the voluntary market and to how actors experienced in operating in carbon markets cope with this uncertainty. Hence, this thesis aims to examine regulatory uncertainty in the voluntary market and how project developers perceive and respond to this uncertainty. In total, the strategic behaviour of 17 project developers is analysed by conducting qualitative research. This research involved 17 semi-structured interviews complemented with secondary data and observations during a five-month internship at the project developer FairClimateFund.

This study found that the project developers perceive the regulatory uncertainty as non-threatening. The project developers show great confidence in the future and their ability to cope with the regulatory uncertainty. High market potential combined with their expertise in operating in carbon markets, and for some of them, their independence of carbon markets influence how they perceive and react to the regulatory uncertainty. The project developers show both a general strategic behaviour as three strategic postures in their coping with the uncertainty. With these strategic postures, they pursue a different goal. They either aim to solely follow the developments around the Paris Agreement, build resilience towards the regulatory uncertainty, or influence the outcomes of the regulatory uncertainty. They are found to pursue strategies aiming to avoid, reduce, adapt and disregard uncertainty. The results indicate that actors can choose different strategies with different goals simultaneously with regards to regulatory uncertainty. They tend to use their experiences with previous uncertainties and build on earlier taken strategic actions in their coping with uncertainty. Future research is needed to identify how other actors in the market deal with the regulatory uncertainty or how regional or cultural differences effect the strategic behaviour of project developers.

Keywords: Carbon offsetting, voluntary carbon market, Paris Agreement, regulatory uncertainty, project developers, strategic behaviour, experience

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Abbreviations

CDM	Clean Development Mechanism
CO_2	Carbon Dioxide
GHG	Greenhouse Gasses
ICROA	International Carbon Reduction & Offset Alliance
IPCC	International Panel of Climate Change
LDC	Least Developed Country
NDC	National Determined Contribution
UNFCCC	United Nations Framework Convention on Climate Change

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Chapter 1

Introduction

The climate crisis poses a serious threat to life on earth. Caused by the emission of vast amounts of greenhouse gasses (GHG) the changing climate triggers are among others: sea-level rise, extreme weather events, loss of biodiversity and ocean acidification (International Panel of Climate Change [IPCC], 2018). With the effects of climate change becoming noticeable and global emissions continuing to increase, carbon markets have become an essential tool for climate action (Paterson, 2012; Schneider & La Hoz Theuer, 2018). These markets aim to reduce GHG emissions cost-effectively by setting limits on emissions and enabling trading of emission units (Hickmann, 2016).

Over the past two decades, carbon markets have grown both in size and number, among them are carbon offset markets. Carbon offsetting is the practice of reducing or removing GHG emissions with a project to compensate for emissions made elsewhere (Lovell, & Liverman, 2010). Offsets are generated through projects e.g. renewable energy or reforestation projects and traded on carbon markets. Governments, businesses, organisations and individuals acquire these offsets and use these to compensate for their GHG emissions (Hamrick & Gallant, 2017). Offsets can be traded in both regulated and voluntary markets. The regulated or 'compliance' markets are enforced under climate policies for industries to meet binding emission reduction targets set by governmental agencies (Paterson, 2012). Voluntary markets have been arising organically through the demand of buyers. These buyers wish to compensate their emissions most often as a tool for corporate social responsibility or to improve their public image (Bayon, Hawn & Hamilton, 2009). In particular, the voluntary market gained more attention and importance over the years. This market is widely seen as a valuable and indispensable instrument that complements the flaws of climate policies and politics that lack ambition, finance and urgency. The voluntary market goes beyond policy targets, fills in the ever-needed climate financing and accelerates climate action by being generally accessible (Gold Standard, n.d.; Kreibich, 2019).

Although the voluntary market, in theory, is independent of climate policy, in practice, this market is still subject to policies (Kreibich, 2019). For the market's legitimacy, the carbon offsets must create a real effect on the climate (Lovell & Liverman, 2010). Because carbon offsetting involves the compensation of emissions, the generated emission reductions must be additional to the business as usual. If an offset is part of a policy or an already planned investment, no compensation takes place since the emission reduction would have also occurred without the voluntary market (Gold Standard, n.d.). Furthermore, the generated emission reduction must not be claimed twice by two entities towards achieving climate mitigation targets. This issue of double claiming could occur, for instance, when an emission reduction is claimed by the country where it took place and by the company that financed the offset to compensate its emissions (Schneider & La Hoz Theuer, 2018).

The voluntary market has always been operating under the regime of the Kyoto Protocol that influenced the core functioning of these markets. In this treaty, adopted in 1997, 192 countries agreed to slow down global warming by reducing the emission of GHGs. It established legally binding obligations for most industrialised countries to reduce or limit their emissions. In contrast, emerging economies and developing countries were exempt from such targets to avoid potential losses to their economies (Shishlov, Morel, & Bellassen, 2016). Due to this construction, the voluntary market has been generating primarily in countries where targets were absent. In these countries, the risk of double claiming was low, and projects could generate climate impact in a cost-effective manner. However, the way this market has been operating is about to change fundamentally due to a shift in the global climate governance regime (Lang, Blum, & Leipold, 2019; Michaelowa, Shishlov, & Brescia, 2019).

With the adoption of the Paris Agreement in 2015, a new chapter in international climate governance opened. This landmark treaty aims to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit it to 1.5°C. Wherewith the Kyoto Protocol developing countries were excluded from GHG emission reduction targets, the Paris Agreement requires such targets for all 189 participating countries (United Nations, 2015). The chance is high that the countries where carbon offset projects are active will count the generated emission reductions by offset projects towards their targets. With, as a result, a high-risk of double claiming in all countries (Cames et al., 2017; Gold Standard, n.d.). In addition, these countries may implement various climate policies on their own that could interfere with the carbon offset projects. The Paris Agreement will come into force after 2020 constituting severe uncertainty and an ambiguous future for the voluntary market (Lang., et al., 2019).

Uncertainty is, however, not uncommon in carbon offset markets. In fact, these markets have known extreme uncertainties with significant price fluctuations and policy changes before (Kolk & Mulder, 2011). Especially for those who are implementing the projects, the project developers, operating in these markets can be very risky. Given their projects usually have a lifetime of 10-20 years, they need to be careful with their investments. Most of these project developers used to operate in both compliance and voluntary markets.

However, they stepped over to the voluntary market where they expected better prices and less policy uncertainty (Hamilton, et al., 2010; Partnership for Market Readiness, 2015). However, with the upcoming changes under the Paris Agreement regime, the voluntary market must transform in order to survive. Hence, the project developers are facing high uncertainty again (Lang et al., 2019).

When organisations are unable to predict the state of their future regulatory environment, they are exposed to regulatory uncertainty (Birnbaum, 1984; Hoffmann & Trautmann, 2008). Previous literature on regulatory uncertainty in carbon markets has mostly been studying regulatory uncertainty during the Kyoto Protocol regime (Fan, Hobbs, & Norman, 2010; Hoffmann, Trautmann & Schneider, 2008; Kolk & Mulder, 2011). Herewith, it primarily analysed compliance carbon markets and how industries were dealing with uncertainties around compliance targets (Bui & De Villiers, 2017; Engau & Hoffmann, 2009, 2011; Hoffmann, Trautmann & Hamprecht, 2009; Lopez, Sakhel, & Busch, 2016). However, no scientific research has been conducted on regulatory uncertainty in the voluntary market while in particular this market faces an ambiguous future. In addition, limited attention has been given by previous research on how actors experienced in operating in carbon markets, e.g. the project developers, respond to regulatory uncertainty.

The uncertainty of the voluntary market's future has been addressed in literature predominantly from a policy or macro perspective. Hence, the debate mainly concerns issues as environmental integrity, double claiming in offsetting, or explorations on what different pathways the market could take (Gold Standard, n.d., 2020; Hermwille & Kreibich, 2017; Hickmann, 2016; International Carbon Reduction & Offset Alliance [ICROA], 2017; Kreibisch; 2019; Lang et al., 2019; Schneider & La Hoz Theuer, 2018). A few studies did question how project developers and other markets actors perceived the future of the voluntary market, yet they remained rather on the surface. Hamrick and Gallant (2017) found that project developers perceived national policies about counting emission reductions as the most significant risk of future voluntary offsetting activities. As mentioned earlier, this mainly concerns the issue of double claiming. Furthermore, Donofrio (2019) and Hamrick and Gallant (2018) found that project actors in the voluntary market foresaw a future pathway for the market by integrating in different compliance markets. Whether such integration will succeed or whether the voluntary market can coexist with (inter)national policies will profoundly influence the future of the market (ICROA, 2017; Michaelowa et al., 2019; Lang et al., 2019).

In view of the growing importance of the voluntary market and the high uncertainty it faces, profound academic research is missing yet undoubtedly relevant and opportune. In addition, the strategic behaviour of those most experienced with uncertainty in the carbon market, the project developers, has been neglected so far. Consequently, this thesis aims to investigate regulatory uncertainty in the voluntary market and the strategic behaviour of the project developers under this uncertainty. This study contributes to the scientific literature by building and enriching theory on regulatory uncertainty and strategic behaviour of actors in uncertain markets. In addition, this study is of relevance

for actors in the voluntary market. It yields unique insights that can help managers of project developers or other actors in their coping with regulatory uncertainty.

In order to understand the strategic behaviour of the project developers first, it must be examined how they perceive the regulatory uncertainty in the voluntary market. A firm's perception of regulatory uncertainty influences how it will respond to the uncertainty (Engau & Hoffmann, 2011). Hence, the first research question is formulated as follows:

How do the project developers in the voluntary carbon offset market perceive regulatory uncertainty?

The following research question is formulated to unravel the strategic responses of the project developers to the regulatory uncertainty:

What are the project developers' strategic responses to regulatory uncertainty?

The strategic behaviour of the project developers is analysed through qualitative research consisting of 17 semi-structured interviews, supplemented with secondary data and observations at the project developer FairClimateFund. This is a project developer with over a decade of experience in operating in carbon markets.

The next chapter provides a theoretical background detailing carbon markets and the expected changes, how firms could deal with regulatory uncertainty and the project developers' history with regulatory uncertainty. The methodological chapter explains the used abductive qualitative research approach and how data is collected and analysed. The findings chapter provides first an analysation of the regulatory uncertainty in the voluntary market then continues with elaborating the project developers' perceptions and strategic responses to the uncertainty. At last, the findings will be discussed and concluded in the discussion and conclusion chapter.

Chapter 2

Theoretical background

This chapter provides the theoretical background for this study. It starts by describing the carbon markets and how the shift between the two climate regimes influences the voluntary market. Subsequently, the theory of regulatory is discussed with possible strategic responses and factors influencing firms' strategic behaviour. After, the chapter explains the relationship between project developers and previous uncertainties. Ultimately, it concludes with the conceptual framework summarising the relevant concepts and relationships.

2.1 Carbon markets and upcoming changes

This section describes the functioning of carbon markets and the roles of its participants. Afterwards, it explains the Kyoto Protocol and the Paris Agreement followed by a discussion about the ambiguous future of the voluntary market and the different pathways the market could take. Table 2.1 shows the most important focal terms used in this paper.

2.1.1 Carbon markets background

As mentioned in the introduction, carbon offsetting is the practice of producing a GHG emission reduction with a project to compensate for emissions made elsewhere (Lovell & Liverman, 2010). These offsets are measured in tonnes of carbon dioxide (CO2) equivalent. One tonne of carbon offsets represents the reduction of one tonne of CO2 or its equivalent in other GHG. It can be sold or traded in the form of a carbon credit. The most common types of provided offset projects are in renewable energy, forestry and sustainable land use, methane abatement, energy efficiency, fuel switching and household devices (Hamrick & Gallant, 2017).

Table 2.1: Used terms

Term	*Definition*
Carbon credit	Represents one certified tonne of carbon offsets and is traded on carbon markets
Carbon offsetting	The practice of producing a GHG emission reduction with a project to compensate for emissions made elsewhere
Carbon Neutrality	A process from an organisation or product does not contribute to climate change because e.g. the generated emissions are compensated with offsets
Clean Development Mechanism (CDM)	Compliance carbon offset market for participating countries under the Kyoto Protocol
Compliance market	A carbon offset market that is regulated and established by governmental agencies
Customer	End buyer of carbon credits using these to compensate its GHG emissions
Host country	A country where the carbon offset project is located
Kyoto Protocol	First global climate regime adopted in 1997 where only industrialised countries had emission reduction targets
National Determined Contribution (NDC)	Paris Agreement's national GHG emission reduction targets and plans to achieve these targets with mitigation activities
Offset	One tonne of carbon offsets represents the reduction of one tonne of CO_2 or its equivalent in other GHG
Paris Agreement	Global climate regime adopted in 2015 requiring all participating countries to implemented emission reduction targets
Project developer	An organisation that develops projects from the start to offset issuance
Regulatory uncertainty	A firm's inability to predict its future regulatory environment
Third-party auditor	An industry standard that verifies and certifies carbon offsets
Voluntary market	A carbon offset market established by organic demand of customers wishing to compensate for their GHG emissions

There exist two forms of carbon offset markets: compliance and voluntary markets (see figure 2.1). Compliance offset markets are a policy tool established by governmental agencies who aim to regulate GHG emissions of industries or countries. With this tool, these agencies set targets for specific industries or countries constraining them to emit no more than the established target. Often these targets are gradually lowered, forcing the industries or countries to reduce their emissions over time (Lovell & Liverman, 2010). However, to ensure they stay below the targets with their emissions, the industries or countries are allowed to compensate their emissions with offsets which they can buy on a carbon market. The extent to which these industries or countries can offset their emissions differs per policy. Hence, there exists a wide range of different compliance offset markets around the world. The voluntary market is a market established organically by voluntary demand of buyers wishing to compensate for their emissions. Although there exist several regional voluntary markets in the world, they are usually quite similar since the drivers are similar: they run on supply and demand (Arnoldus & Bymolt, 2012).

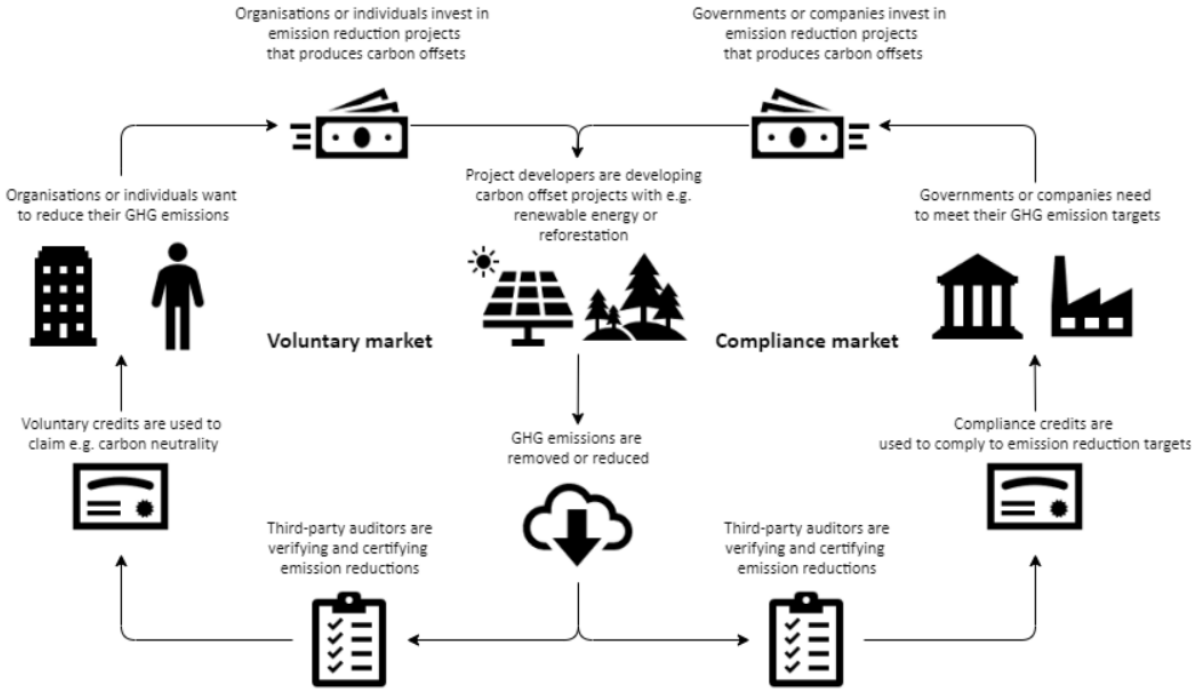

Figure 2.1: Voluntary and compliance carbon offset markets, own illustration

In carbon offset markets, a variety of actors is active. These actors can be active in both voluntary or compliance markets or solely one of the two. The project developers are usually social corporations or foundations that create carbon offset projects from start to offset issuance. When they start with a project, they usually start a collaboration with a local partner which is often a foundation. Together they develop the project for a voluntary or compliance market or both (Arnoldus & Bymolt, 2012). The country they choose

to develop the project is called the host country (ICROA, 2017). The government of the host country is usually not involved in project development. This is only the case when the project is of particularly large size, or an agreement is needed that the generated emission reductions will not be accounted for by the host country's targets. When emission reductions are generated, third-party auditors (industry standards) from voluntary or compliance markets verify and certify these carbon offsets (Lovell & Liverman, 2010). After, the project developers can sell their offset, in the form of certified carbon credits, directly to end buyers or to intermediaries, who resell the offset to each other or to end buyers (Hamrick & Brotto, 2017).

The end buyers are the customers that buy these offsets to compensate for their GHG emissions. This thesis refers to end buyers when customers are mentioned. For compliance markets, these customers are industries or governments that need to stay under their mandatory emission target. They choose to offset a part of their emissions because this is usually cheaper or easier to do than to focus entirely on reducing emissions internally (Lovell & Liverman, 2010). For the voluntary market take companies a large part of the customer base in the voluntary market. However, other organisations and individuals also regularly buy offsets on the market (Hamilton et al., 2010). The motivation of customers in the voluntary market exists for a variety of reasons. For instance, companies could because of corporate social responsibility or public image aim for claiming 'carbon neutrality'. This means that a process is not contributing to climate change. The GHG emitted by their organisation or the production of their product are compensated with offsets aiming to achieve that the total impact on the climate is zero. Companies can also choose to offset because they expect an established of regulated emission reduction targets in their business environment soon and that the carbon credits they buy will be allowed in this specific policy (Hamrick & Gallant, 2017). Others simply want to contribute to a 'better world' and see this as development aid or feel guilty about their impact on climate change (Arnoldus & Bymolt, 2012).

2.1.2 Kyoto Protocol

Although the voluntary carbon market's origin predates the establishment of global climate governance, the voluntary market experienced a real uptake when the first major regulated carbon markets were initiated under the Kyoto regime (Hamilton et al., 2007). As mentioned in the introduction, this treaty adopted in 1997 divided the world into two groups: the most industrialised countries that are required to reduce or limit their GHG emissions and the emerging economies and developing countries that were exempt from such targets (Shishlov et al., 2016). The industrialised countries are allowed to use several market mechanisms to reduce the overall cost of achieving their reduction targets. One key mechanism is the Clean Development Mechanism (CDM) (Oberthür & Ott, 1999). The CDM enables industrialised countries to meet part of the required reduction in GHG by investing in projects that reduce emissions in developing countries. Because emission re-

ductions are generally cheaper in developing countries, it allows the industrialised countries to save costs in achieving compliance with their reduction targets. In addition, the CDM assists developing countries in achieving sustainable development and empowering them to contribute to the overall goal of preventing climate change (Werksman, 1998). Officially, the Kyoto Protocol ends in 2020 as this is the deadline of the second commitment period. However, after 2012 the Kyoto Protocol did not have much impact anymore because most countries who participated during the first commitment period dropped out for the second period (Shishlov et al., 2016).

Although in theory, the voluntary market is independent of the CDM, in practice, this market is intertwined with the Kyoto regime. This becomes clear when looking at the similarities in the functioning of the mechanisms. For instance, both markets are predominantly active in developing countries. Further, they share similar methodologies and safeguards, and they both require verification by auditors. Also, both of their credits can be sold on the voluntary market (Hamilton, et al., 2010; Partnership for Market Readiness, 2015).

Under the Kyoto regime, voluntary markets often play a role in complementing mandatory regulation of GHG emissions. Indeed, these markets allow the public and private sector to reduce their carbon footprint by offsetting a part of their emissions that are not subject to carbon regulation. Furthermore, the voluntary market is considered as a market that stimulates awareness, innovation, efficiency and sustainable development in climate mitigation action (Gössling et al., 2007; Hamrick & Gallant, 2017; Harris, 2007; Lang, et al., 2019). The market also serves as a testing ground for the development of innovative approaches, some of which have been adopted by compliance markets later on (Kreibich, 2019).

2.1.3 Paris Agreement

In 2015 a new international climate regime was introduced as the successor of the Kyoto Protocol that will come into force after 2020. Till date, 189 countries have ratified the agreement while the United States as one the most significant GHG emitter stepped out of the agreement. Unlike the Kyoto Protocol, the Paris Agreement requires all its participating countries to enact emission reduction targets, called the National Determined Contributions (NDC). In these NDCs, countries must set out their national GHG emission reduction targets and their plans to achieve these targets with mitigation activities (United Nations, 2015). The Paris Agreement demands the parties to become more ambitious over time in their climate action. Hence, they must enhance their NDCs continuously and strengthen their targets (Kreibich, 2019). Since its adoption in 2015, the parties have continued negotiating at the yearly climate summits about the exact rules and implementation guidelines colloquially called the Rulebook of the Paris Agreement (Schneider et al., 2019). It was expected that the parties would have an agreement on all parts of the Rulebook by the year 2018. However, they failed to reach an agreement to date. One of the thorny issues is the design and rules of Article 6. This article contains new rules for carbon markets

and proposes a new carbon offset mechanism which must replace the CDM of the Kyoto Protocol. The dispute lies in how the CDM should be converted into the new mechanism and how strict the new rules must be to prevent double claiming, given the fact that all participating countries have targets (Carbon Mechanisms, 2020).

Changes for the project developers
Under the Paris Agreement, the role of the voluntary market and its relationship with compliance schemes will change fundamentally. By requiring all parties to adopt NDCs, the countries will enforce limitations to the GHG emissions of their economy or at least in several sectors to achieve their mitigation targets (ICROA, 2017; Michaelowa et al., 2019). With as a result that parts of the economy not covered by emission reduction targets, will be significantly reduced. This 'unregulated environment' has always been the area for offset activities of the voluntary market because these areas were not being accounted for by the host countries. Furthermore, the unregulated environment is set to become even smaller in the future as the parties are obliged to move towards economywide NDCs (Kreibich, 2019). Without further action, the mitigation activities by the voluntary market will contribute to the achievement of the host country's NDC. Hence, the voluntary market will be increasingly exposed to the risk of double claiming when it continues to finance these activities through offsets (Hermwille & Kreibich, 2017).

As mentioned in the introduction double claiming occurs when two entities are claiming the same emission reduction towards their mitigation targets: once by the host country and once by a country or entity that financed the emission reduction (Gold Standard, n.d.). Strictly speaking, the issue of double claiming can only occur when an emission reduction is claimed twice for compliance targets (Cames et al., 2017). However, there would be still no extra benefit for the climate when a voluntary buyer uses the already claimed offset to balance out his emissions. Therefore, the main issue for the voluntary market is that double claiming can affect the integrity of the market. Countries could become less ambitious in achieving their NDCs when voluntary buyers would finance emission reductions. Furthermore, the carbon neutrality claims of voluntary buyers could become less valuable when their financed emissions reductions would also be claimed by the host countries (Gold Standard, n.d.). Environmental integrity is vital for carbon markets. It determines its existence. When compliance markets would have low environmental integrity, governmental agencies could step in (Schneider & La Hoz Theuer, 2018). When voluntary markets would score low on integrity, buyers could leave the market (ICROA, 2017).

2.1.4 Pathways for the voluntary market

To deal with the increased risk of double claiming, industry bodies consisting of associations of carbon crediting organisations, project developers and other market actors in the voluntary market, were holding a variety of workshops and market discussions over the past couple of years (Gold Standard, n.d.; Hamrick et al., 2018; ICROA, 2017). These discussions aimed to envision potential future pathways the voluntary market could take

under the new climate regime and create more clarity on how the voluntary market should deal with the issue of double claiming. As a result of these discussions, the industry organisations identified three potential pathways the voluntary market could take under the Paris Agreement.

In the first pathway (see figure 2.2), the voluntary market would operate in sectors which are currently not covered by the host country's NDC: the unregulated environment. Double claiming could be avoided because the market would function similar to the arrangements of the CDM which was only active in countries with no reduction targets. Except, with this pathway, the voluntary market would be active in unregulated sectors rather than countries with no target boundaries (Gold Standard, n.d.; ICROA, 2017).

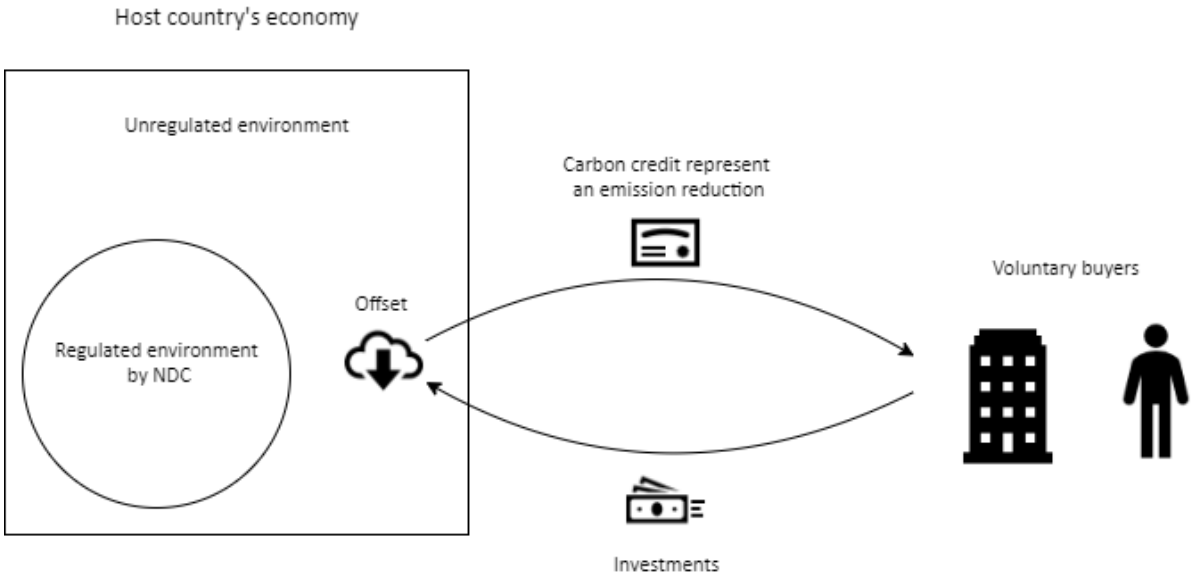

Figure 2.2: First pathway: operating outside NDCs (ICROA, 2017), own illustration
Note. Voluntary buyers can claim emission reductions.

The second pathway (see figure 2.3) refers to a model where emission reductions are generated within the host country's NDC: the regulated environment. However, in this model, the voluntary buyer can claim the emission reduction. This means that the host country cannot claim this emission reduction for its NDC. This model only works with the cooperation of host countries and rigour safeguards to prevent double claiming (Gold Standard, n.d.; ICROA, 2017).

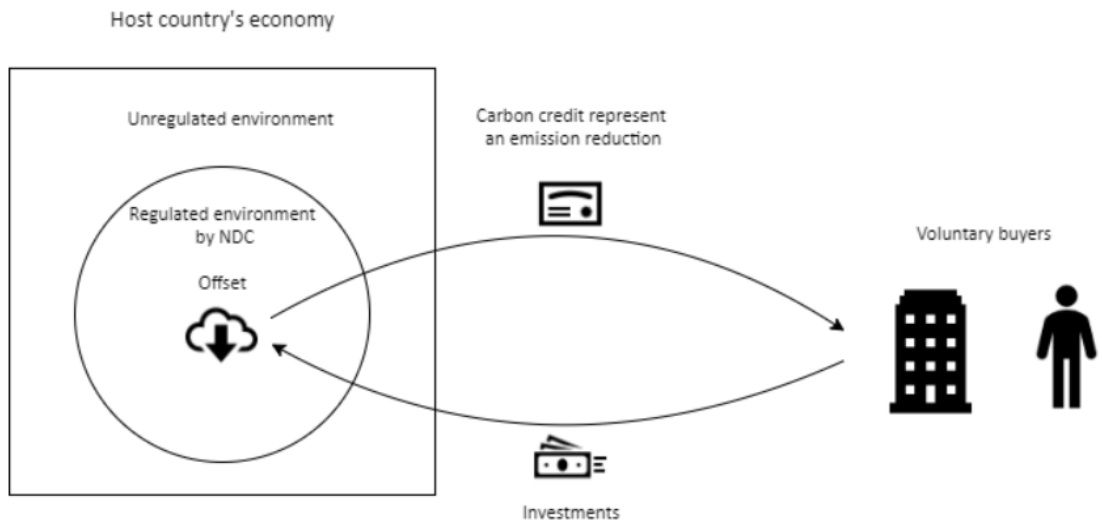

Figure 2.3: Second pathway: operating within NDCs (ICROA, 2017), own illustration
Note. Voluntary buyers can claim emission reductions.

The third pathway (see figure 2.4) consists of a model where the customers of the voluntary market still finance emission reductions in the regulated environment, yet the emissions will be accounted for under the host country's NDC. This means that under this model, carbon neutrality, for instance, could not be claimed anymore. Instead, the buyer can only claim to have financed a contribution to an emission reduction in the host country.

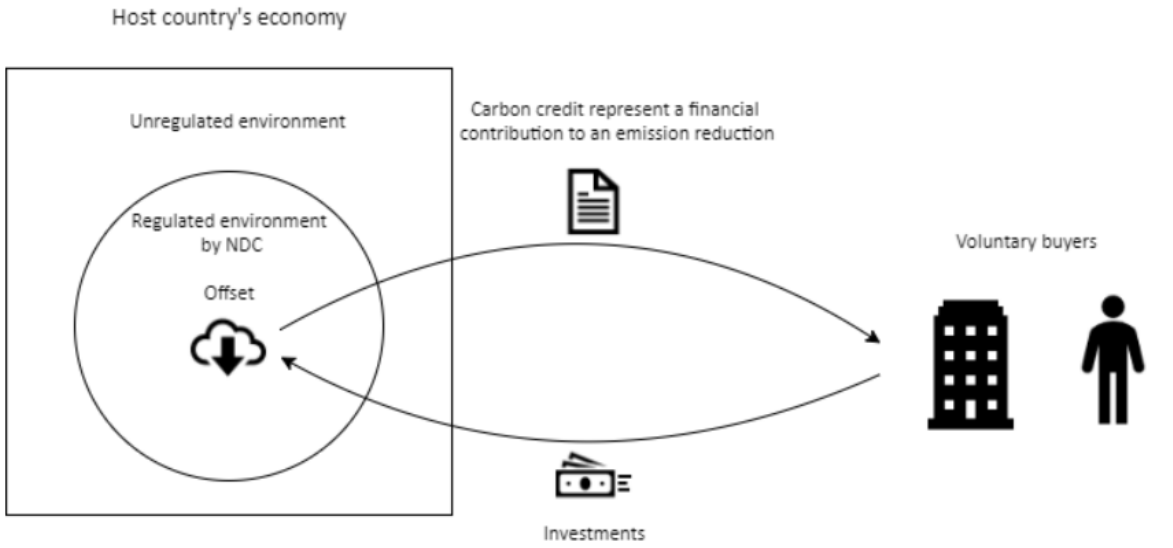

Figure 2.4: Third pathway: financing contributions to emission reductions (ICROA, 2017), own illustration
Note. Voluntary buyers can claim emission reductions.

It remains unclear which of the above-described pathways the voluntary market will take. These decisions are dependent on what will be decided at the climate summits over the Paris Agreement's Rulebook (Kreibich, 2018). The final Rulebook gives clarity on how mitigation activities will be accounted for by the parties, and as such, how carbon offsetting could take place under the NDCs (Schneider et al., 2019). In the three pathways, the voluntary market would still exist under the Paris Agreement (Gold Standard, n.d.). However, the market could probably become more affected by future policies due to the continuously evolving NDCs (Lang et al., 2019).

Integration in compliance markets
The voluntary market could also expand through integration in compliance markets (Hamrick & Gallant, 2018). At first, the Paris Agreement allows parties to engage in international compliance markets where project developers can operate. For instance, Article 6.4 of the Paris Agreement proposes a successor of the CDM, which will be a carbon offset mechanism as well (United Nations, 2015). Second, the Paris Agreement stimulates the proliferation of regional or sectorial compliance markets with some of them increasingly accepting voluntary carbon standards (Hamrick & Gallant, 2018; International Civil Aviation Organization, 2020). All these compliance markets will undoubtedly offer immense potential for project developers in the voluntary market. However, it also means that these project developers would become more subject to policies of the compliance markets (Lang et al., 2019).

In conclusion, the Paris Agreement will create severe changes in the voluntary market. Also, it could cause compliance and voluntary markets to become more intertwined. For project developers, the future remains uncertain. (Lang et al., 2019).

2.2 Regulatory uncertainty

This section dives into the theory of regulatory uncertainty. It discusses how it could occur during policymaking, why it could be problematic and how firms can respond to this uncertainty.

2.2.1 Definition of regulatory uncertainty

As described above, the shift to a new climate governance regime constitutes uncertainty for project developers in the voluntary market. Environmental regulation is a particular source of uncertainty primarily because it is derived from very long-term considerations with an important role for science in agenda setting, policymaking and evaluation (Tarui & Polasky, 2005; Van den Hove, 2000). The process of initiation, implementation and enforcement of environmental regulations is difficult to predict and constitutes substantial regulatory uncertainty (Birnbaum, 1984). This applies in particular to multilateral

environmental policy addressing climate change. An international policy such as the Paris Agreements encompasses typical goals and broad definitions of rules which require national governments to pass national regulations to achieve these goals (Golub et al., 2018; Levy, 1997). When organisations are exposed to uncertainty caused by the unpredictability of actions of governmental agencies who create and enforce regulations, they could experience regulatory uncertainty (Birnbaum, 1984; Hoffmann & Trautmann, 2008). Regulatory uncertainty is defined as a firm's "inability to predict the future state of the regulatory environment" (Hoffmann, et al., 2009, p. 1229) and it determines a firm's strategic decisions (Bui & De Villiers, 2017; Kolk & Mulder, 2011).

2.2.2 Sources of regulatory uncertainty

Hoffmann, et al. (2008), analysed regulatory uncertainty in a compliance market and how it affected firms. According to the authors, the regulatory uncertainty of a single regulation can be divided into four categories displayed in figure 2.5.

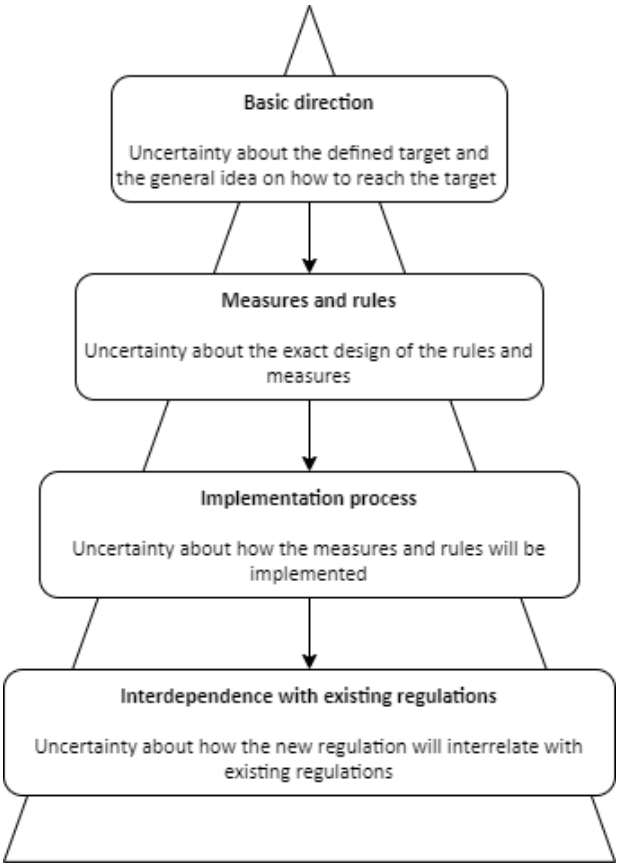

Figure 2.5: Taxonomy of regulatory uncertainty developed by Hoffman., et al. (2008), own illustration

The first category constitutes of a basic direction of a given regulation to which political actors must agree. Targets need to be defined, and a broad consensus must be achieved how to reach these targets. Uncertainty about the basic direction can arise when the scientific basis or political idea of an existing policy is reassessed or when specific forms of the new regulation are up for discussion. For example, uncertainty could arise due to the unpredictability of the political support of scientific assumptions that underlie the new policy or a change in preferences from society.

The second category involves the translation of the basic direction into measures and rules to make it operational. Uncertainty in this category can occur during the process of defining or reassessing the measures and rules. Also, uncertainty can arise in case definitions are unspecific or when rules create uncertainty by implicating further changes of measures and rules at a later point in time. Examples are the uncertainties about the exact design of measures and rules as well as a clear mutual understanding of what is meant by a given definition (Hoffmann, et al., 2008).

The third category refers to the implementation process of the measures and rules. Uncertainty about this process could arise when an existing regulation is not appropriately executed. Furthermore, uncertainty can arise during the early stage of a new policy if both authorities and affected firms still lack experience and legal certainty. Examples include doubts about the ability of the regulatory agencies to cope with the implementation as projected or uncertainty about the length of the implementation process and the typical adjustments that follow (Hoffmann, et al., 2008).

At last, the fourth category refers to the interdependence of the functioning of the new policy with existing rules and regulations. Uncertainty about the interdependence could occur if a new regulation is added to an existing regulated field or if it is implemented in conjunction with other regulations. For instance, uncertainty arises when a new regulation addresses the same area as an existing regulation but lacks a clear definition of the interrelation of the two regulations (Hoffmann, et al., 2008).

The distinct categories of uncertainties are of hierarchical order, meaning uncertainties in a previous category, dominance uncertainties in the following categories. Hence, the dominance of a specific category influences a firm's response to the uncertainty. For instance, as long as there is considerable uncertainty about a basic direction of policy, firms tend to prioritise their responses on this source. With as a result, they will be less occupied by uncertainties of other categories (Hoffmann, et al., 2008).

Regulatory uncertainty resolves in stages

In particular, the length and level of uncertainty are difficult to predict with policymaking. Unlike uncertainty about technologies or emerging markets that resolve gradually over time, regulatory uncertainty is characterised by that it resolves in stages (Engau & Hoffmann, 2009). This is mainly due to the segmented nature of the policymaking process. Instead of determining the final design of a regulatory framework in one phase, the policymaking process consists of several sequential phases. It starts with the initiating

of an issue followed by a political debate about this subject, a final definition, and enforcement of a policy (Schulman, 1975). The completion of each stage abruptly reduces uncertainty for organisations (Reisz & Perlich, 2006). However, the resolved regulatory uncertainty usually only lasts temporarily, until the point when policymakers renegotiate and revise individual elements of a regulation (Lopez et al., 2016). This is especially prevalent in environmental policymaking where policymakers themselves experience a high degree of uncertainty. Steadily evolving scientific findings induce policymakers to periodically review and adjust regulations (Hoppmann, Huenteler & Girod, 2014; Tarui & Polasky, 2005).

2.2.3 Regulatory uncertainty is challenging

New regulations inhibit changes that could affect firms or industries. These changes can increase costs of operations e.g. with new taxes or introduce legal and administrative hurdles that require firms to change their operations. In some cases, new regulations could even restrict a firm from doing business, leading to stranded investments. For instance, a country could alternate its policies, making it impossible for a foreign firm to operate in this country. New regulations could also affect the competitive landscape with e.g. subsidies for certain sectors which could endanger a firm's business model (Kolbe & Tye, 1993).

The uncertainty of the upcoming changes from a new regulation can be very challenging for firms (Bourgeois, 1985). The lack of information about future regulatory conditions constrains firms and can adversely affect their profitability (Cyert & March, 1992). Firms' resources can be absorbed because they need to prepare continuously for and adjust to uncertain regulations. They have to decide whether and how to respond to regulatory uncertainty and how resources must be spent in their coping with the uncertainty. Correspondingly, regulatory uncertainty can constrain firms to deploy these resources more effectively towards e.g. commercial objectives. With as a result, they could become less innovative or productive, which could impede their competitive advantage (Levy, 1997).

2.2.4 Strategic responses

Given the above-described challenges, firms will need to respond to regulatory uncertainty. Engau and Hoffmann (2011) developed a framework of strategic responses firms could pursue when they are exposed to all types of uncertainties. They used this to analyse firms' responses to regulatory uncertainty in compliance markets under the Kyoto Protocol. The authors posit that organisations could follow four objectives when responding to regulatory uncertainty. Firms seek to either avoid, reduce, adapt to or disregard this uncertainty. Table 2.2 shows the four responses with different strategies.

Table 2.2: Strategic responses to regulatory uncertainty composed by Engau and Hoffmann (2011), own illustration

Strategic response	*Strategy*	*Description*
Avoiding	Postponement	Hold off decisions and wait for more certainty
	Stabilisation	Increase predictability through standardisation, long-term agreements, or extra buffers
	Withdrawal	Exit activities in uncertain markets and focus on predictable environments
Reducing	Investigation	Collect extra information and use professional expertise for decision-making
	Simplification	Reduce the number of unpredictable factors in decision-making process
	Influencing	Manipulate determining factors or actors that produce uncertainty
Adapting	Internal design	Change organisational design through modular structurers and decentralisation
	Integration	Restructure busines portfolio through mergers and acquisitions
	Cooperation	Join forces with market actors on research, production and (trade) unions
	Flexibility	Increase range of strategic options e.g. through product diversification
	Imitation	Analyse and copy strategy of successful competitors
Disregarding	Substitution	Replace uncertain decision criteria with assumptions from comprehensive considerations or detailed analysis
	No-regret moves	Execute activities associated with uncertainties that are advantageous regardless of how uncertainty resolves
	Business as usual	Pretend that uncertainty does not affect decisions

Avoiding response
An avoiding strategy is a firm's response to entirely prevent being exposed to regulatory uncertainty during decision making (Engau & Hoffmann, 2011). Avoiding uncertainty by firms is, in essence, a core premise, according to behavioural theorists (Cyert & March, 1992). However, a firm's reluctance to be exposed to uncertainty could affect entrepreneurial decision making (McMullen & Shepherd, 2006). Organisations can postpone decisions on e.g. future investments and wait until more information is available to avoid decision making under uncertainty. In this way, strategic errors could be prevented, but potential profit opportunities could be missed as well (Bourgeois & Eisenhardt, 1988; Wernerfelt & Karnani, 1987; Yang, Burns & Backhouse, 2004). When uncertainty arises from continuous changes in regulatory conditions, organisations can stabilise these conditions by increasing predictability. They can negotiate standard procedures or long-term agreements, or they can increase their inventory buffers (Cyert & March, 1992; Lev, 1975). Lastly, firms could also avoid uncertainty by withdrawing all activities that are associated with these uncertainties. They can e.g. withdraw from uncertain markets and move to more certain markets (Miller, 1992).

Reducing response
When an organisation is directly targeting the uncertainty aiming to decrease the uncertainty, a reducing response is used (Engau & Hoffmann, 2011). According to Daft and Weick (1984), firms attempt to explore an environment to enhance their understanding of changing conditions to reduce uncertainty. Several approaches can be used to interpret an uncertain environment. For instance, organisations can monitor the environment to acquire additional information, collecting information or using professional expertise (Miller, Kets de Vries & Toulouse, 1982; Miller & Friesen, 1983). In addition, organisations can reduce uncertainty by simplifying their decision making by reducing the number of unpredictable factors in their considerations (Levinthal & March, 1993). Firms can also choose to use influencing strategies by actively intruding into the uncertain environment aiming to manipulate it. For instance, political actors or conditions that created the uncertainty could be influenced (Courtney, Kirkland & Viguerie, 1997; Henisz & Delios, 2004b).

Adapting response
Instead of directly countering regulatory uncertainty, firms can also respond with the adjustment of their internal capacity to better cope with the uncertainty. These responses are called adaptation strategies (Engau & Hoffmann, 2011). Hickson, et al. (1971) suggested that organisations can pursue adaptation responses to minimise the negative effects of uncertainty that cannot be avoided or be reduced. A firm could adapt to these negative effects by adjusting their internal design towards a structure with decentralised decision making in autonomous units e.g. departments or working groups (Burns & Stalker, 1994; Lawrence & Lorsch, 1967). When decentralising their organisation, different teams can be dealing with various parts of the regulatory environment hereby limiting the complexity of uncertainty (Galbraith, 1973). Additionally, firms can reduce risks associated with uncertainty using integration strategies and expand their range of potential options. For instance, they could restructure their business portfolio through mergers and acquisitions,

spreading the risks across new divisions (Bergh & Lawless, 1998; Cyert & March, 1992). Moreover, firms can also spread risks through cooperation with partners such as suppliers, competitors or customers in research, production or (trade) unions (Carter, 1990). Firms could also adapt to uncertainties by being more flexible. For example, they could pursue a product diversification strategy to limit their exposure to the effects of uncertainty (Mascarenhas, 1982; Wernerfelt & Karnani, 1987). Lastly, organisations can minimise competitive disadvantages from inaccurate or unavailable information due to regulatory uncertainty by imitating strategies from successful competitors (Anderson & Paine, 1975; Mousavi & Gigerenzer, 2014).

Disregarding response
Organisations can also choose to respond to regulatory uncertainty by making business decisions that do not require the consideration of uncertainty. This is called a disregard response (Engau & Hoffmann, 2011). In contrast to firms pursuing an avoiding or reducing strategy, those who choose to use a disregard strategy will still be exposed to regulatory uncertainty in its full extent. Other than organisations that choose to adapt to uncertainty, they do not specifically prepare themselves to cope better with regulatory uncertainty. Instead, they deliberately decide to, at least temporarily, disregard this uncertainty and its effects (Engau & Hoffmann, 2011). A response that falls under this strategy is to substitute uncertain decision criteria with assumptions derived from careful consideration or detailed analysis. In this way, firms are able to disregard the ambiguous circumstances of future regulation and can pretend to operate under complete certainty (Collis, 1992; Wernerfelt & Karnani 1987). In addition, organisations can choose to take no-regret moves that are advantageous regardless of how the uncertainty resolves, for example, by hedging decisions and reducing the overall risk through multiple investments that guarantee a return in all anticipated regulatory scenarios (Courtney at al., 1997). Finally, organisations can choose to continue with business as usual. Firms that follow this approach do not actively engage in activities that deal with regulatory uncertainty. They continue instead with their regular activities, thereby pretending that the uncertainty does not affect their decision making (Emery, 1967). When organisations are engaged in business as usual activities, they are not pursuing any of the above strategies because they deliberately choose not to consider the uncertainty (Engau & Hoffmann, 2011).

2.2.5 Factors influencing strategic behaviour

In strategic management literature, several determinants are proposed that could influence how firms perceive and act on uncertainty. These can be divided into contextual and organisational factors.

Contextual factors
The present and future perspectives of uncertainty could influence strategic decision making. For instance, the degree of perceived regulatory uncertainty can have a positive influence on the willingness to respond to this uncertainty (Anderson & Paine 1975; Bourgeois,

1985). Dutton, Stumpf and Wagner (1990) and Thomas, Clark and Gioia (1993) found a similar positive correlation. They argued that firms are more like to respond to uncertainty when they perceive it as a threat and less likely to respond when they perceive the uncertainty as non-threatening. Further, results from Bui and De Villiers (2017) suggested that the expected duration of regulatory uncertainty influences strategic decision-making. For instance, a firm could still choose to continue with investing when it expects a short period of regulatory uncertainty. Firms can also choose to invest when opportunities overrule the risks of perceived uncertainty (Bui & De Villiers, 2017). However, while opportunities can exist simultaneously with regulatory uncertainty, it is pivotal that the basic direction of the policy is "positive". In other words, there must be signals for firms that the market they operate in or a market with similar characteristics will continue to exist (Kolk & Mulder, 2011). At last, past events such as significant market or societal events could also influence the strategic behaviour (Quinn, 1980).

Organisational factors

Organisational resources and scale could influence strategic decision-making (Hoffman et al., 2009; Wernerfelt & Karnani, 1987). To be able to pursue certain strategies, firms need resources e.g. capital, network, time and human resources (Engau & Hoffmann, 2011). For instance, firms with a global presence could become more engaged in avoiding strategies when future regulations posit regional differences in stringency (Engau & Hoffmann, 2011). When firms have a limited need of customer proximity, they could relocate to jurisdictions with lower stringency (Christmann & Taylor, 2001). However, Engau and Hoffman (2011) also found that firms usually favour reducing uncertainty rather than avoiding it, given they tend to aim to influence the uncertainty. Firms seek control over regulatory uncertainty mainly through contributing to the policymaking process, either directly through lobbying or indirectly via industry and trade associations (Henisz & Delios, 2004a).

Firms' history could play a role as well in how they perceive and act on regulatory uncertainty. There are signs of this in literature researching how history influences firms' future investment decisions. For instance, Dierickx and Cool (1989) stated that firms' past and future investment behaviour are related because firms tend to act in the same way as they are used to. With as a result that prior investments in a particular area increase the probability of pursuing future investments in related areas (Dierickx & Cool, 1989). Other literature suggested firms can learn from previous decisions which make them more compatible in making future decisions regarding uncertainties (Dixit & Pindyck, 2012; Helfat, 1994). When facing uncertainty, firms' prior investments could influence how they perceive and react to uncertainty. Barr (1998) suggested that when firms' previous investments enhanced their current position when facing uncertainties, they could perceive the uncertainty as less harmful. In the context of regulatory uncertainty, Engau and Hoffmann (2011) found evidence that suggests a link between experience and strategic behaviour. They found that firms who are already familiar with the regulatory uncertainty tended to adapt to such uncertainty to a greater extent than inexperienced organisations. On the contrary, Lopez et al. (2016) did not find such a linkage. These authors studied the relation between historic corporate investments and investments in times of regulatory uncertainty.

Although they did find firms' investments histories were a key factor in their inclination to pursue similar investments, they found that firms made these decisions independently of the regulatory uncertainty context. Hence, there is ambiguity on whether past strategic behaviour and experience influence how organisations deal with regulatory uncertainty.

2.3 Project developers and uncertainty

When looking at the past, it becomes clear that regulatory uncertainty is common in carbon markets. Also, this uncertainty in carbon markets has a volatile character (Engau & Hoffmann, 2011; Hoffmann et al., 2009; Yamin, 1998). This is particularly prevalent in the case of the CDM market. After its establishment in 1997, regulatory uncertainty was high due to the market's infancy and unclarity of the exact design of the rules. In the years that followed the regulatory uncertainty started to decline as the rules and implementations became clearer (Kolk & Mulder, 2011). This changed in the period between 2008 and 2014, characterised by extreme volatility in the CDM market with high levels of regulatory uncertainty for market actors. With a global recession, an oversupply of credits and too few countries keeping their Kyoto pledges, the prices of the CDM offsets began to slide. When the parties in 2012 failed to reach an agreement to commit to the second period of the Kyoto protocol, the prices dropped quickly, reaching an all-time low (Michaelowa et al., 2019). The lack of post-2012 clarity in combination with extremely low prices caused the CDM market to collapse. This resulted in bankruptcies of actors in the CDM market and forced many project developers to move over to the voluntary market (Kolk & Mulder, 2011; Michaelowa et al., 2019). After its collapse, the CDM market never fully recovered, and prices remained low. However, there are still some project developers active in the market as they can either sell their credits in voluntary markets or regional compliance markets. Nowadays, as described earlier, there is again regulatory uncertainty because of the unclarity about the future of the CDM under the Paris Agreement (Donofrio, Maguire, Merry & Zwick, 2019).

The case of the CDM shows how project developers in carbon markets experience ups and downs continuously with uncertainty. Contrary to the CDM, the voluntary market was disentangled from the Kyoto Protocol and corresponding policies. Hence, uncertainty in the voluntary markets has primarily been caused by severe price fluctuations or governments attempting to govern the voluntary market (Donofrio et al., 2019; Lovell & Liverman, 2010). However, as explained earlier, the Paris Agreement will change the voluntary market's disentanglement, which makes the market more vulnerable to policy uncertainty (Gold Standard, n.d.; Kreibich, 2019). For project developers now facing regulatory uncertainty, it is difficult to predict when the regulatory uncertainty will be resolved and how long regulatory certainty will last. For instance, the market expected the adoption of the Rulebook of Article 6 during the climate summit in 2019. However, just as the climate summits of previous years, no agreement has been made (Carbon Mechanisms, 2020).

In conclusion, carbon markets have known severe (regulatory) uncertainty for those involved. With the shift towards a new climate regime under the Paris Agreement, the voluntary market faces regulatory uncertainty. Previous literature on regulatory uncertainty has primarily focused on decomposing regulatory uncertainty in distinct sources and identifying various types of strategic responses to this uncertainty. This literature concentrated on the strategic behaviour of various industries that were affected by uncertainty in compliance carbon markets. The voluntary market has been overlooked so far while this market is experiencing substantial regulatory uncertainty. In addition, the strategic behaviour of firms that are most experienced in operating in carbon markets has received little attention in the literature. The project developers in the voluntary market are an example of such actors. The next section conceptualises all relevant concepts into a framework.

2.4 Conceptual framework

The literature described in this chapter is used as the foundation for the conceptual model (see figure 2.6), which helps to understand the theoretical context of the topic studied. The pyramid in the left shows the taxonomy developed by Hoffmann et al. (2008) that is used in this study for finding evidence of whether project developers experience regulatory uncertainty. This was necessary because regulatory uncertainty has not been researched yet in the context of carbon offset project developers or the Paris Agreement. Additionally, the strategic response framework provided by Engau and Hoffmann (2011) together with the results of previous research on factors that could influence the strategic behaviour was used to analyse how the project developers are dealing with regulatory uncertainty. The following chapter describes the used methodology to research the strategic behaviour of project developers.

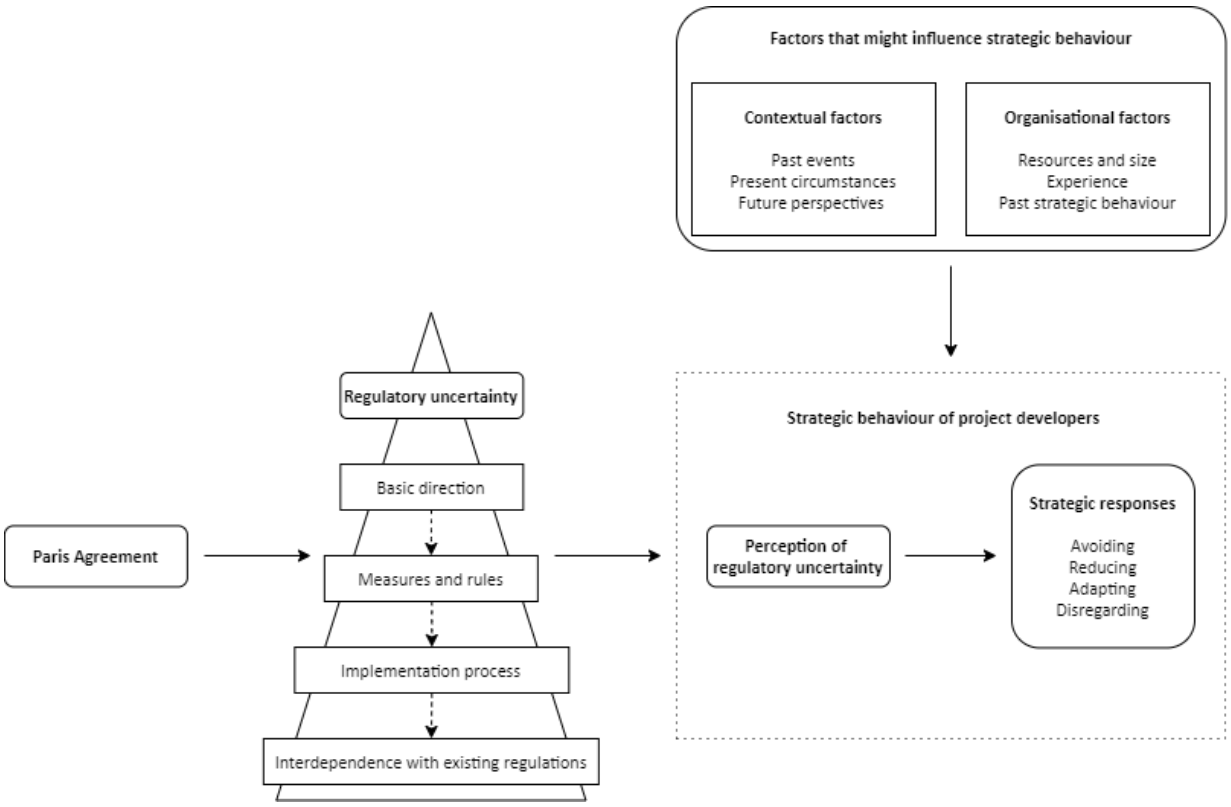

Figure 2.6: Conceptual framework

Chapter 3

Methodology

This chapter presents and discusses the methodological choices. It starts with clarifying the purpose and research context. Subsequently, the research approach, data collection and analysis are explained. At last, it discusses the used quality criteria and methodological limitations.

3.1 Statement of purpose

The previous chapter showed how regulatory uncertainty has been researched in compliance markets while ignoring the significant uncertainty in the voluntary markets. Further, actors experienced in operating in carbon markets that are known for its uncertainty have received little attention so far. The project developers in the voluntary market are an example of such actors. They are experienced in operating in carbon markets and are facing new regulatory uncertainty caused by the Paris Agreement. Therefore, this study aims to investigate regulatory uncertainty and the strategic behaviour of the project developers regarding this uncertainty in the voluntary market. The following research questions guided this qualitative study:

How do the project developers in the voluntary carbon offset market perceive regulatory uncertainty?

What are the project developers' strategic responses to regulatory uncertainty?

3.2 Research context

This section discusses how both the research context and the participants were sampled.

3.2.1 Context

Through theoretical sampling (Bryman, 2016), the context of the voluntary carbon offset market in Europe was chosen. With theoretical sampling is meant a process of selection of a context or case that is particularly suitable for illuminating and extending relationships and logic among constructs (Eisenhardt & Graebne, 2007). The voluntary market in Europe constitutes an extreme case for regulatory uncertainty. The project developers active in this market are among the most globalised organisations developing their projects all over the world. Hence, they will be most affected by the changes of the Paris Agreement and the upcoming NDCs (Hamrick & Gallant, 2017). With as a result, the policy uncertainty will provoke severe regulatory uncertainty. Furthermore, the European voluntary market is among the biggest and oldest carbon markets in the world, with an abundance of project developers being active (Hamrick & Brotto, 2017). In this market, the largest project developers are active with longstanding experience in operating in carbon markets. The other major voluntary market, located in the United States, was less suitable to research since this market tends to be most active within its national borders. Given the United States' withdrawal from the Paris Agreement and their voluntary market's national focus, most American project developers would be less affected than their European colleagues (Hamrick & Gallant, 2018).

3.2.2 Participants

As this study aims to understand how the project developers are dealing with regulatory uncertainty, the unit of analysis were these organisations. Within these organisations, the unit of observation was the manager as he/she is part of the management that leads the organisation and takes decisions on how to cope with the regulatory uncertainty. To sample the project developers and managers, at first several expert meetings were held with experts from the internship organisation FairClimateFund. These meetings were used to gather an apparent oversight on the market and its actors. Subsequently, through theoretical sampling together with a list of project developers provided by Hamrick and Gallant (2017) and information of FairClimateFund, the project developers were sampled. The managers were sampled through criterion sampling, i.e. sampled by means of criteria (Bryman, 2016). It was required that the respondents were holding either top management positions or, in case of flat organisations, management or influential positions. In hierarchical organisations, top-level managers are responsible for the decision-making. When an organisation was considered flat, a position on a lower management level or influential em-

ployee position was acceptable as well. This is because flat organisations typically promote employee involvement through a decentralised decision-making process (Ghiselli & Siegel, 1972). This study also used snowball sampling, where the respondents were asked whom they would recommend interviewing (Etikan, Musa & Alkassim, 2016). This proved to be an efficient and effective tactic for sampling and reaching out to top-level managers.

3.3 Research approach

This section describes the research approach and discusses the philosophical standpoint this study took and the chosen research design and methods.

3.3.1 Philosophical standpoint

From an ontological point of view, this research addressed the studied topic with a constructivist perspective. It assumed that social actors create regulatory uncertainty and strategic behaviour through social interaction and that they are in a constant state of revision (Mir & Watson, 2000). Further, the emphasis in this study lay on understanding the social world of the project developers by examining their interpretations of the ambiguous future of the voluntary market. Hence, this study addressed the research problem from an epistemological interpretivist perspective (Bryman, 2016).

3.3.2 Research design

Although regulatory uncertainty has been researched before and some preliminary models exist, this thesis contributes to the literature by building and enriching theory on regulatory uncertainty. The earlier described research gap shows that limited attention is given in literature on the strategic behaviour of actors experienced in carbon markets. This circumstance causes the theory to be still in a development phase because these types of actors e.g. the project developers, could enrich the theory given their specific experience with regulatory uncertainties. Hence, this study used a qualitative research approach with abductive logic. When a study's emphasis is on developing theory rather than generating new theory, a research approach with abductive reasoning is fruitful. An abductive perspective still allows for discovering new constructs and relationships (Fisher & Aguinis, 2017). The approach's concern is related to the generation of new concepts and developments of theoretical models rather than confirmation of the existing theory. With abductive logic, the aim is to modify the preliminary theoretical framework successfully. This can happen because of unanticipated empirical insights or theoretical insights during the research process (Dubois & Gadde, 2002). In practice, this means that the research starts with background literature considered as 'technical literature' meant to conceptual-

ise the studied phenomenon (Strauss & Corbin, 1990). Subsequently, during the research process, the researcher moves back and forward continuously between the data and the theory. Theoretical frameworks, data collection and analysis are worked on and integrated simultaneously. With as a result that new theoretical combinations emerge through a mixture of established theoretical models and new constructs or relationships derived from the confronted reality (Dubois & Gadde, 2002).

Qualitative procedures were appropriate because the strategic behaviour involved decision-making processes. Qualitative data is especially valuable for understanding these processes due to their ability to capture temporally evolving phenomena in rich detail (Langley & Abdallah, 2011). For instance, the analysis involved historical processes. These dynamic events can be best analysed using qualitative methodologies by which event sequences are clarified, and overlapping causal forces disentangled (Lee, 1999). In addition, qualitative research may enable one to discover the importance of a construct or relationship that has been neglected so far (Doz, 2011).

3.3.3 Methods

This study chose to conduct qualitative research primarily in the form of semi-structured interviews. In doing so, an outline was set out in which a general structure was created by deciding in advance the main questions to be asked, while the detailed structure was left to be worked out during the interview (Drever, 1995). Using semi-structured interviews was considered an appropriate research method for this study since this method is well suited for the exploration of the perceptions and responses of respondents regarding complex issues (Rowley, 2012). With qualitative interviewing the researcher aims for detailed, rich answers of which quantitative interviewing is less suitable (Bryman, 2016). This research method allowed for the preparation of essential questions that needed to be asked while also providing flexibility during interviews to ask follow-up and propping questions. This fostered the gaining of in-depth responses to problems (Bryman, 2016). In conjunction with the interviews, secondary data and observations were used in order to develop a deeper understanding of the studied topic and the social context. By using different methods, within-method triangulation was followed, which aided to decrease deficits and biases a single method could have encountered. (Golafshani, 2003).

3.4 Data collection

This study collected primary data derived from semi-structured interviews and secondary data derived from documents and websites. Furthermore, observations took place at the project developer FairClimateFund. The data collection and analysis were executed simultaneously in an interactive process.

3.4.1 Primary data

The qualitative data was collected by conducting 17 semi-structured interviews with 17 project developers displayed in table 3.1 (pseudonyms were used to ensure anonymity). The interviews took an average of 50 minutes, were conducted primarily through Skype and were recorded to transcribe the data accurately. An extra three feedback interviews were conducted to enhance the study's credibility, which will be elaborated on later in this chapter. Hence, in total 20 interviews were conducted. The project developers were approached with an interview invitation (see Appendix A). In this invitation, the purpose as well as some background on the research was given to ensure a person with knowledge on the organisation's strategic behaviour was reached. Before the interview, it was checked whether the purpose of the interview was clear for the interviewee, and an interview guide (see Appendix B) was sent to the respondent. The interview guide provided the interviewee with an abstract knowledge of what to study in preparation for the interview (Kallio, 2016). Some important questions were left out of this guide to prohibit too much steering in the interview (Bryman, 2016). Therefore, a second interview guide (see Appendix C) was made for the researcher to ensure all required questions were covered. The questions were generally formulated regarding the concepts derived from the theoretical framework because this research attempted to find the interviewee's authentic perceptions on regulatory uncertainty and their strategic responses (Kaplan, 2008).

Through theoretical sampling, the interviews were conducted in three batches (Glaser & Strausss, 1967). During the first batch, data was collected, transcribed, coded and analysed in order to gain an understanding of the studied phenomenon and of whether research questions or strategies needed to be adapted. For instance, after the first batch, it became clear that more attention had to be given during the interviews on the voluntary market's growth as this appeared to have a strong influence on their perceptions. Subsequently, the same procedure was followed during the second batch of interviews. After the second batch, it became clear that the required theoretical saturation would be reached soon. With theoretical saturation is meant that conducting more interviews would barely add any more value since no new relevant information emerged from the data (Baker & Edwards, 2012). Hence, the third batch of interviews was conducted to achieve the theoretical saturation.

Table 3.1: The 20 conducted interviews

Project developer	*Pseudonym*	*Respondent position*	*Frequency*
First Batch			
1	ProClimate	Top management & Influential employee position	2
2	Lowcarbon	Management	1
3	Earthpower	Top management	1
4	Climatemarket	Top management	2
5	Sustainable Society	Top management	1
6	InCarbon	Management	1
Second batch			
7	WeAreNature	Top management	1
8	Climate United	Top management	1
9	Saving Environment	Top management	1
10	Climate Company	Top management	1
11	Protecting Nature	Influential employee position	1
12	Act now	Top management	1
13	Strong Earth	Top management	1
14	Next World	Top management	1
Third Batch			
15	Lives Matter	Top management	1
16	Carbon Capital	Management & Influential employee position	2
17	Allcot (no pseudonym)	Top management	1

Note. The project developers that were interviewed twice involved an extra validation interview.

3.4.2 Secondary data

Secondary data such as company documents were used to gain a better understanding of the project developers' organisational structure, characteristics, and their activities. Also, both academic and grey literature e.g. reports of industry bodies were used to understand the complex context of carbon markets and the evolving political developments around the Paris Agreement. Table 3.2 shows the different data sources and its purposes.

Table 3.2: Secondary data

Type of data	Source	Purpose
Project developers' websites and organisational documents e.g. annual reports or sustainability reports	Websites of project developers	To derive information on the project developers' type of organisation, services, location of activities, organisations' scale, involvement in industry bodies
Industry bodies documents: reports and blogs	Websites of industries bodies	To remain updated of the progress of developments in the carbon markets and the proposed future pathways, and to gain an understanding of market policies
Governmental agencies' documents: reports and blogs	Websites of governmental agencies	To obtain information on updates on political processes of the Paris Agreement and the negotiations at the climate summits
Scientific literature on carbon markets, carbon offset practices and the Paris Agreement	Google Scholar	To gain an understanding of the evolving influence of the Paris Agreement and to remain updated on the studied topic

3.4.3 Observations

As mentioned earlier, an internship was executed for five months at FairClimateFund in Utrecht, the Netherlands. Given the carbon offset markets and related policies are complex systems, the provided expert information was vital to gain a solid understanding of the context. A thorough understanding of how these markets and project developers work was necessary to be able to exploit the full potential of the information from the interviews. Furthermore, involvement in the social life of those studied created a better understanding of a project developer's perspectives and social reality (Bryman, 2016). Table 3.3 shows

the taken observations.

Table 3.3: Observations at FairClimateFund

Type of observations	*Purpose*
Attending FairClimateFund's annual and strategy meetings	To get to know the company's performance last year, their organisational focus' points and planned activities for 2020
Attending weekly team or brainstorm meetings for five months	To gain an understanding of how the different teams of the company operated and the general businesses they were involved in
The company's work culture and social life was observed by being actively present for five days per week for two months (due to COVID-19 the remaining three months of the internship the office was closed)	To become familiar with the social setting of a project developer: their mindset,norms and values, the interaction between teams and management, and ways of working. This contributed to gain a profound insight into the social setting of the project developer and their organisational culture.
Attending FairClimateFund's annual and strategy meetings	To get to know the company's performance of last year, their organisational focus' points and planned activities for 2020

3.5 Data analysis

A standard method to analyse interview transcripts is to use coding (Campbell et al., 2013). Coding allows the researcher to structure and analyse language-based data by capturing its essence in a summarising word or short phrase (Saldaña, 2015). NVivo software was used for the coding of the data. NVivo is a program that assists the researcher in efficient organise, manage, and code qualitative data (Zhang & Wildemuth, 2009). A coding framework was used to assist in systematically analyse the data. This framework was constructed in an iterative process of coding (Bryman, 2016). Throughout the whole process, memos were used to help to articulate and to track the researchers' interpretation in terms of creating and adjusting theory. The data analysis consisted of three steps: open coding, axial coding, and selective coding (Strauss & Corbin, 1990).

3.5.1 Open coding

At first, the interview transcripts were open coded. This involved a process where the interviews data was broken down in small fragments (Strauss & Corbin, 1990). These fragments were given names resulting in concepts. Where possible concepts were coded in vivo, which means they were labelled according to terms or phrases from the fragments of interview data that was coded. In this way, the informant's terms would be used as much as possible. When in vivo coding was not possible, the data were coded with unique concepts (Strauss & Corbin, 1990). Regarding specific organisational characteristics e.g. type of organisation, scale, activities, and presence in the world, codes were used derived from secondary data such as the project developers' websites and documents. Open coding provided broad insights into the regulatory uncertainty in the voluntary markets and how the project developers perceive and respond to this uncertainty.

3.5.2 Axial coding

The second step, axial coding, entailed analysing the concepts derived from the open coding process to discover higher connections between the concepts. Secondary data and observations were used to extend the understanding of the concepts. The emphasis in this stage was to seek similarities and differences among the many concepts and to categorise the concepts (Strauss & Corbin, 1990). The categories were partially matched with the theory in an iterative process (Rahmani & Leifels, 2018). Through constantly comparing the concepts and a selection of the most important categories, relationships between the concepts emerged (Strauss & Corbin, 1990).

3.5.3 Selective coding

The third step is selecting coding where core categories and concepts are formulated to build overarching themes in the data (Strauss & Corbin, 1990). Also, in this stage, the overarching themes were matched with the theory. This helped to build an explanatory description of the studied phenomenon (Rahmani & Leifels, 2018). The secondary data and observations contributed by defining the overarching themes.

3.5.4 Secondary data and observations

Secondary data were analysed by highlighting important passages in the documents or taking notes of essential information from websites. This allowed going back to valuable information when this was necessary. Observations at FairClimateFund were written down in a notebook or recorded. Subsequently, they were reread and revised to gain an understanding of the social context and strategic thinking of a project developer.

3.6 Quality assurance

There are no standard criteria to evaluate qualitative research as there is still debate on which criteria are most suitable (Korstjens & Moser, 2017). However, there is consensus among qualitative scientists that traditional quantitative quality criteria, internal validity, generalisability, reliability, and objectivity are less applicable to assess qualitative research. Instead, qualitative researchers usually speak of trustworthiness which simply means whether the findings can be trusted or not (Korstjens & Moser, 2017). One of the most well-respected criteria to assess the trustworthiness of qualitative research are those proposed by Lincoln and Guba (1985). These are credibility, transferability, dependability, and confirmability. Table 3.4 gives an overview of the quality criteria and the used strategies.

Table 3.4: Quality criteria based on Lincoln and Guba (1985), own illustration

Quality criteria	*Strategies*
Credibility	Methodological triangulation by using different methods for data collection validation interviews
	Prolonged engagement by investing sufficient time to understand the studied phenomena
	Persistent observation by focusing on the characteristics or aspects of a situation that are relevant to the phenomena being studied
	Member check by conducting feedback interviews with participants
Transferability	Describing the research context and assumptions to the research problem thoroughly
Dependability and Conformability	Transparency and documentation of the research process

3.6.1 Credibility

With research being credible is meant the confidence that can be placed in the truth of the findings. It is seen as an alternative to the traditional internal validity criterion. Credibility evaluates whether the research findings represent plausible information drawn from the participants' original data and are a correct interpretation of the original perspectives of the participant (Lincoln & Guba, 1985). This study pursued four strategies to ensure the credibility of the findings. At first, as explained earlier, methodological triangulation was

followed. This helped to decrease deficits and biases that could take place when solely a single method was used (Golafshani, 2003). Second, a prolonged engagement strategy was followed. This means that sufficient time was invested in becoming familiar with the setting and the context, to assess for misinformation, and to get to know the data to obtain rich data (Korstjens & Moser, 2017). During the interviews, the respondents were encouraged to support their statements with examples, and follow-up questions were asked. Further, the data was studied from raw interview material until a theory emerged. In addition, the internship provided a long-lasting engagement with a project developer to gain an understanding of the social setting and participants perspectives such as their intentions, beliefs, and evaluation (Korstjens & Moser, 2017; Maxwell, 1992). However, this understanding of a participant perspective had its limitations given the internship was only done at one project developer.

Third, persistent observation was pursued. This stands for the identification of characteristics and elements most relevant to the research problem on which the researcher will emphasise in detail (Korstjens & Moser, 2017). The development of codes, concepts and categories assisted in examining the characteristics of the data. The found data was continuously read, and reread, analysed, theorised, and the concepts were revised accordingly. The codes, concepts and categories were continuously recoded and relabelled. The data was studied until the final theory provided the intended depth of insight. At last, a member check was done by conducting three extra interviews with participants to gather feedback on data, analytical categories, interpretations, and conclusions. This strengthened the findings since the researcher and respondents observe the data from a different point of view (Korstjens & Moser, 2017).

3.6.2 Transferability

The transferability evaluates the degree in which the results of the study can be transferred to other contexts or settings with other respondents. Hence, transferability is concerned with the aspect of applicability, and it is an alternative for the traditional external validity (Lincoln & Guba, 1985). From a qualitative perspective, transferability is primarily the responsibility of the one doing the generalising. This means that the reader will assess whether the findings can be transferred to their own setting. This so-called transferability judgement implies that instead of the researcher, the reader makes the transferability judgement because the researcher does not know the reader's specific context. However, in order to enhance the transferability, this study described thoroughly the research context and the assumptions that were central to the research. By doing this, the reader is more capable of assessing whether the results are transferable or not (Korstjens & Moser, 2017).

3.6.3 Dependability and confirmability

With dependability is meant the stability of findings over time. It is an alternative to the reliability criteria used with quantitative research. Dependability involves the aspect of consistency. The researcher must account for the ever-changing context within which research occurs. It involves the participants' evaluation of the findings, interpretation, and recommendations of the study such that all are supported by the data received from the participants in the study (Lincoln & Guba, 1985). Confirmability, the alternative for objectivity, stands for the degree to which other researchers could confirm the findings of the study. This criterion is concerned with establishing that interpretations are clearly derived from the data and not products of the researcher's imagination. It involves the aspect of neutrality (Lincoln & Guba, 1985). The researcher can enhance the dependability and confirmability of the study by being transparent and describe the research steps taken from the start of the project to the development and reporting of the findings (Korstjens & Moser, 2017). The methodological steps described in the previous sections, as well as the coding tables in the Appendix (see Appendix D, E, F), allow the reader to assess the taken procedures and how the findings were constructed. Further, the used interview invitation and interview guides can be found in the Appendix (see Appendix A, B, C). The interview transcripts were handed to the university in conjunction with this thesis. In addition, during the entire thesis project, a notebook, memo's and audio and video recordings were used to document reflexive thoughts, plans, feedback, and decisions.

3.7 Methodological limitations

The chosen methodologies in this study exhibit some limitations:

Firstly, by choosing a qualitative design, the insights can be generalised only to a limited extend (Bryman, 2016). A weakness can be found in the limited number of researched units of analysis and in the choice of solely covering one type of uncertain market; the voluntary carbon market. This complicates the prediction on strategic behaviour to regulatory uncertainty of other actors in carbon markets or uncertain markets in general. However, the strength of this design was the possibility to expose new perceptions and insights on strategic responses (Bryman, 2016).

The second limitation can be found in that the primary data is conducted with interviews. Although conducting interviews is a well-respected method of generating insights, there are some specific limitations regarding researching strategies e.g. how these are formed (Langley & Abdallah, 2011). Scholars of strategy as practice argue that strategy should not be seen as something that organisations have, but more as something that people do (Whittington, 2007). When individuals are engaged in activities e.g. strategic actions, they draw on unconscious tacit understandings of how to continue in specific situations that have been learned over time and are pursued collectively. From this perspective, knowledge

on how strategies are accomplished may not be readily available by only asking questions in interviews. Instead, it is implicit in what people do in specific situations (Langley & Abdallah, 2011). Hence, a more ethnographic research approach could provide a deeper understanding of how these strategies are formed (Rasche & Chia, 2009). However, an ethnographic design has its own limitations as well as the generalisation of insights could be even more limited. In addition, such a design is time-consuming and given the relatively short-term of this research project, this would be a particular disadvantage (Brewer, 2000). The choice was made to do an internship at FairClimateFund to address this limitation of interviews. This internship provided a close presence to the studied phenomenon and contributed to a deeper understanding of how a project developer is acting.

A third limitation is the choice of conducting solely one interview with a project developer. Inherently this made it more challenging to gain a thorough understanding of the project developer's organisational reality (Rasche & Chia, 2009). This choice was made because the focus was on interviewing a broad range of project developers instead of conducting more interviews with just a few. However, to ensure that these interviews would still produce valuable insights of the project developer's strategic behaviour, the units of observations were chosen according to their position in the firm as well as their expertise (Rowley, 2012). Hence, the interviewees were all experts in the field with high ranking positions and had a deep understanding of their organisation's stance in the context of the ambiguous future of the voluntary market.

Chapter 4

Findings

This chapter presents the findings that will provide answers on how the project developers are perceiving and reacting to regulatory uncertainty. It starts by demonstrating the project developers' exposure to regulatory uncertainty as well as the sources of this uncertainty. The chapter continues by elaborating how the project developers perceive the regulatory uncertainty. It explains how this perception is built on distinct perspectives of the uncertainty. At last, the strategic responses to regulatory uncertainty and how these relate to the perspectives of the project developers are discussed. Here, a distinction is made between a general strategic behaviour and three unique strategic postures each pursuing a different goal.

4.1 Regulatory uncertainty

This section discusses the regulatory uncertainty the project developers are facing. It elaborates the uncertainty's origin and characteristics.

4.1.1 Sources of regulatory uncertainty

The data analysis showed that all analysed project developers are exposed to regulatory uncertainty. In order to investigate the project developers' coping mechanisms with regulatory uncertainty, it is necessary to distinguish first what types of regulatory uncertainty these actors were facing. On the one hand, it is ascertained that basically the uncertainty originates from policymaking on two basic levels: the global level with the Paris Agreement negotiations between parties at the yearly climate summits and the national level with governments deciding how to align their policies with the treaty. On the other hand, with the use of the taxonomy of Hoffmann, et al. (2008), it came forward that the regulatory uncertainty can be divided into four categories, each producing different uncertainties.

Figure 4.1 shows the various sources of regulatory uncertainty.

At first, there is uncertainty about the basic direction of policies. On a global level, there is uncertainty on the future design of carbon markets and whether article 6 would ever be implemented. In addition, on a national level, project developers find it difficult to predict whether and how their project activities will be covered in the NDCs and how countries will restrict or stimulate carbon activities. Secondly, besides the basic directions, uncertainty is also experienced regarding measures and rules. Project developers have no clarity about the Rulebook of the Paris Agreement, which needs to be agreed upon by all parties. Without the Rulebook, it remains unclear how emissions reductions will be accounted for and what safeguards are in place for protecting the environmental integrity of the carbon markets. Regarding national policymaking, there is uncertainty, for instance, about how the NDCs will be monitored and what methodologies are used. Thirdly, although the Paris Agreement and most of its aligned policies have not come into operation yet at the time of this research, there is uncertainty about the implementation process with e.g. the length of this process and the frequency of policy amendments. Fourthly, there is uncertainty on how the new regulations will align with existing regulations. On a global level, it remains uncertain whether and how the CDM and its projects are converted to a new mechanism under article 6.4. In addition, there is uncertainty on a national level about how the new policies of the countries will affect existing regulations.

With the taxonomy in hand, it becomes clear that the regulatory uncertainty on both levels is present in all categories. However, most project developers emphasise uncertainties that can be directed to the basic direction and measures rules on the global level and the basic direction on the national level. With as a result, they prioritise their attention to address the uncertainties of the first two categories predominantly.

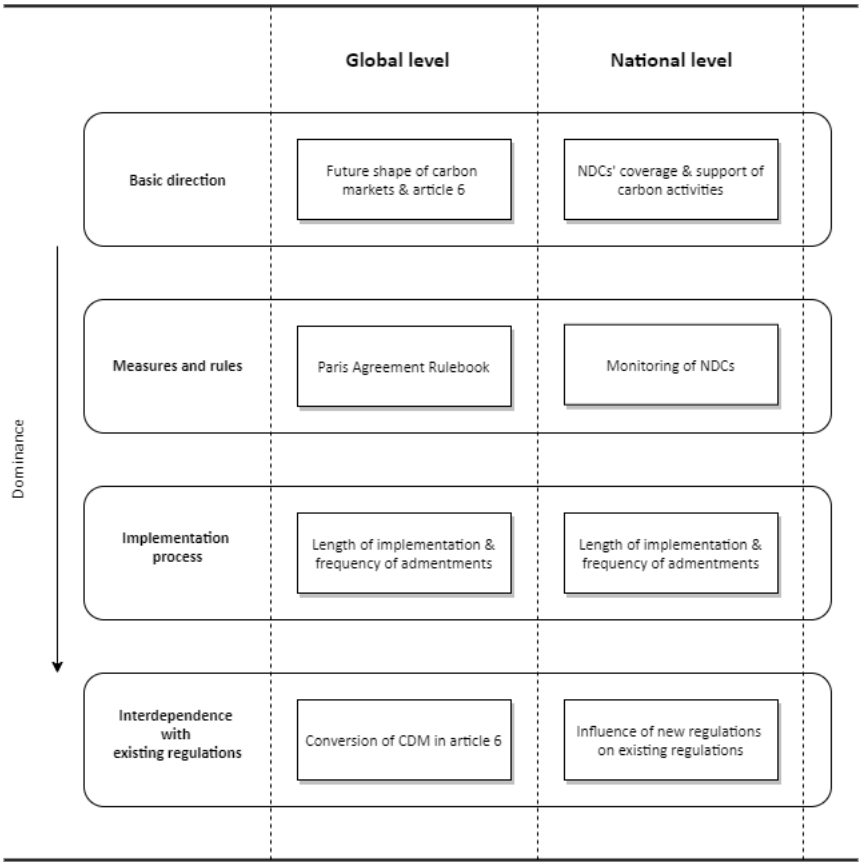

Figure 4.1: The sources of regulatory uncertainty

4.1.2 Reducing in stages

A typical aspect of regulatory uncertainty is that the uncertainty reduces in stages. As 'InCarbon' described: *"the uncertainty is not going away gradually . . . it is more that it becomes less in batches. It could have been that after the last climate summit there would be more clarity but unfortunately that [was] not the case."* (InCarbon, personal communication, March 3, 2020). Since the adoption of the Paris Agreement in 2015, which induced a drop in uncertainty, no major uncertainty reductions occurred on the global level in the years that followed due to the consecutive failures at the yearly climate summits. On a national level, some minor uncertainty reductions are noticeable: *". . . we've got all the NDCs of the countries and we know which ones are going to be conditional and which ones are not going to be conditional."* (Allcot, May 25, 2020). With an NDC being 'conditional' is meant that a country is unable to reduce its emissions from a certain sector only with own resources. Hence, external funding is needed, which could be in the form of carbon offset activities. However, much remains still uncertain as it is often unclear what will be covered: *". . . it's more like a grey area."* (WeAreNature, personal communication, March 21, 2020). Indeed, the NDCs are typical general statements with an absence of

detailed policies: *"... they only present some general targets... how that target is going to be met is still fairly, fairly uncertain for the majority of countries."* (Next World, personal communication, April, 8, 2020). Furthermore, it appears some national governments are waiting on a definitive outcome of the climate summits before making final decisions about their NDCs coverage. 'Strong Earth' described their experience with national governments:

> *The only thing that we have tried to do is to get... host countries to be willing to articulate that certain projects... could be traded internationally and would not count towards the domestic mitigation measures to allow us to go forward with some Paris compliant commitments. But most countries aren't willing to do that. Because the Paris Agreement doesn't articulate enough for them to be able to know what they're committing to.* (Strong Earth, personal communication, March 31, 2020)

However, as explained in the theoretical background chapter, the industry bodies of the voluntary markets have not been waiting passively on clarity in the years after the Pars Agreements' adoption. Instead, these bodies have been holding various workshops and industry discussions to come up with several potential future pathways the voluntary market could take. Nonetheless, their final solutions still depend on decisions at the climate summits. Therefore, the uncertainty of the Paris Agreement's basic direction and measures and rules remains a dominant source of the project developers' regulatory uncertainty.

As mentioned before, the source of regulatory uncertainty influences a firm's response to uncertainty. Hence, the dominance of uncertainties from the first two categories is visible in the responses of the project developers. However, the source of uncertainty is not the only factor influencing how an organisation deals with regulatory uncertainty. This becomes apparent in the fact that the project developers are taking various strategies for different purposes and pursue them often simultaneously. To understand these responses, one must understand how firms perceive the regulatory uncertainty and how this perception relates to the taken strategies. The next section will elaborate on the project developer's perceptions of regulatory uncertainty.

4.2 Perceiving regulatory uncertainty

The previous section demonstrated the project developers' exposure to regulatory uncertainty and their concentration on the basic direction and measures and rules of the Paris Agreement policies. As discussed in the theoretical background chapter, firms' coping mechanisms or strategic responses to regulatory uncertainty are related to their perception of this uncertainty. This section dives into the ways of how project developers perceive regulatory uncertainty and explain how their perceptions are formed.

4.2.1 Perceiving regulatory uncertainty as non-threatening

The interviews and observations showed that project developers mostly perceive the regulatory uncertainty in a similar way. When firms are exposed to regulatory uncertainty, one could expect them to perceive the uncertainty as a threat. Remarkably, this is not the case with the project developers. In fact, although they are facing an ambiguous future with potential major changes in offsetting practices, they perceive the regulatory uncertainty rather unconcerned. 'WeAreNature' argued: *"[the uncertainty] is not impeding our day to day business. . . .[the end of 2020] is getting closer and closer and we still don't have clarity, but it doesn't affect our development of projects at the moment."* (WeAreNature, personal communication, March 21, 2020).

The project developers have confidence in the future and the existence of a future market: *"what I expect. . . there will be in every NDC room for doing things that governments cannot pay for. . . So I [think] there will be a market in the future."* (ProClimate, personal communication, February 2, 2020). Furthermore, they all show strong confidence in their ability to survive the regulatory uncertainty: *"We're not worried, but it's also not far away. But we [are] quite confident that whatever is decided we can still add value."* (Earthpower, personal communication, February 22, 2020). The project developers perceive the regulatory uncertainty as non-threatening as a result of a combination of three perspectives which are displayed in table 4.1.

Table 4.1: Perspectives of perceiving regulatory uncertainty as non-threatening

Perspectives	*Description*
Opportunity perspective	Firms perceive the market opportunities to be more important than the risks associated with uncertainty resulting in favouring a focus on opportunities
Expertise perspective	Firms have substantial experience with previous uncertainties and in some cases knowledge of the current uncertainty
Indifferent perspective	Firms are confident in that they will be hardly affected no matter how the uncertainty resolves

4.2.2 Perspective of opportunity

All project developers are found to perceive regulatory uncertainty from an opportunity perspective. Despite their exposure to uncertainty, project developers are enticed by tremendous opportunities which influence their perception. Opportunities are overruling potential risks associated with the uncertainty, and it strengthens their confidence in the

future.

The primary source of this perspective is the immense growth of the market over the last couple of years. One of the core drivers for this rise in demand can be related to a rapid increase in public awareness of the need to take climate action. Corporations too are more aware of this need and: *"are feeling the pressure from [society] and also from their financial investors asking for their climate strategy."* (Climate Company, personal communication, March 26, 2020). Hence, the private sector is responding to this public awareness by showing they take climate change seriously. This has resulted in a sharp rise in demand for consultancy on corporate climate strategy and sales of carbon credits.

The growth of the market has a strong influence on how the project developers see the future, and it influences their perception on regulatory uncertainty: *"... there is the uncertainty of offsetting...and of financing emission reductions in the future... But curiously... is that what we see is that there's the demand for voluntary emission reductions in spite of the uncertainty."* (InCarbon, March 3, 2020). Due to this rise in demand, project developers tend to perceive the regulatory uncertainty from an opportunity perspective, and it enhances their confidence in the future. One key reason this growth has such a significant impact on their perception is that the voluntary market has not experienced such a spike over more than a decade:

> *It's been a very slow market for the last decade basically. And we're now in a process suddenly of it's actually exploding in activity. There are lots and lots of announcements going on about people wanting to be carbon neutral.* (Low-carbon, personal communication, February 5, 2020).

In addition, it is important to be aware that this rise in demand is not just a regular spike in a regular market. For the project developers, it is also an acknowledgement of their raison d'être. The project developers in the voluntary markets are mostly social enterprises or foundations primarily driven by ideals to create an impact on the climate crisis. Hence, they also perceive this growth as the result of an increase in climate awareness and demand for climate action, which is, in turn, something they provide. For instance, 'Lives Matter' an idealist social enterprise said about this:

> *I think the biggest development has been a huge spike... in public demand for action that we've seen over the last year. It's been people power... making people stand up and actually... it's climate change, it's not going away. I've always said that. From the very beginning, when I first started, climate change isn't going away. And sooner or later, we're going to have to... face it and take some action. And you can see that now and corporates are taking action, because the public is demanding that they do so.* (Lives Matter, personal communication, April 22, 2020)

Project developers also expect new potential coming from new compliance markets. These new carbon markets will depend (partly) on offsetting practices resulting in extra demand for carbon projects. This further enhances the project developers' opportunity perspective and confidence in the future.

4.2.3 Perspective of expertise

Besides an opportunity perspective, all project developers show a strong presence of perceiving regulatory uncertainty from an expertise perspective, making them confident in their ability to cope with the uncertainty. This perspective is built primarily on the project developers' extensive experience with previous uncertainties and to a lesser extent on knowledge on the current uncertainty.

Secondary data in the form of the project developers' websites and documents showed the project developers are all long-standing mature organisations with 10 to 20 years of experience in operating in carbon markets. This makes them experienced in dealing with uncertainties. It is broadly shared among market actors that uncertainty, either derived from policy or market developments, has always been part of the carbon markets and will continue to do so. As 'WeAreNature' explained: *"the thing is that uncertainty with this market and indeed the dynamic character of this market is something that has always been part of the offset market. It has and will always be a dynamic market."* (WeAreNature, personal communication, March 3, 2020). As explained in the theoretical background chapter, the carbon markets faced some rapid changes and ambiguity in the past with the collapse of the CDM market as the markets' nadir: *"we had [credits for] I think it was 10 euros on the primary market and then [the prices dropped to] 50 cents."* (Carbon Capital, personal communication, May 22, 2020). Due to the collapse, many project developers were forced to stop their CDM activities. 'ProClimate' said about this period:

> *And we were in the CDM. We had a [CDM] project. So we acted. The [CDM] market was always [a] sort of backbone for us. So I thought if we have not the voluntary market and it disappears, we can always fall back on the compliance market. But that really went down. So my backbone was lost so to say. So at that time, I felt quite insecure in 2012, 2013 because ... the voluntary prices were low, and the compliance prices were going down. So at that time, I was quite uncertain about the future of our company.* (ProClimate, Personal communication, February 2, 2020)

The regulatory uncertainty and price uncertainty had a significant impact on the project developers, and it influences how most organisations are dealing with uncertainty nowadays. A project developer still remembered how a major industry leader of that time went bankrupt:

> *I don't know if you know about Eco Securities from the past... a company that went public and was then part of JP Morgan. I mean, it was really big. It was valued at $150 million at one point and then... the global demand for credits shrunk significantly and the company collapsed, and it turned into nothing.* (Strong Earth, personal communication, March 31, 2020)

4.2.4 Perspective of indifference

Several project developers perceive the regulatory uncertainty also from an indifferent perspective. These organisations are confident that they will not be affected by any of the outcomes of the political processes. This perspective is distinct from the other perspectives in that it is not actively triggering further strategic action because according to this perspective, there is no need to. Nonetheless, this perspective has its influence on the ways some project developers cope with uncertainty and is often more a result of strategic responses.

The indifference some project developers show when perceiving regulatory uncertainty is primarily the result of their organisation's independence of carbon markets. Indeed, several of the interviewed project developers claim their consultancy services to be more important for their firms' revenue than the sale of carbon credits. For instance, 'Protecting Nature' is a project developer who is less depended on carbon markets: *"our key income comes from the consulting services we provide, and we complement this with our carbon certificates"*. (Protecting Nature, personal communication, March 27, 2020). With as a result, they think they will not be affected by changes from the Paris Agreement.

A form of indifference more broadly shared among project developers is their perspective on the nature of the voluntary market. With the nature of the voluntary market is meant the partly disentanglement of the voluntary market from policies. 'Lowcarbon' argued:

> *We're in the voluntary markets. People do this not for compliance reasons. It's voluntary. So if the government argues you can only buy red offsets for their [emission trading scheme], that's fine. I'm not buying it for this [scheme]. I can buy green offsets. Because I do this voluntarily. And all I need to be able to is to justify to my clients... So on the one hand, we are partially disconnected from the discussions in the Paris Agreement, and therefore the NDCs.* (Lowcarbon, personal communication, February 2, 2020)

Indeed, the very nature of the voluntary market is that voluntary reasons prompt the offsetting. Customers want to state their carbon neutrality yet are not obliged too. Furthermore, the policy development at the global and national level is meant primarily for compliance markets. However, as discussed in the theoretical background chapter, the voluntary market will still be affected by these new policies. In addition, since many project

developers are considering operating in the upcoming compliance market as well, they will be fully exposed to the policies of these markets.

4.3 Strategic responses to regulatory uncertainty

The previous section discussed how the project developers perceive the regulatory uncertainty, distinguishing between different perspectives. This section will elaborate on the strategic behaviour of the project developers and how their perspectives relate to their strategic responses. The interviews and observations showed that the project developers share both similarities and differences in their coping with regulatory uncertainty. This study distinguishes between general strategic behaviour and three distinct strategic postures.

4.3.1 General strategic behaviour

The interviews and observations showed that in general, the project developers are pursuing strategies that depart from all four strategic responses: avoiding, reducing, adapting and disregarding. The strategies found to be shared are postponement, investigation, flexibility, no-regret moves, and substitution strategies.

Given the uncertainty concentrates on the basic direction and measures and rules, the project developers state they await policy certainty before making drastic decisions about their business model or operations. Hence, **they postpone** some decision making on business adjustments. 'ProClimate' argued: *"The final negotiations are sort of starting point to adjust your policy then you know, okay, this is going to happen... So we will make our main adjustments after we know how it will be implemented."* (ProClimate, personal communication, February 2, 2020). From their expertise perspective, the project developers argued that it is not possible to make drastic adjustments before there is an agreement on the Paris Agreement Rulebook. 'Next World' substantiated: *"For us it's at the moment still preparation work [because] you can't as the rules are not written down, you can't necessarily make drastic decisions in terms of how your company is structured..."* (Next World, personal communication, April 8, 2020).

For several project developers, this also means that they wait with preparing their customers for potential changes in the market. As explained in the theoretical background chapter, the industry bodies propose a future pathway where buyers of credits can only claim to finance a contribution to an emission reduction instead of claiming the emission reduction itself. When this path is followed, it could become more complicated for voluntary buyers to claim carbon neutrality. The project developers argue that this is solely a frame that could be altered and that their customers will follow along. However, although some project developers have communicated this with their clients, others have not. In-

stead, these latter project developers base their trust in the success of this pathway with a **substitution** strategy by assuming their clients will follow.

Some of them even assume the motivations of their clients are not solely focussed on the claim of carbon neutrality. For instance, 'ProClimate' argued: *"I think most of them want to do this for their own corporate social responsibility agenda."* (ProClimate, personal communication, February 2, 2020). Hence, they assume that a change in claiming emissions reductions would not matter much for their clients. By contrast, others do state the importance of carbon neutrality:

> *Now people speak about [a future pathway] that a company cannot use carbon neutrality but should say instead we are contributing at some level to the international effort for carbon-reducing. Things like this... in terms of marketing, it won't work. Many [offset buyers] need a clear, crystal clear claim... And it's a good marketing point that attract businesses into these strategies.* (Carbon Capital, personal communication, May 22, 2020)

For example, 'WeAreNature', a large project developer with many multinationals as customers, also emphasised the importance of claiming carbon neutrality: *"for a lot of them carbon neutrality is important. And there is probably the biggest, the biggest change where we really need to look for a dialogue with them."* (WeAreNature, personal communication, March 21, 2020). However remarkably enough, 'WeAreNature' still awaits to consult its customers: *"as it's still so unclear, it doesn't make sense to involve them because it's just going to confuse them completely because it's quite complex."* (WeAreNature, personal communication, March 21, 2020).

The logic behind the above-described thinking could be clarified with the project developers' immense confidence in their client relationships and their organisations' added value: *"... most of our clients are standard clients for many years. We're in the business for two decades now. So these people tend to trust us, they usually follow our advice, also on the framing."* (Climate Company, March 26, 2020). This confidence built over years of experience shows the influence of the expertise perceptive but also the strength of the indifference perspective. These project developers claim they will not be affected by this pathway because they are convinced their customers will follow in either way.

The strong growth of the market encourages most project developers to pursue a **no-regret move** by expanding their operations: *"Absolutely yes we are expanding. We see incredible growth at the moment."* (Climate Partner, March 26, 2020). Through their opportunity perspective, the payoffs of responding to the market growth outweigh the risks of regulatory uncertainty which instigates the project developers to disregard the uncertainty. They are confident in the future of the carbon market and the purpose of what they are doing. However, due to the nature of the markets they operate in, they always remain cautious about investing in new projects. 'Next World' explained this:

> *'Next World' has been around for a long time [which is] very rare in these markets. It's very rare because those markets have been extremely volatile... We have always been fairly risk averse. And we've always been positioning ourselves as a very cautious custodian of projects and recovering of credits. This has allowed us to weather the first main pivotal moments of the carbon markets in 2010-2013... when the markets crashed for several years. Because we didn't take positions or gamble on certain projects becoming attractive or [to] put any money into activities that were not already supported by clients.* (Next World, personal communication, April 4, 2020)

Through their expertise, all project developers are found to pursue **investigation** strategies to reduce uncertainties before initiating a project. With a typical project lifetime of 10 to 20 years, project developers always need to carry out extensive risk assessments before initiating a project:

> *I need to do a lot of work before I think about implementing a project and I take this [NDC coverage] into account as well [as] many other financial considerations. Not being certain that the project will [deliver] assets that can be sold is clearly one of the first questions I need to ask myself and my teams. This is a risk that cannot be taken. This is the type of things that actually lead these companies to go bankrupt.* (Next World, personal communication, April 4, 2020)

All project developers have been able to survive previous uncertainties through their risk-averse behaviour. This enables them to perceive the current regulatory uncertainty from an expertise perspective, and they continue to pursue their investigation strategies: *"Everyone learned from those experiences to be very cautious... and this is what we do now as well."* (Lives Matter, personal communication, March 22, 2020). Given the task of executing proper risk assessment is part of their regular operations, this strategy is related to their perspective of expertise. Most project developers are also found to pursue a **flexibility** strategy by diversifying in their revenue. The crash of the carbon markets a decade ago made project developers become less depended on carbon markets:

> *...they had to reinvent themselves and diversify. I mean consulting is a big part of their business model nowadays, but they are still around because of very careful planning and not [to] overly relying on carbon credits as a revenue stream.* (Strong Earth, personal communication, March 31, 2020)

Their experience with the price volatility and uncertainty in the markets made them risk-averse and diversifying their income streams which is something they continue doing.

4.3.2 Strategic postures

Besides the above discussed general strategic behaviour, three strategic postures emerged from interviews, secondary data and observations. Each of these postures combines a different set of perspectives and strategies displayed by project developers. Accordingly, they are labelled as passive independents, adapters, and frontrunners shown in table 4.2.

Table 4.2: Project developers in strategic postures

Passive independents	*Adapters*	*Frontrunners*
Act now	Lowcarbon	Allcot
Climate United	ProClimate	Carbon Capital
Earthpower	Saving Environment	Climate Company
Protecting Nature	Strong Earth	Next World
InCarbon	Climatemarket	Sustainable Society
		WeAreNature
		Lives Matter

4.3.3 Passive independents

Passive independents are organisations which are in their revenue not dependent on carbon markets. Usually, these organisations are predominantly consultants providing climate consultancy and complement these services with carbon offset activities. Alternatively, in the case of InCarbon, a development organisation, which combines its development programs with carbon offset activities. Due to their relative independence, they tend to perceive regulatory uncertainty mainly through an indifference perspective. However, they also perceive the uncertainty from an opportunity and to a lesser extent, an expertise perspective. The main objective of passive independents is to follow the general developments around regulatory uncertainty while continuing their regular activities. Hence, they tend to disregard and reduce regulatory uncertainty. The strategies they pursue are investigation, substitution strategies and no-regret moves (see figure 4.2).

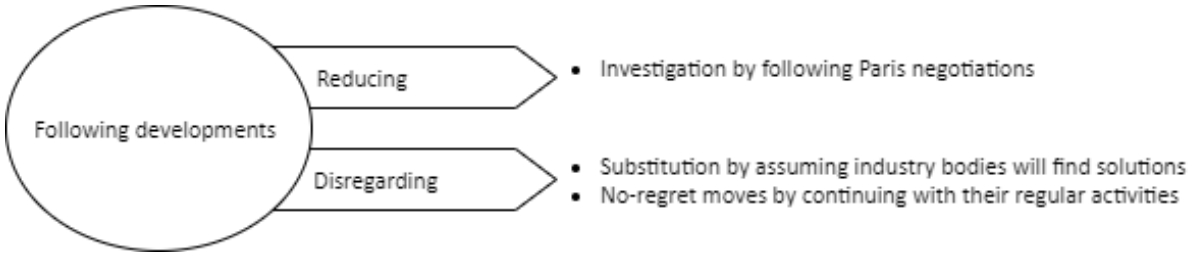

Figure 4.2: Strategic posture of passive independents

Passive independents are the least engaged in strategic activities among the project developers since they feel less inclined to do so:

> *For us [the] uncertainty of the Paris Agreements and so on is not that important... We took so much care about it. We created our own market... I am a little bit uncertain but if the standard and everything changes, I am sure we will succeed in another way.* (Act now, personal communication, March 3, 2020)

Moreover, pursuing strategies to avoid, reduce or adapt to regulatory uncertainty is costly and is a lower priority due to their limited involvement in the voluntary market. However, they still pursue an **investigation** strategy by following the negotiations on the Paris Agreements with interest: *"We do follow the Paris Agreement negotiations because in the end, this will bring a lot of changes."* (Climate United, personal communication, February 21, 2020). They are mainly concerned with pursuing **no-regret moves** e.g. continuing with their regular activities. Furthermore, they pursue a **substitution** strategy by putting their faith in politics and the industry and assume they will find a solution for the voluntary market: *"They must find a solution and they probably will... because it [the voluntary market] is such an important mechanism that creates so much impact."* (Protecting Nature, personal communication, March 27, 2020).

4.3.4 Adapters

Adapters are organisations which are more reliant on carbon markets and tend to pursue a reactive approach to developments in regulatory uncertainty. This is mainly due to their limited resources or the relatively small size of the project portfolio. They tend to perceive regulatory uncertainty primarily through an opportunity, expertise and to a lesser extent, an indifference perspective. Similar to the passive independents, adapters are also engaged in disregarding responses. However, they are more active and are also pursuing strategies to reduce, adapt, and avoid regulatory uncertainty. Their main objective is to become more resilient towards the regulatory uncertainty. Due to their limited resources, they are unable to influence the outcome of the regulatory uncertainty, yet they still need to cope with it. To become more resilient, they are mainly engaging in investigation, simplification, flexibility, stabilisation and substitution strategies (see figure 4.3).

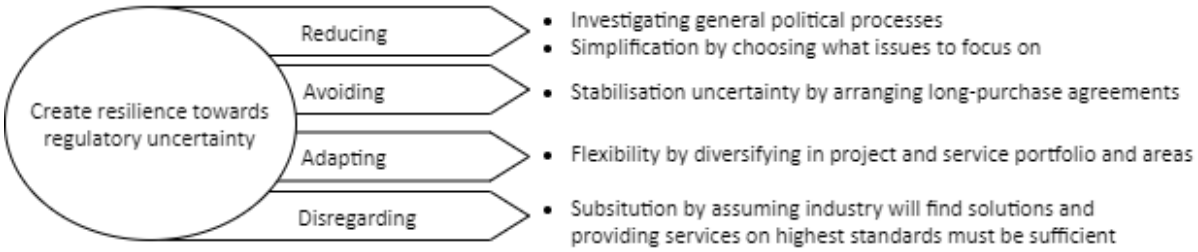

Figure 4.3: Strategic posture of adapters

Adapters are more active followers of the political processes than passive independents. They concentrate on their **investigation** strategies predominantly on the basic direction, implementation and measures of the Paris Agreement since this is the primary source of uncertainty. The project developers follow the Paris negotiations closely and are regular visitors of the climate summits. In addition, they all visit industry conferences where the future of carbon markets is being discussed:

> *. . . these [conferences] are one of the places where that dialogue is really interesting for us. And where I really appreciate the insights from certain experts in the field. . . we get together and we can actually talk about the future status [of the carbon markets].* (Saving Environment, personal communication, March 24, 2020)

However, as a result of their limited resources, these organisations are often unable to focus on all uncertain issues. They have to prioritise to reduce the number of unpredictable factors they have to consider in their decision making. Hence, they usually pursue simplification strategies in their coping with regulatory uncertainty: *"We don't have the resources to focus on all uncertain issues. . . . Therefore, we only investigate what is [for us] the most important."* (Strong Earth, March 31, 2020) This means that adapters are less involved in industry bodies and are less able to influence the political processes. As 'Saving Environment' argued: *"we just don't deal with issues that are too difficult to influence. The only thing we can do is try to diversify where we generate credits from."* (Saving Environment, personal communication, March 24, 2020).

Indeed, the adapters are heavily involved in **flexibility** strategies e.g. diversifying, in order to adapt to regulatory uncertainty. They focus on diversifying in areas they are active in by, for instance, orientating on local carbon markets:

> *We are now exploring local markets... For instance that projects in India can be traded to Indian corporates. . . So we could in our long term future, we could envisage that we all work locally in case we cannot trade our credits [from one country to another].* (ProClimate, personal communication, February 2, 2020)

Alternatively, the adapters diversify by combining different products to respond to both demand and uncertainty:

> *We are looking at combing [different] products such as offsetting with planting trees as donation... because we see there is a market for it and it also make us more prepared in case offsetting is not possible in some areas.* (Climatemarket, personal communication, February 18, 2020)

These strategies show how they are a result of a combination of perceiving regulatory uncertainty from an expertise and opportunity perspective. On the one hand, they show risk-averse behaviour by spreading risks through diversification while on the other hand, they respond to their clients demand that asks for different products.

Due to their limited resources, adapters are also pursuing **substitution** strategies hereby making decisions based on assumptions. For instance, similar to the passive independents, they show confidence in the industry bodies' problem-solving capabilities. The project developers have high expectations these bodies will find a solution for the issue of double claiming which strengthen their indifference. As a result, they follow the industry standards with trust: *"And the [Industry standard] says let's focus more on the contribution instead of just the claim. And that's something that we will probably focus on."* (Climatemarket, personal communication, February 18, 2020). In addition, the adapters also assume that when they focus on the quality of their services and projects, they will become more resilient in the future. Through their expertise perspective, they are confident they could keep their customers close and that their projects will remain eligible in the future carbon markets:

> *... you basically make sure that what you're delivering is the best you can. Because if the Paris Agreement is going to demand something that is beyond the best available practice... Then the whole Paris thing is undeliverable. So they can't. So if we deliver [the] best available practice, then that must be eligible.* (Lowcarbon, personal communication, February 5, 2020)

At last, from their expertise perspective, the adapters try to arrange long-purchase agreements with their customers to **stabilise** uncertainty. As 'Strong Earth' explained:

> *So the primary way that we deal with uncertainty in the carbon markets is to get buyers to commit to long term purchase agreements on fixed prices, or at least some sort of predictable prices. And so we've able to do that historically, but it is now happening more because of the NDCs and so on.* (Strong Earth, personal communication, March 31, 2020)

4.3.5 Frontrunners

The frontrunners are, similar to the adapters, more reliant on the carbon markets. However, in contrast to the adapters, they respond proactively to the regulatory uncertainty. These project developers are large organisations with a global presence, abundant resources and knowledge on the current developments. Akin to the adapters, the frontrunners perceive the regulatory uncertainty from an opportunity, expertise and to a lesser extent an indifference perspective. However, the frontrunners differ from the rest of the project developers in that they possess specialised expertise originating from their network and high involvement in industry bodies. They are on the frontline of developments in the markets and involved in the most strategic responses, including some pursued by the other project developers. Their main objective is to influence the outcomes of the regulatory uncertainty. The frontrunners are found to pursue investigating, influencing, stabilisation, internal design, cooperation, and withdrawal strategies to gain as much influence as possible. However, in addition, they also aim to further enhance their resilience with a certain flexibility and substitution strategies (see figure 4.4).

Figure 4.4: Strategic posture of frontrunners

Influencing outcomes of regulatory uncertainty
The frontrunners are heavily engaged in strategies to reduce regulatory uncertainty. Similar to the adapters, they primarily focus on the uncertainty about the basic direction and measures and rules. However, in contrast to the adapters, they do not only **investigate** these developments, they also try to **influence** these by engaging in lobbying activities: *"So what we also do... we try to influence the governments at the climate conferences... or regarding [offset scheme name] for example, we are part of the team that's negotiating the kind of the certificate types that can go into [offset scheme name]..."* (Sustainable Society, personal communication, February 2, 2020). Moreover, besides lobbying at international policymaking, it is in their interest to influence national political processes given their

activities in various jurisdictions around the globe. For instance, 'Next world' influences governments through their consultancy:

> *We also are active as a consultant... We've been selected by the government of [country name] to draft their NDC update which will be communicated to the UN this year... So this is another way that we are active in that process... it is useful because we get to obviously influenced to some extent, what would be in the NDC and what sort of policies we believe should be prioritised in [country name] to ensure that that's the maximum amount of emission reductions is achieved.* (Next World, personal communication, April 4, 2020)

These activities strengthen their expertise and provide opportunities. Also, the frontrunners are combining these influencing strategies with **stabilisation** strategies. For instance, Allcot was able to both stabilise and influence the uncertainty in new methodologies of the Paris Agreement by developing these methodologies themselves. In this way, they increased the predictability of the design of future policies. As Allcot substantiated:

> *It's common sense. I mean, if you are just waiting for the politicians to create a perfect system, [that] won't happen. They will provide guidelines, but they will not provide all the details of how the market will work. Essentially, the market will be created by the developers... We are kind of the technicians of the policy development... So at the end of the day if we don't work together, with the other project managers and project developers and so on, the market won't be developed.* (Allcot, personal communication, May 25, 2020)

Besides developing methodologies, several frontrunners are also able to increase predictability through their global portfolio of projects. They argue that with their global portfolio, they have large buffers to stabilise the uncertainty about the NDC's coverage and double claiming by individual countries. As 'WeAreNature' explained:

> *In the case that some countries will count the reductions towards their own inventory and the credits can only be sold as a financial contribution to the emission reduction... We can balance that out. We have such a big portfolio if then clients insist on carbon neutrality, we can offer [them] other projects where there is no interference with NDCs.* (WeAreNature, personal communication, March 21, 2020)

The global portfolio of these project developers has been built primarily to respond to demand and to spread risks making it a product of opportunity and expertise perspectives. However, the logic behind its usage to stabilise the uncertainty on NDC coverage suggests this strategy can also be related to an indifference perspective. For instance, 'Sustainable

Society' argued *"... we are lucky that we have a global portfolio. So we can balance across that. So, it's a risk but it's not a risk to the company."* (Sustainable Society, personal communication, February 19, 2020).

To be able to follow all developments on both global and national policymaking, the frontrunners are adjusting their **internal organisational design**. For them, a decentralised organisation with multiple departments and regional offices is a necessity. For instance, 'Next World' with their global presence must cope with a variety of different jurisdictions:

> *Our sales teams of our offices must be aware of the various laws on carbon neutrality claiming in various countries because these can change on a country by country basis. Even in places like the European Union where the rules are usually quite standardized, [with] this topic [one] country is not like the other.* (Next World, personal communication, April 8, 2020)

Due to previous uncertainties in the carbon markets, most larger project developers adapted by starting to adjust their internal organisational design years ago. For example, 'Climate Company' had to confront high regulatory and market uncertainty during the collapse of the CDM market:

> *Agile project management and dynamic change management became just a necessity. We used to have a standard business that was more or less running steadily. But then of course, with the breakdown of the CDM and the EU market, we had to adapt our business model and change profile. And now with all these changes in 2020 we again have to be very agile and flexible and... feel the finger on the pulse to respond quickly to any changes.* (Climate Company, personal communication, March 26, 2020).

The interviews and secondary data showed that the frontrunners are also adapting to regulatory uncertainty through their high involvement in industry bodies (ICROA, n.d.; IETA, n.d.). These organisations aim to foster **cooperation** between market actors, to hold industry discussions about the future of the carbon market, and to influence the political process. 'WeAreNature' explained:

> *We need to talk regularly about the outcome of the climate summits and what it means for climate policy. But also for other market issues. That's why we [take] part in workshops and discussion groups, especially with the [industry standards], but also the discussions within other organisations that are discussing it.* (WeAreNature, personal communication, March 21, 2020).

These project developers have been involved in these organisations for years to deal with uncertainties. Hence, they are experienced to cooperate, which results in a robust cooperative mentality among market actors. Furthermore, it formed their perspective of expertise

since they know from experience that e.g. the uncertainty about the basic direction of the Paris Agreement can be best addressed through industry bodies: *"...there's no point to deal with it on your own, it needs to be done through an industry wide body."* (Lives Matter, personal communication, April 22, 2020).

In some cases, the frontrunners try to avoid regulatory uncertainty by **withdrawing** their activities from uncertain environments and focus instead on more predictable environments. For instance, several project developers are withdrawing their investments from countries where they perceive high uncertainty on whether future project development is possible:

> *We try to assess where we see the risk to be the biggest and hedge for that... So, Brazil and Australia are the ones that more or less in Madrid threatened to not allow credits to export. So, we are trying to, well, not invest there at the moment and invest in countries that are committed to carbon markets.* (Sustainable Society, February 19, 2020)

However, often they continue with monitoring the political processes in these countries to reduce the regulatory uncertainty because the demand for projects there remains high: *"...there is quite some demand for Amazon projects because of the fires lately."* (Sustainable Society, February 19, 2020). By continuing monitoring the political processes in these countries, they hope to find the risks will decrease for further project development to respond to the demand of customers.

Enhancing resilience

The frontrunners try to enhance their resilience by pursuing **flexibility** strategies to: *"diversify our portfolio even more."* (WeAreNature, personal communication, March 21, 2020). Also, they are pursuing **substitution** strategies by investing in countries, and project types they assume have the highest chance of being eligible for future policies. Hence, an orientation is noticeable in prioritising operating in the least developed countries (LDC). From their expertise perspective, the project developers foresee that operating in these countries is a safe bet:

> *Because what happens is when you see the historical background, you always see that LDCs are quite protected. When there is a reform, they say, okay, we are shutting down the market except for LDCs. It's always the same. So, basically, we say let's develop in LDCs... it's the safe zone for the carbon market. And this is great because they are the ones who need I [the finance] the most.* (Carbon Capital, personal communication, May 22, 2020)

In addition, this strategy can also be related to their opportunity perspective since the demand for projects in LDCs is high: *"We're seeing that the compliance schemes often only allow credits from LDCs..."* (Sustainable Society, personal communication, February 19, 2020). For the same reasons most project developers are also orienting on projects

consisting of nature-based solutions: *"... at the half of the 21st century we think that the offsetting industry will be almost 100% of natural based solutions. So, in preparation for that we are increasing our portfolio with these [types of] projects."* (Carbon Capital, personal communication, May 22, 2020). Indeed, a trend towards nature-based solutions is noticeable in the secondary data. Many policies and compliance schemes are stimulating the development of these types of projects (California Air Resources Board, n.d.; European Commission, 2019; Ivleva et al., 2015).

Chapter 5

Discussion

This study researched the strategic behaviour of project developers under the regulatory uncertainty in the voluntary market. It elaborated theoretical insights on how actors experienced in operating in the uncertain carbon markets are dealing with regulatory uncertainty. This chapter presents the discussion of the insights gained from this study. First, the findings of this thesis will be discussed and reviewed in light of the theoretical context. Subsequently, it discusses the theoretical and managerial implications. Finally, the limitations are discussed, followed by recommendations for future research.

5.1 Interpretations

Since regulatory uncertainty has never been researched in the context of the voluntary market or the Paris Agreement, this study needed first to analyse the project developers' exposure to regulatory uncertainty. Therefore, a taxonomy of regulatory uncertainty developed by Hoffmann et al. (2008) was used to demonstrate the regulatory uncertainty's presence and source. This taxonomy distinguishes the regulatory uncertainty of new regulation in four categories: the basic direction, measures and rules, implementation process and the interdependence with existing regulations. The findings show the project developers are facing substantial regulatory uncertainty concentrating primarily on the first two categories. There is high uncertainty about the basic direction and measures and rules of the Paris Agreement and the NDC's coverage with corresponding policies. The policymaking process has been staying in the same phase for years due to the consecutive failures of reaching an agreement at the yearly climate summits. This is typical for policymaking with high regulatory uncertainty. The unpredictability of the length of phases creates an extra uncertainty which is characteristic for environmental regulation and multilateral treaties (Golub et al., 2018; Levy, 1997; Tarui & Polasky, 2005; Van den Hove, 2000).

Surprisingly, this study revealed the project developers remain rather unconcerned when

coping with the regulatory uncertainty. This is striking given the fact that they are facing an ambiguous future with substantial uncertainty (Lang et al., 2019,). The project developers are confident about the future and their ability to cope with the uncertainty. This induces them to share a common perception of perceiving the regulatory uncertainty as non-threatening. This perception builts on a combination of three perspectives which clarifies their confidence: an opportunity, expertise, and to a lesser extent an indifference perspective.

Guided by the framework of Engau and Hoffmann (2011), the analysis revealed a general strategic behaviour complemented with different strategic postures. These strategic postures are passive independents (organisations with low dependency on carbon markets aiming to follow developments solely), adapters (small organisations aiming to gain resilience towards the regulatory uncertainty), and frontrunners (large organisations aiming to influence outcomes of the regulatory uncertainty). Dutton et al. (1990) and Thomas et al. (1993) argued that firms show a low willingness to respond to regulatory uncertainty when they do not perceive it as a threat. This study disagrees with their arguments as most project developers are heavily involved in strategies to cope with the regulatory uncertainty while they do not perceive the uncertainty as a threat. The project developers are found to respond to the regulatory uncertainty by engaging in strategies related to avoiding, reducing, adapting, and disregarding responses. With their strategies, they prioritise dealing with the basic direction and measures and rules of the policies which confirm Hoffmann et al.'s (2008) proposition that their taxonomy is of hierarchical order.

Perspective of opportunity

From their perspective of opportunity, the project developers perceive the market opportunities to be more important than potential risks associated with uncertainty resulting in favouring a focus on opportunities. The results show that all interviewed project developers perceive the regulatory uncertainty with an opportunity perspective. They choose a disregarding response by pursuing no-regret moves e.g. expanding operations. A dominant factor in this is the market's rapid growth in the last couple of years that overrules potential risks of regulatory uncertainty for the project developers. This confirms primer research of Bui and De Villiers (2017). They argued that firms could still decide to invest when opportunities dominate perceived risks in the context of regulatory uncertainty. However, these authors also stated that when firms expect a short endurance of uncertainty, they are more prone to continue to respond to market opportunities. The results do not support this argument since the uncertainty for project developers is already of significant duration with a chance of even more extension while their investments have a substantial long pay-back period. An explanation for that the project developers still favour their focus on opportunities can be found in the signals they receive from both political and market agencies. These agencies have stressed multiple times that carbon offsetting must have a place in the new climate regime of the Paris Agreement (Gold Standard, n.d.; Hamrick & Gallant, 2017; ICROA, 2017; United Nations, 2015). This corroborates with the findings of Kolk and Mulder (2011). They stressed the importance of a positive signal for future market's existence for a firm's trust in the future.

The strong influence of this perspective is also notable in the fact that frontrunners are pursuing strategies with, at first sight opposite goals. For instance, several frontrunners avoid countries they find too risky while simultaneously continuing with activities to reduce the uncertainty in these countries. They follow this path because the projects in these countries are still very much in demand among customers. Hence, they are hoping to find a reduction in the risks that would give the green light to start investing there again. The finding that projects developers are pursuing both avoiding and reducing responses simultaneously, disagrees with results of Engau and Hoffmann (2011). These authors state that avoiding and reducing responses are usually in conflict with each other because firms tend to rather reduce than avoid uncertainty. This study shows that these strategies can co-exist with each other as they are pursued for different purposes.

Perspective of expertise
Given the project developers have substantial experience with previous uncertainties and in some cases knowledge on the current uncertainty, they tend to perceive regulatory uncertainty from an expertise perspective. The results indicate this perspective is broadly shared among project developers, although it is the strongest among the frontrunners. This is because the frontrunners are pursuing cooperative and influencing strategies by engaging in a variety of industry associations and obtaining influential positions in the political process. Therefore, they benefit from useful information sources.

In literature, there is ambiguity on whether and to what extend organisations learn from previous experiences with uncertainties and use this in facing future uncertainties (Barr, 1998; Engau & Hoffmann, 2011; Helfat, 1994; Lopez et al., 2017; Porter & Van der Linde, 1995). The findings in this thesis suggest the existence of a correlation of firms' previous experiences with uncertainties and their coping with current regulatory uncertainty. For instance, all project developers are found to be highly risk-averse while developing new projects. They have learned from previous uncertain periods e.g. the collapse of the CDM or price volatiles that speculating in this market is dangerous. They are used to executing investigation strategies e.g. risk assessments to reduce uncertainties before they initiate a project. Further, the vast majority has adapted to uncertainties and diversified their income sources to be more flexible. In addition, the adapters have learned to arrange long-term purchase agreements with clients to stabilise uncertainties. The frontrunners learned to adjust their internal organisation design to be able to follow all the developments. This corroborates with findings of Dixit and Pindyck (2012) and Helfat (1994) who suggested firms can learn from previous experiences which makes them more capable of making a future decision regarding uncertainties.

Perspective of indifference
At last, several project developers are found to perceive the regulatory uncertainty from a perspective of indifference. From this perspective project developers are confident they will be hardly affected no matter how the uncertainty resolves. This perspective is the strongest with organisations that have a low dependency on carbon markets. Hence, the passive independents show the greatest presence of this perspective and are therefore the

least involved in strategies to cope with the regulatory uncertainty. Anderson and Paine (1975) and Bourgeois (1985) argued that a firm would be less willing to cope with the uncertainty when they do not perceive the uncertainty to be high. This study does not fully support their argument. Although the passive independents show a low willingness to cope with the regulatory uncertainty, they still perceive a high degree of regulatory uncertainty. They simply do not care that much since they think they will be barely affected regardless of how the uncertainty resolves.

An indifference perspective is also found among other project developers. For example, most project developers seem to be fully convinced their clients would follow blindly even when the market will take the pathway where carbon neutrality cannot be claimed anymore. This is remarkable since many in the industry agree that claiming carbon neutrality is important for corporations, and it is widely used as a clear communication tool. This raises questions on whether they are not over-confident. Although some of them have checked this with their customers, others seem to base their confidence solely on the assumption that carbon neutrality is not important for their clients. The latter ones await and postpone preparing their clients because they find the uncertainty of which pathway will be chosen is still too high. This high trust in their client relationships could bear potential risks and is contradicting their typical risk-averse behaviour.

The fact they tend to invest in strong client relationships could partially explain their confidence. Bar (1998) suggested that firms could perceive uncertainty as less harmful when their previous investments enhance their current position when facing uncertainties. When following this logic, the project developers could perceive their position towards regulatory uncertainty to be strong because they have invested in their client relationships. On the other hand, the findings of Dierickx and Cool (1989) stated that firms tend to act the same as they are used to. This would suggest the project developers are simply not used to involve their clients on such complex matter and continue to do so even when it could bear more risks. In the case of the project developers, both logics might apply. Hence, some ambiguity remains on how well the project developers learned from past events and experiences and use these in their coping with current uncertainties.

5.2 Theoretical contributions

First, this study makes a valuable contribution to the theory of regulatory uncertainty by adding evidence of another case to the literature. The case of the Paris Agreement is particularly valuable because it constitutes not only a case of severe regulatory uncertainty, it also implies a transition from one major international governance regime to another. This is unique by itself. Furthermore, the studied actors in this case, the project developers, are highly experienced in dealing with uncertainty. This makes the studied case even more valuable since it gives a unique insight into the behaviour of experts who are confronted with regulatory uncertainty.

Second, previous literature such as Engau and Hoffmann (2009; 2011) studied cases where regulatory uncertainty was perceived as threatening. This research contributes to the literature by providing a typology of perspectives for a case where the regulatory uncertainty is perceived to be high as well as non-threatening. In this situation, regulatory uncertainty could be perceived by firms through a perspective of opportunity, expertise, indifference, or a combination of these three. The proposed typology could be helpful in clarifying cases where actors pursue simultaneously distinct strategies with opposite goals while being exposed to regulatory uncertainty. For, instance, it could clarify why firms choose to continue with expanding while being exposed to severe regulatory uncertainty. Alternatively, it could explain why firms claim to be unconcerned yet still choose to be heavily engaged in strategies to cope with the regulatory uncertainty.

Third, the taxonomy of regulatory uncertainty developed by Hoffmann et al. (2008) is extended by adding multiple levels of policymaking in which regulatory uncertainty can occur. Hoffmann et al. (2008) argued that this taxonomy is particularly useful to research one type of regulation developed on a single policymaking level. For instance, the authors developed this taxonomy through their analysation of the regulatory uncertainty of the European Union emission trading scheme. This scheme was developed through policymaking on a single level: the European Union (Hoffmann & Trautmann, 2008). With as a result, the taxonomy contains a single level of policymaking solely (Hoffmann, et al., 2009). However, this study shows the taxonomy is also applicable to a broad international treaty with correlating emergent policies on a national level. Hence, this research extends this taxonomy by adding several levels of policymaking in which regulatory uncertainty about an international treaty can occur: a global and a national level of policymaking. More levels could be added when the taxonomy is used to other international treaties that constitute one type of regulation yet include several correlated policies developed on various levels.

At last, a contribution is made to literature on strategic responses to regulatory uncertainty by emphasising the importance of prior experiences and strategic actions when analysing firms' behaviour under regulatory uncertainty. Previous literature remained ambiguous whether and to what extent prior experience with uncertainties or historical actions are influencing firms' responses to regulatory uncertainty (Barr, 1998; Engau & Hoffmann, 2011; Helfat, 1994; Lopez et al., 2017; Porter & Van der Linde, 1995). Hence, this study contributes by giving evidence of how actors are in fact, applying their experience from and strategic actions during past (regulatory) uncertainties while coping with the uncertainty they currently face. In addition, they show great confidence their clients will stay even when the pathway is chosen where carbon neutrality will be harder to claim. Hence, as discussed before, some ambiguity remains into what extent the project developer's confidence in dealing with the regulatory uncertainty is justified and what role their experience plays in this matter.

5.3 Managerial implications

This study yields several insights that can help managers of project developers or other actors in the voluntary market in their coping with regulatory uncertainty. However, this research will also be valuable for new entrants in the market. Given the strong growth of the voluntary market and the rise of the public's awareness of climate action, it will not be surprising if new organisations are making their entrance in this market.

At first, this thesis offers strategic insights from actors that are mature organisations with extensive experience of operating in carbon markets that are known for their uncertainty. As mentioned before, the voluntary market has practically been neglected so far by researchers. Hence, knowledge on ways to cope with regulatory uncertainty or uncertainty in general in the voluntary market has remained out of reach for managers of project developers. The comprehensive overview of the taken strategies in conjunction with the logic behind these strategies provide great educational potential. The discussed three strategic postures provide examples of how organisations are dealing with the regulatory uncertainty and what their specific goals are.

Second, this thesis would like to emphasise the potential risks of the high confidence that many project developers seem to be exhibiting. In particular, the fact that several project developers assume their clients would stay with them no matter what pathway will be chosen bears risks that might have been unnoticed so far. Assuming the clients will follow blindly even when carbon neutrality cannot be claimed anymore while not checking with their clients or preparing them for the change, is speculation. Since it remains largely unknown how the corporations are perceiving the future pathways, it could be particularly useful to question their opinions. Especially given many of the project developers are expanding with new projects aiming at a future with even higher demand for offsets. In addition, all project developers should be aware the voluntary market will inevitably be more subject to policy pressure in the future. With as a result, the project developers could face more regulatory uncertainty in the future.

5.4 Limitations of research

Besides the limitations of the chosen methods discussed in the methodology chapter, this study also contains limitations in the chosen research scope.

At first, the sampling selections include limitations as the choice has been made to focus on solely one type of actor and predominantly in one region: project developers in the voluntary market in Europe. This provided the possibility to dive deep into the strategic behaviour of one type of actor active in a major voluntary market. As a result, differences in the strategic choices of these actors are accentuated, which at first glance seemed to be very homogeneous. However, it is highly likely the Paris Agreement will also cause substantial

regulatory uncertainty for other actors in the voluntary market and in voluntary markets in other regions. Hence, potential differences in the strategic behaviour in types of actors and voluntary markets are excluded from the analysis.

Second, this study aimed to explore whether and how regulatory uncertainty is perceived and the strategic responses this provoked. Hence, this study focused primarily on discovering patterns between the uncertainties and behaviour among the project developers. The role of cultural or national differences that might influence their perceptions and strategic responses to regulatory uncertainty were left out of the scope.

5.5 Recommendations for future research

The above-described limitations provide anchors for future research:

Future research could further assess the relative importance of the perceptions, perspectives, and responses by using statistical methods such as surveys. Actor type and regional-level could be used as a control variable. For instance, other types of actors such as brokers and retailers of carbon credits, consultants, auditors or investors could be included to research differences and similarities in coping with the regulatory uncertainty in the voluntary market. Other regional voluntary markets could be added to assess how differences in regional market characteristics influence strategic behaviour towards the regulatory uncertainty with the Paris Agreement. An interesting choice would be to concentrate on voluntary markets in Europe, South-America and Asia to examine potential differences in coping with the regulatory uncertainty. These regions have active voluntary markets of significant size hereby providing sufficient potential data to collect. The market in the United States could be an interesting market as well to incorporate in such a study. However, future researchers should keep in mind the country's withdrawal from the Paris Agreement.

On a micro level, the influence of organisational capabilities, cultural differences and experience with previous uncertainties on the project developers' behaviour could be further researched. This would further enhance the understanding of the strategic behaviour of the project developers. This study suggests a research design with a mix of conducting interviews and participant observations at key project developers in different countries. This will allow gaining a more thorough understanding of the potential role cultures and experiences have on the project developer's strategic decision-making. Future research could focus on several key countries that play a dominant role in the European voluntary market to study cultural differences. These could be the United Kingdom, Germany, Switzerland and Spain. Alternatively, the focus could be on classical opposites e.g. West- against East-Europe or North- against South-Europe. For studying experiences, this study recommends emphasising on differences in the strategic behaviour of actors that have been highly active in the CDM market and those that have not been operating in this market.

Chapter 6

Conclusion

Carbon offset project developers in the voluntary carbon market are facing substantial regulatory uncertainty due to the shift from the Kyoto protocol to a new climate regime under the Paris Agreement. Regulatory uncertainty has a significant impact on organisations who are exposed to it, and it determines their strategic behaviour. Carbon markets are known for their uncertainty, and in particular the project developers have been dealing with uncertainty multiple times. Prior research has concentrated on studying regulatory uncertainty and strategic behaviour of industries in compliance carbon markets. Regulatory uncertainty in the voluntary market has not been studied so far while especially this market is facing severe uncertainty. In addition, there is limited attention in academic research on the strategic behaviour of organisations who are experienced in operating in carbon markets. This is the research gap this study dived in.

This research addressed this gap by aiming to examine how project developers in the voluntary carbon market are perceiving and responding to regulatory uncertainty hereby building and enriching theory on regulatory uncertainty. Given the project developers are experts in dealing with uncertainty, it is in particular valuable to study their behaviour. The strategic behaviour of 17 project developers has been analysed by conducting a qualitative study. This research entailed 17 semi-structured interviews complemented with three validation interviews, secondary data, and observations at a project developer. Collecting data through mixed methods allowed this study to generate profound insights and knowledge on the strategic thinking and actions of the project developers. Based on this analysis, it can be concluded that the project developers perceive the regulatory uncertainty as non-threatening. Although there is high uncertainty mainly concentrating on the basic direction and measures and rules of the new policies, they have trust in a positive outcome of the uncertainty. Further, they show confidence in their ability to cope with regulatory uncertainty. The project developers are found to respond to the uncertainty both generally in a similar way as more distinctively through three strategic postures, each pursuing a different goal. Three perspectives prompt their perception and strategic actions: an opportunity, expertise, and to a lesser extent, an indifference perspective.

This thesis contributes to the theory of regulatory uncertainty by elucidating the unique behaviour of the project developers who are facing substantial uncertainty yet seem to be rather unconcerned. It shows how high market potential leads the project developers to perceive the market opportunities to be more important than potential risks associated with the uncertainty. With as result that most of them are expanding their operations hereby disregarding the uncertainty. This study also demonstrates the project developers to be highly risk-averse as it comes to uncertainty and project development. They are used to pursue extensive risk assessments aiming to reduce any uncertainties when developing a project. This risk-averse behaviour originates from their expertise perspective built on experiences with previous uncertainties. Through this perspective, most project developers are found to be engaged in adapting responses to uncertainties by diversifying their revenue or portfolio. Further, this thesis explains how some project developers are confident that they will not be affected by regulatory uncertainty. This perspective of indifference is most common among project developers who are less dependent on carbon markets. Besides the identification of different perspectives and general behaviour, three distinct strategic postures emerged from the analysis as well. These postures are passive independents, adapters, and frontrunners.

The passive independents are organisations with a low dependency on carbon markets, given they are primarily consultants or developing organisations. Hence, the indifference perspective is found to be the most present among these project developers. Passive independents aim to follow the developments around the regulatory uncertainty solely. With as a result, they are the least engaged in strategies to cope with the uncertainty and are mainly occupied with continuing their regular activities. Adapters are mostly small project developers with limited resources aiming to gain resilience towards the regulatory uncertainty. They perceive the uncertainty from an opportunity and expertise perspective and to a lesser extent, an indifference perspective. They are enhancing their resilience by engaging in reducing and adapting responses e.g. investigating developments or diversifying their project and service portfolio. The frontrunners are large project developers with abundant resources aiming to primarily influence the outcome of the regulatory uncertainty. All three perspectives are found with these organisations, yet their expertise perspective is the strongest. Besides tending to influence the political processes hereby reducing or avoiding uncertainties, they are adapting to the uncertainty by engaging in industry associations to develop solutions and are setting up teams to follow all the developments.

A final interesting point of attention is the great confidence of the project developers itself. Most project developers are found to have confidence in their client relationships and assume their clients will follow them no matter how the uncertainty resolves. This bears potential risks given one of the possible outcomes of the uncertainty is that carbon neutrality cannot be claimed anymore. It is widely acknowledged that claiming carbon neutrality is an important motivation for corporations to buy offsets. Hence, the choice of several project developers to postpone preparing their customers on this potential outcome while simultaneously expanding their operations bears potential risks.

Based on these conclusions, this thesis recommends managers to be alert on the uncertainties in relation to their client's behaviour since it remains largely unknown how offset buyers perceive the different pathways the voluntary market could take. Therefore, in addition to the research suggestions in the discussion chapter, the behaviour of offset buyers in view of the regulatory uncertainty in the voluntary market could be an interesting subject of study.

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Appendix A

Interview invitation

Dear . . . ,

My name is Bartjan van Agten, MSc student in Sustainable Business and Innovation Utrecht University the Netherlands.

I'm currently busy with collecting primary information for a novel research in the field of strategies for the post-2020 carbon market. This research is based on the expertise of the project developers' management, such as you. It would be great to get to hear your thoughts and insights as your input is essential given your position as a senior manager at ...

The MSc thesis research revolves around gaining insights into the strategic thinking and behaviour of actors in a transitioning market highly influenced by (international) policies. More specifically, around project developers' strategies for post-2020. This research will give unique insights into how project developers are moving and positioning themselves in order to be ready for post-2020.

Because this novel research requires interviews with senior management, I wonder if I could converse with you through either phone or Skype, maximum 60 minutes. In return, I will share the findings with you, if interested. Also, if requested, I will treat the info anonymous, or I can sign an NDA.

The context of the research is as follows: The voluntary offset market is changing due to new (global) policies and several developments. Much research has been conducted on how the market could develop in the coming years; whereby different possible routes have emerged. However, it remains unclear how the actors in the field, the project developers, are perceiving these developments and are anticipating the future. This is the gap where my research will dive into.

I would be greatly thankful to get to know your insights and expertise.

Warm greetings, Bartjan van Agten

Appendix B

Interview guide sent to the interviewee

Research set up:

The voluntary carbon offset market is changing due to new (global) policies and several developments. Much research has been conducted on how the market could develop in the coming years; whereby different possible routes have emerged. However, it remains unclear how the actors in the field, the project developers, are perceiving these developments and are anticipating on the future. This is the gap this research will dive into.

Interview questions:

Intro

- What is your position at your organisation?
- How long have you been working at your organisation?
- Where are most of your clients located?
- What is your motivation (or mission) as project developer?
- What is the key activity from your business looking at all the services you offer?

The future of the market

- What are for your organisation the most important developments in the carbon markets for the future of your company?
- How are these new developments affecting your organisation?

- How is your organisation looking at the upcoming changes of the Paris Agreement?

Preparation for the future

- What are your organisation's strategies for dealing with the Paris Agreement?
- Are you changing your operations or business model?
- Are you expanding your activities?
- How did your organisation prepare themselves for new developments in the past?

Closure

- Any recommendations whom to speak next?
- Any documents or publications I must read?

Appendix C

Interview guide for the researcher

The italic questions were questions that were not part of the interview guide that was send to the interviewee.

Preliminary research before entering the interview:

- Where are most of the projects located?
- What kind services does the organisation provide?
- How long does the organisation exists?
- Is the organisation a for- or non-profit organisation?
- How is the performance in terms of revenue or scale?
- Who are the organisation's partners?

Interview questions:

Intro

- How long have you been working at your organisation?
- Where are most of your clients located?
- What is your motivation (or mission) as project developer?
- What is the key activity from your business looking at all the services you offer?

The future of the market

- What are for your organisation the most important developments in the carbon markets

for the future of your company?

- How are these new developments affecting your organisation?
- How is your organisation looking at the upcoming changes from the Paris Agreement?

Preparation for the future

- What are your organisation's strategies for dealing with the Paris Agreement?
- Are you changing your operations or business model?
- Are you expanding your activities?
- *Do you talk with your clients and other stakeholders about the future?*
- How did your organisation prepare themselves for new developments in the past?

Uncertainty

- *What is for your organisation specific uncertain at the moment?*
- *What is the level of perceived uncertainty for your organisation?*
- *How does your organisation cope with this uncertainty?*
- *How did your organisation cope with uncertainty before?*
- *Do you expect changes in (perceived) uncertainty in the near future?*

Closure

- Any recommendations whom to speak next?
- Any documents or publications I must read?

Appendix D

Coding conceptualisation

Codes	Axial coding	Selective coding
• Uncertainty about article 6.4 • Uncertainty about future of carbon markets • Uncertainty about NDC coverage • Uncertainty about restrictions for carbon offset activities in countries	Basic direction of the Paris Agreement and NDCs	Regulatory uncertainty concentrates on basic direction and measures and rules
• Uncertainty the Paris Agreement Rulebook • Uncertainty about similar errors as with the CDM in Article 6 • Uncertainty about monitoring rules with NDCs	Measures and rules of Paris Agreement and NDCs	
• Uncertainty about length and adjustments during implementation process • Uncertainty how the CDM and other regulations will be converted into the new policies	Implementation process and interdependence with existing rules	
• Strong growth in demand for offsets • Market was always slow until now • Future potential coming from compliance markets • There will be a place in the future for the voluntary market	Opportunity perspective	Perceiving regulatory uncertainty as non-threatening
• Collapse of CDM market • Stepping over on voluntary market • Strong cohesion in market • Uncertainty is common in carbon markets • Experience • Knowledge on current uncertainty • Working long in carbon markets	Expertise perspective	

• Voluntary market is partly disentangled • Not affected due to low dependence of carbon market • Consultancy is more important	Indifference perspective	
• No drastic adjustment to business model or operations • Awaiting on policy certainty • Communication with clients	Avoiding	General strategic behaviour
• Following political processes • Risk assessments • Be cautious and grow slowly • Long pay-back period of investments	Reducing	
• Diversifying in revenue	Adapting	
• Assuming clients will follow • Carbon neutrality is important • Expanding operations	Disregarding	
• Paris Agreement is less important • Revenue mainly from other sources • Few projects • Passive attitude	Organisational perspective	Strategic posture: passive independents
• Following the discussions	Reducing	
• Confidence in industry bodies • Continue with regular activities	Disregarding	
• Small organisations • Limited resources • Reactive attitude	Organisational perspective	Strategic posture: adapters
• Long-term purchase agreements	Avoiding	
• Following political processes • Joining industry conferences • Focus only on important topics	Reducing	
• Diversifying in portfolio and services • Diversifying in areas	Adapting	
• Confidence in industry bodies • Delivering services on highest services is the only thing we can do	Disregarding	
• Large organisations • Abundance resources and knowledge • Proactive attitude • Global presence	Organisational perspective	Strategic posture: frontrunners
• Co-creating policies • Avoiding high-risk countries • High demand for projects in risky countries • Global portfolio can balance out risks	Avoiding	

• Monitoring developments • Lobbying • Consulting countries on policies	Reducing	
• Engaging in industry associations • Participating in industry discussions • Diversifying portfolio and services • Diversifying in areas • Decentralisation with regional offices or teams	Adapting	
• Focussing on least developed countries • Focussing on nature-based solutions	Disregarding	

Appendix E

Evidence for regulatory uncertainty

Categories of regulatory uncertainty	*Exemplary quotes*
Global level: Basic direction	The uncertainty about the future of the carbon market. So how is [it] going to be shaped, is it going to be [a] compliance market? (Earthpower, personal communication, February 11, 2020)
	There is an uncertainty on the Paris Agreement rulebook, on article 6...So everybody's waiting for [article] 6.4. Yeah, and that is, of course, the big crystal ball. Will we ever get the 6.4 rulebook? (Climate Company, personal communication, March 26, 2020).
National level: Basic direction	There is a lot of certainty now because it's also not that clear what is covered by an NDC and what is not covered. (InCarbon, personal communication, March 3, 2020)
	There could be a problem when countries decide to count the emission reductions of our projects to their [inventory]...then it will [be] more complex to export our credits with a potential consequence that investments in the way we are used to are not possible anymore. (Saving Environment, personal communication, March 24, 2020)

	In the coming years countries will develop lots of new policies to align with their Paris [Agreements] targets. This may be [compliance schemes], voluntary schemes, carbon taxation laws where you can offset your taxes and even domestic regional markets as in France for example. (Lowcarbon, personal communication, February 2, 2020)
Global level: Measures and rules	Well, one is of course, how the Paris Agreement rulebook will look like. It is very important for us to see how projects will be possible in future. (WeAreNature, personal communication, March 23, 2020)
	I mean, for instance, the way they are building up the article 6, I am afraid that they will repeat some errors of the CDM. (Carbon Capital, personal communication, May 22, 2020)
National level: Measures and rules	So, I would say that we need really that kind of security, how the NDCs will be monitored because it will be easier for us to, to align our activities to what is already [be] monitored. (Allcot, personal communication, May 25, 2020)
Global level: Implementation process	I hope that we will have an agreement in Glasgow to really get this off the ground. But it'll take a couple of years for that to really truly get off the ground in the same way that the CDM did... (Lowcarbon, personal communication, February 5, 2020)
National level: Implementation process	...and the mechanisms that will be chosen typically will be of three or four times amended... (Next World, personal communication, April 4, 2020)
Global level: Interdependence with existing regulations	One of the risks that we see...at the moment is...if the current CDM projects will not be able to convert to a new mechanism. (Climate United, personal communication, February 2, 2020)

	If [the] CDM became eligible under the Paris Agreement, it could become an issue. Right, because now you've got an offset project. That was under the CDM. That wasn't meant to count under [the target of a host country]. It was designed under the Kyoto Protocol in which there were no limits in poor countries. And [now], under the Paris Agreement, there are limits in poor countries so it could come up. We haven't dealt with it. (Strong Earth, personal communication, March 31, 2020)
National level: Interdependence with existing regulations	...for the next 10 years and beyond, countries will have to provide the United Nations with their emission reduction targets as well as other targets related to climate change. So this will, in turn, encourage the development and proliferation of various mechanisms that will be implemented by various jurisdictions to enable them to meet their targets and or the changes that will affect existing regularly regulations that are already in places that have been in place for the past 10, 15 years. (Next World, personal communication, April 4, 2020)

Appendix F

Typologies of perspectives

Perspectives for perceiving regulatory uncertainty as non-threatening	*Exemplary quotes*
Perceiving uncertainty from an opportunity perspective	We see there is a lot of interest, despite the uncertainty because companies want to move ahead, and they want to do something, and this is not going away. They know that something must be done with the forests and that emissions must [be] reduced. So, in any case it would be a good thing to [continuing] contributing to forest restoration. (Earthpower, personal communication, February 2, 2020) I look at…in a positive way in that we could have stopped them [our projects] at all…I don't have clarity about [the] NDCs. You know what, let's wait until we get clarity…And we can be weakened waiting for years and years…until we get clarity to be honest. And in the meantime, the last couple of years we've invested in communities, generate employment, we fixed hundreds of boreholes, supply millions of litres of clean water to communities and save lots of carbon. (Lives Matter, personal communication, April 22, 2020)

Perceiving uncertainty from an expertise perspective	What I see is that countries are supposed to find a solution during the climate summit. One solution was almost there in the last climate summit, but in the final moment Brazil and Australia refused it. Probably in the next [climate summit] we will see some solutions, some sorting out, but if it's the case [that they don't find a solution], then...VERRA and Gold standard and others will find solutions so that countries do not take into account their credit twice. (Carbon Capital, personal communication, May 22, 2020)
	...one way or the other, the voluntary market will still exist, I mean, people will still want to voluntary offset... So of course, you will always have the opportunity to have a voluntary subset of people willing to buy emissions reductions in simple projects just to do that and talk about it. Whether it is onto a carbon-neutral banner or not...that will depend, but there will always be a voluntary market as long as there are emissions out there that need to be reduced. (Next World, personal communication, April 4, 2020)
	...we've got these 15 years of experience with the CDM. And we have been able to migrate to other standards...for us probably it's not a big concern, because we know, more or less how it will look like...but obviously we need all [these] countries to achieve an agreement. (Allcot, personal communication, May 5, 2020)
	But basically, what we continue to do is we work with corporate business partners for many years. And that is, I think our added value that clients who tend to trust us after all these years of collaboration, and that is our, I would say, asset. Whatever changes that are out there in the world, we will guide our corporates through those troubled waters, so to say. (Climate Company, personal communication, March 24, 2020)
Perceiving uncertainty from an indifference perspective	We think that there are no developments coming in the next years, which has a big impact on our business. (Protecting Nature, personal communication, March 27, 2020)

Yes there are going to be [a] lot of changes in the carbon markets. But for us it will not be very crucial. We have other sources of income as well...development assistance and donations. Carbon markets are an interesting source of [income], but we cannot rely totally on them. Our programmes are too expensive for that. (InCarbon, personal communication, March 10, 2020)